UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number **333-254886**

SEQLL INC.
(Exact name of registrant as specified in its charter)

Delaware	**46-5319744**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification Number)
3 Federal Street, Billerica, Massachusetts	**01821**
(Address of Principal Executive Offices)	(Zip Code)

(781) 460-6016
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, par value $.00001 per share	SQL	The Nasdaq Stock Market LLC
Warrants to purchase Common Stock	SQLLW	The Nasdaq Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large accelerated filer	☐	Accelerated filer	☐
Smaller reporting company	☒	Non-accelerated filer	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes ☐ No ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant was approximately $4,786,725 based on the closing price on the Nasdaq Capital Market as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter.

There were 13,886,379 shares of the registrant's common stock, $0.00001 par value, outstanding as of March 15, 2023.

SEQLL INC.
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As used in this Annual Report on Form 10-K, the terms "we", "us", "our" and the "Company" mean SeqLL Inc. and its wholly owned subsidiary SeqLL, LLC, taken as a whole (unless the context indicates a different meaning).

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements that involve substantial risks and uncertainties. The forward-looking statements are contained principally in the sections titled “Business,” “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” but are also contained elsewhere in this report. In some cases, you can identify forward-looking statements by the words “may,” “might,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “objective,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue” and “ongoing,” or the negative of these terms, or other comparable terminology intended to identify statements about the future, although not all forward-looking statements contain these words. These statements relate to future events or our future financial performance or condition and involve known and unknown risks, uncertainties and other factors that could cause our actual results, levels of activity, performance or achievement to differ materially from those expressed or implied by these forward-looking statements. These forward-looking statements include, but are not limited to, statements about:

- the success, cost and timing of our product development activities, including statements regarding the timing of initiation and completion of our research and development programs;
- developments regarding next generation sequencing technologies;
- our expectations regarding the market size and growth potential for our business;
- the implementation of our strategic plans, including strategy for our business and related financing;
- our ability to maintain and establish future collaborations and strategic relationships;
- the rate and degree of market acceptance of our products;
- our ability to generate sustained revenue or achieve profitability;
- the potential for our identified research priorities to advance our technology;
- the pricing and expected gross margin for our products;
- our commercialization, marketing and manufacturing capability and strategy;
- our research and development plans including, among other things, statements relating to future uses, quality or performance of, or benefits of using, products or technologies;
- updates or improvements of our products;
- intentions regarding seeking regulatory approval for our products;
- our competitive position;
- our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for, or ability to obtain, additional financing as necessary; and
- our ability to maintain our intellectual property position for our technology.

You should read this report, including the section titled “Risk Factors,” and the documents that we reference elsewhere in this report and have filed as exhibits to this report completely and with the understanding that our actual results may differ materially from what we expect as expressed or implied by our forward-looking statements. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all.

These forward-looking statements represent our estimates and assumptions only as of the date of this report regardless of the time of delivery of this report. Except as required by law, we undertake no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise after the date of this report. All subsequent forward-looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to herein.

SUMMARY RISK FACTORS

Our business is subject to varying degrees of risk and uncertainty. Investors should consider the risks and uncertainties summarized below, as well as the risks and uncertainties discussed in Part I, Item 1A, “Risk Factors” of this Annual Report on Form 10-K. Additional risks not presently known to us or that we currently deem immaterial may also affect us. If any of these risks occur, our business, financial condition, or results of operations could be materially and adversely affected.

Our business is subject to the following principal risks and uncertainties:

- As we have incurred recurring losses and negative cash flows since our inception, there is no assurance that we will be able to continue as a going concern absent additional financing.
- We are an early, commercial-stage company with a limited operating history.
- If our tSMS sequencing instruments or sequencing services fail to achieve and sustain sufficient market acceptance, we will not generate expected revenue and our business may not succeed.
- Our research and development efforts may not result in the benefits we anticipate, and our failure to successfully market, sell and commercialize our current and future sequencing instruments and services products could have a material adverse effect on our business, financial condition and results of operations.
- If we are unable to successfully develop and timely manufacture our sequencing instruments and reagents, our business may be adversely affected.
- We must successfully manage new product introductions and transitions related to the tSMS technology, we may incur significant costs during these transitions, and they may not result in the benefits we anticipate.
- We rely on other companies for certain components and materials and intend to outsource sub-assembly manufacturing in the future. We may not be able to successfully assemble or manufacture reagents and instruments or scale the manufacturing process necessary to build and test multiple products on a full commercial basis, which could materially harm our business.
- We may be unable to consistently manufacture our instruments and reagents to the necessary specifications or in quantities necessary to meet demand at an acceptable cost.
- Increased market adoption of our products by customers may depend on the availability of sample preparation and informatics tools, some of which may be developed by third parties.
- Single molecule sequencers are highly complex, have recurring support requirements and could have unknown defects or errors, which may give rise to claims against us or divert application of our resources from other purposes.
- If we lose members of our senior management team or other key personnel or are unable to successfully retain, recruit and train qualified scientists, engineers and other personnel, our ability to maintain and develop our products could be harmed and we may be unable to achieve our goals.
- A significant portion of our potential sales depends on customers’ spending budgets that may be subject to significant and unexpected variation which could have a negative effect on the demand for our products.
- We are, and may become, subject to governmental regulations that may impose burdens on our operations, and the markets for our products may be narrowed.
- Our sales cycle is unpredictable and lengthy, which makes it difficult to forecast revenue and may increase the magnitude of quarterly or annual fluctuations in our operating results.

For a more detailed discussion of these risks and uncertainties, you should consider, you are urged to carefully review, the risk and uncertainties described under Part I, Item 1A, “Risk Factors” of this Annual Report on Form 10-K.

GLOSSARY OF CERTAIN SCIENTIFIC TERMS

The medical and scientific terms used in this report have the following meanings:

"Bioinformatics" means a subdiscipline of biology and computer science concerned with the acquisition, storage, analysis, and dissemination of biological data, most often DNA and amino acid sequences.

"cDNA" means complementary DNA created from RNA through the use of reverse transcriptase.

"DNA" means deoxyribonucleic acid, a self-replicating material present in nearly all living organisms as the carrier of genetic information.

"Double helix" is a structure formed by a pair of parallel helices intertwined around a common axis. DNA is a double helix.

"DRS" means Direct RNA Sequencing, a method for sequencing RNA molecules without conversion to complementary DNA ("cDNA") or amplification via PCR.

"Epigenetic" is the changes in gene expression that do not involve changes in the DNA sequence.

"FDA" means the U.S. Food and Drug Administration.

"Flow cell" means an optical cell used for detection and measurement of biological samples.

"Gene" is a portion of a DNA that serves as the basic unit of heredity.

"Gene expression" is a process by which information from a gene is used for the synthesis of a functional product.

"Genome" is an organism's complete set of DNA.

"Genomics" refers to the study of all an organism's genetic material and their interactions to influence the organism. Large-scale studies are required to understand how changes in an organism's genes influence the organism.

"Helix" is an extended spiral chain of molecules.

"LDT" means Laboratory Developed Tests.

"Ligation" is a process of joining two DNA strands by chemical linkage.

"Microfluidics" is the science of manipulating and controlling fluids, usually in very small ranges.

"Next Generation Sequencing" means a high-throughput sequencing to sequence DNA and RNA molecules much more quickly and cheaply than the previously used techniques.

"NGS" means Next Generation Sequencing.

“Nucleic Acid” means a complex organic substance present in living cells, such as DNA or RNA.

“Nucleotide bases” or “Nucleotides” are building blocks of nucleic acids and include adenine (“A”), cytosine (‘C”), guanine (“G”), thymine (“T”) and uracil (“U”).

“Omics” refers to various different biological analyses approaches whereby researchers can analyze complex biological data, often in high throughput methods, to find novel associations between biological entities, pinpoint relevant biomarkers and build elaborate markers of disease and physiology. Examples of various “omics” analyses include: genomics, proteomics, transcriptomics, epigenomics, and metabolomics. When two or more of the -omics analyses approaches are combined either directly in analyses and/or in examination of -omics data sets, the approach is referred to as “multi-omics.”

“PCR” means Polymerase Chain Reaction, which is a technique used to generate multiple copies (thousands to millions) of DNA sequences.

“Proteomic(s)” refers to the large-scale study of proteins. The proteome is the entire set of proteins that is produced or modified in an organism or system.

“RNA” means ribonucleic acid, a material present in all living cells which acts as a messenger carrying instructions from the DNA for controlling the synthesis of proteins.

“RNA-Seq” means RNA Sequencing, an NGS method that involves the conversion of RNA into cDNA for subsequent sample preparation and sequencing.

“Throughput” refers to the rate at which an assay can be performed during a given time period.

“Transcript” is a single stranded RNA synthesized by transcription of DNA.

“Transcriptome” refers to the sum of all RNA molecules, inclusive of noncoding and coding RNAs, that are contained within a population of cells or a single cell.

“tSMS” means True Single Molecule Sequencing.

PART I

BUSINESS

ITEM 1. BUSINESS

Overview

We are an early commercial-stage life sciences instrumentation and research services company engaged in the development of scientific assets and novel intellectual property across multiple “omics” fields. We leverage our expertise with True Single Molecule Sequencing (tSMS) technology enabling researchers and clinicians to contribute major advancements to scientific research and development by accelerating one’s understanding of the molecular mechanisms of disease and fundamental biological processes. We believe our proprietary sequencing technology platform has critical advantages over existing NGS (Next Generation Sequencing) technologies, particularly for emerging applications in the research and development of biomarker discovery, epigenetics, nucleotide chemistry, forensics, and cell-free nucleic acid analysis. Our mission is to empower researchers with improved genetic tools that enable scientists and physicians to better understand the molecular mechanisms of disease and the underlying biological systems. This knowledge is essential to the continued development of new breakthroughs in genomic medicine that address the critical concerns involved with today’s precision medicine.

Our single molecule technology enables researchers to identify and synthesize DNA or RNA strands, irrespective of abundance, in a biological sample and is capable of analyzing billions of molecules in parallel, which positions us as both competitive and complementary with other NGS platforms. We believe our technology advantage is a simplified method of quantifying DNA and RNA molecules at single molecule resolution because our platform does not require the routine PCR amplification and library preparation and ligation steps required by most NGS systems, thereby avoiding systematic bias and consequential additional costs. Our current sequencing platform offers advantages, such as the ability of certain samples to reveal previously unknown molecular profiles by directly detecting single molecules with little to no manipulation of the original sample. Our tSMS platform then generates data that is highly accurate and creates reproducible molecular profiles, often providing researchers with new insights into the biology being researched. As supported by multiple peer-reviewed research publications, our tSMS technology platform has assisted medical researchers in uncovering potentially significant DNA and RNA biomarkers for the early detection of diseases.

Our strategy is to integrate the tSMS platform with the development of novel applications across multiple market segments, and to generate revenue through sales of partnership-specific systems and related flow cells and reagents, which we refer to as “sequencing kits”, research services and research grants. We do not offer or sell any products that are founded upon or incorporate our tSMS platform directly to healthcare professionals or consumers. To strengthen our market position, we strive to build and control intellectual property around the instruments, sequencing kits and methods that enable these applications to strengthen our market position. Integral to this strategy will be to work with existing customers in developing new instruments optimized for specific assay and chemistry performance in order to support a wide array of applications. Our target customers are consumers of NGS products and services engaged in research activities and the development of new or improved products, such as academic and government institutions, hospitals and medical centers, pharmaceutical and biotechnology companies, and non-profit research organizations.

Under our current operating model, we expect the revenue we generate from a specific customer to scale as our partnership or collaboration with such customer matures and the intellectual property founded on our tSMS platform is developed and sold by such customer. Initially, our customer-specific revenue is typically dependent on the funding of, or research grants obtained by, our partners and their ability to develop novel products. During the early stages of our partnerships or collaborations, we generally derive revenue from research services, grants, and the sale of customized instruments and sequencing kits as intellectual property is developed. Over the longer term, however, we expect to generate increasing revenues from our customers from the sale of application-specific assays or tests that are developed on our platform and for which we will receive royalties, a revenue split or other renumeration for the use of our platform or jointly-developed intellectual property.

Background on Genetic Sequencing

Genetic inheritance in living systems is conveyed through a naturally occurring information storage system known as deoxyribonucleic acid, or DNA. DNA stores information in linear chains of chemical bases known as adenine ("A"), cytosine ("C"), guanine ("G") and thymine ("T"). Inside living cells, these chains usually exist in pairs bound together in a double helix by complementary base pairs. A "genome" is an organism's complete set of DNA, which for humans consists of approximately three billion DNA base pairs. Ribonucleic acid, or RNA, is a molecule used by organisms to convey genetic information. A "transcriptome" is an organism's complete set of RNA molecules at an active cellular state and includes both protein coding and noncoding RNA transcripts.

Genetic sequencing is the process of determining the order of nucleotide bases (A, C, G, or T) in a sample. This consists of three phases: sample preparation, physical sequencing and analysis. Generally, the first step of sample preparation is either to shear the target genome into multiple small fragments or, depending on the amount of sample DNA or RNA available, amplify the target region using a variety of molecular methods. In the physical sequencing phase, the individual bases in each fragment are identified in order, creating individual sequence reads. The number of individual bases identified contiguously is defined as "*read length*." The sequencing throughput is generally defined as the product of the number of individual sequence reads and the average read length of the sequence reads. In the analysis phase, bioinformatics software is used to align overlapping reads, which allows the original genome to be assembled into contiguous sequence.

Studying genomes and transcriptomes helps scientists understand the inheritance of biological characteristics, developmental biology and normal and disease states of cells and organisms. Genetic variation accounts for many of the differences between individuals, such as eye color and blood group, and also affects a person's susceptibility to certain diseases such as cancer, heart disease or diabetes. Genetic variation can also determine a person's response to drug therapies.

A trend in healthcare is towards 'personalized medicine' to enable more accurate diagnosis and treatment through better understanding of each individual patient's disease. We believe that a greater understanding of the genome will lead to this new healthcare paradigm where diseases are understood at the molecular level, allowing patients to be diagnosed according to genetic information, in many instances earlier and more accurately, and be treated with drugs designed to work on specific molecular targets. The goal is to offer precision-personalized medicine that will identify disease earlier, reduce healthcare costs, and enable more appropriate and effective treatment for better outcomes and quality of life. To date, this has largely been done through genomic testing, which provides information about a patient's predisposition to disease or likely response to medication, due to each individual's unique constellation of genes. However, DNA testing is, in most cases, a static readout that does not change through a patient's lifetime or disease course. It does not provide information about the patient's current health status. An increasing number of researchers, however, now believe the transcriptome provides dynamic information about the current state of the body that can be used to assess health, to detect early signs of disease and to enable physicians to select the appropriate treatment, monitor response to treatment and detect unwanted side effects.

Cell-free Nucleic Acids as Disease Biomarkers: Most of the DNA and RNA in the body are inside the cells, but a small amount of nucleic acids is also found in biological fluids such as blood, saliva and urine. This material is generally referred to as cell-free DNA ("cfDNA") and cell-free RNA ("cfRNA"). Analysis of these free-floating molecules can lead to multiple applications such as early disease detection, drug selection and treatment monitoring. For example, large amounts of cell-free DNA material might indicate a bacterial infection or sepsis in very early stages. Cell-free DNA is typically derived from chromatin as intact nucleosomes, or histone-bound DNA, which can be analyzed in addition to solely assessing DNA. Another such example is cfRNA analysis for detection, diagnosis and monitoring of malignant diseases such as cancer. The cfRNA transcripts are differentially expressed between normal and cancerous tissues. These transcripts can be used as a reliable biomarker for cancer screening and diagnostic applications. Analysis of cfRNA can be used to measure dynamic changes in the gene expression, allow oncologists to evaluate disease status, predict outcomes from anti-tumoral therapies and monitor the disease after treatment.

Sequencing Technologies: There are different sequencing technologies available for sequencing genetic material, each producing the sequence data in a unique format. Some of the technologies produce millions of sequence reads with a very short-read length, generally less than 300 nucleotide bases. These technologies are generally referred as short-read NGS platforms. Other technologies produce several thousand sequence reads of a very long-read length, generally more than 1,000 nucleotide bases. These technologies are generally referred as long-read NGS platforms. Both, the short- as well as long-read NGS technologies have their advantages in various settings. For *de novo* assembly of genomes and long RNA transcripts, the long contiguous reads from the long-read NGS technologies are preferred. Generally, short-reads can be used to further fill in gaps in the data from longer read technologies. For molecular counting application, a large number of independent reads from short-read NGS technologies are preferred. RNA quantitation typically occurs after converting extracted RNA molecules into cDNA fragments using commercially available reverse transcriptase as part of that process. This approach, within which there are a variety of methods, is loosely defined as RNA sequencing or "RNA-Seq". Different genes are present in varying amounts in biological samples, and the success of the technique is highly dependent on the dynamic range of the detection technology.

Market Opportunity

The market for our products and services is segmented into two major categories, DNA NGS and RNA NGS, which, according to The Insight Partners, accounted for a combined addressable market opportunity of approximately $1.03 billion in 2019 that is projected to grow to $5.26 billion by 2025 at a CAGR of 31.3%.

DNA NGS market opportunity: According to The Insight Partners *DNA NGS Market Report 2019*, the global DNA NGS market is projected to grow from $6.82 billion in 2019 to $22.72 billion in 2025 at a CAGR of 22.2% from 2019 to 2025. Our customers in the DNA NGS market largely consist of academic and research institutes and forensic labs. Collectively, academic and research institutes and forensic labs, pathology labs and diagnostic centers represent a projected 58.4% of the end-user market share in 2019. The versatility of the tSMS platform can be applied across our near-term target segments of drug discovery, precision medicine and other novel applications. We intend to focus our commercialization efforts on academic and research institutes and forensic labs in North America and Europe, and will eventually expand our efforts to the Asia Pacific region. North America and Europe represented 69.9% of the global market in 2019. Our targeted end users, applications and regions for DNA NGS offered an addressable market opportunity of $0.74 billion in 2019 that is projected to grow to $4.10 billion in 2025 at a CAGR of 33.0%.

RNA NGS market opportunity: According to The Insight Partners *NGS-based RNA Seq. Market Report 2019*, the global RNA NGS market is projected to grow from $1.63 billion in 2019 to $4.96 billion in 2025 at a CAGR of 20.4%. We intend to leverage our simplified workflow, which reduces bias and misrepresentation caused by various enzymatic steps that other technologies utilize, to accelerate market penetration. The RNA NGS market can be segmented by products and services, end users, applications and sequencing technologies. Research and academic centers, pharmaceutical and biotech companies, pathology labs, forensic labs and diagnostic centers represented a projected 76.7% share of the end users in 2019. Our simplified and mature RNA sequencing approach will facilitate a broad application pool across diagnostics, drug discovery, precision medicine and biomarker discovery field. We will offer RNA sequencing platform and sequencing kits, sequencing services and data analysis products featuring our tSMS technology to such potential customers. Furthermore, we intend to focus on commercialization of our products in North America, Europe and Asia Pacific regions, which collectively accounted for 81.2% of the global market geographically in 2019. Our targeted end users, applications and regions for RNS NGS offered an addressable market opportunity of $0.29 billion in 2019 that is projected to grow to $1.16 billion in 2025 at a CAGR of 26.2%.

Limitations of Existing Technologies

There are multiple short-read and long-read NGS technologies available in the market that partially address the need for accurate and sensitive analysis of genetic information. These technologies can further be classified based on the resolution of the technology as single-molecule sequencing technology and amplification-based technologies. Most single-molecule sequencing technologies do not require amplification, though many of the long-read technologies still require complex sample manipulation prior to sequencing. This is especially true for sequencing of RNA molecules. Over the past two decades, researchers and clinicians have used these technologies to gain a deeper understanding of nucleic acids, to study biomarkers associated with disease, to identify molecules for new drug discovery, to create novel applications for early screening and diagnosis, and more recently to create genome-editing techniques. While researchers are making progress on various fronts by utilizing a combination of these technologies, there remains a wide gap between the needs of the research community and the capabilities of existing sequencing tools. This gap is hindering the advancement of scientific research. The inherent limitations of current technologies are summarized below:

- ***Biased results***: Short-read NGS technology typically requires a large number of DNA molecules during the sequencing process. To generate enough DNA molecules, an amplification step is required during sample preparation. This amplification process can introduce errors known as amplification bias. The effect of this bias is that resulting copies are not uniformly representative of the original template DNA, causing skewed data representation in the final results.

- ***Lower sensitivity***: In cases where the original template DNA contains regions of relatively high G-C content or relatively high A-T content, the amplification process tends to under-represent these regions. As a result, these regions, which may contain entire genes, can be completely missed. The non-linear nature of the amplification thus limits its ability to detect subtle changes in the genetic signature.

- ***Inefficient library preparation***: Many of our competitors use systems requiring multi-step sample preparation protocols to prepare sample libraries before sequencing. This library preparation technique is inefficient, capturing only a fraction of the informative input material. The process selectively captures the molecules that are present in large quantities while losing lower frequency molecules, thus not producing a true representation of the input material. The library preparation protocol limits the minimal amount of input sample. The library preparation steps also add significant burden on the sample preparation.

- ***Inadequate throughput***: Applications such as transcriptome profiling, gene expression and biomarker discovery require accurate quantification of data. The long-read single molecule technologies fall short due to the smaller number of strand throughput required to substantiate the presence or absence of a biomarker in a specific sample. The short-read amplification technology is limited due to a skewed data representation caused by the non-linear amplification bias present in the workflow.

Our Technology Solution

Our tSMS platform offers a single molecule solution for DNA and RNA sequencing by performing detection of nucleic acids without the need for complex sample manipulation. Researchers using our platform can analyze many billions of single molecules in a single experiment and still generate highly accurate and reproducible data. We believe our technology's critical advantage over other technologies is because our platform does not require the routine library preparation steps, such as PCR amplification and ligation, necessary for use with most NGS systems, thereby avoiding systematic amplification bias. RNA sequencing on our platform detects transcripts regardless of abundance and with high accuracy in quantifying gene expression changes associated with certain disease as well as detecting subtle changes in RNA transcript levels that are undetectable with other methods.

Our single molecule platform is unique because it combines a proprietary fluorescence-based optical detection apparatus with a precision microfluidics and thermal control system to perform sequencing-by-synthesis, as illustrated in Figure 1 below.

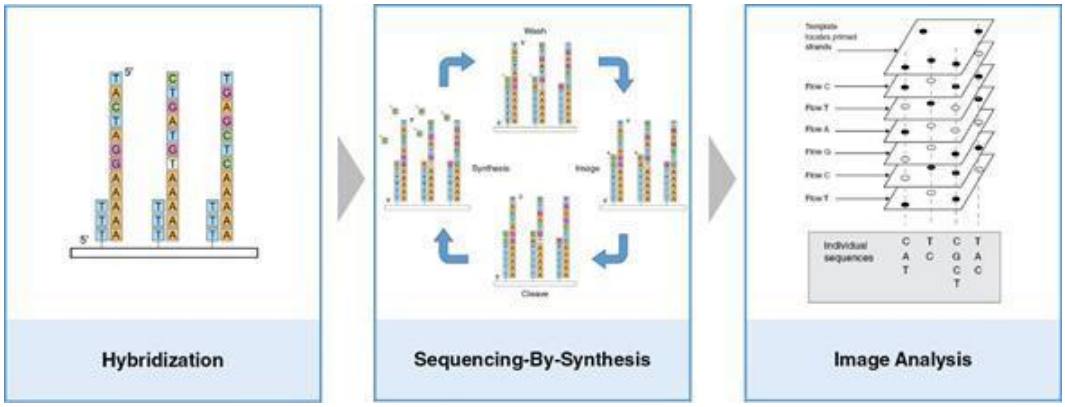


Figure 1. *tSMS* Technology Workflow

Our platform typically derives sequencing information directly from the sample itself, not a copy of the sample. It does not require amplification at any stage of the process and offers simple, straightforward sample preparation protocols. The technology uses a single-stranded DNA and RNA material with lengths that range from less than 20 bases to more than 1000 bases as an input. The platform then captures the material on a glass surface and uses a patented fluorescence-based optical detection apparatus combined with a precision microfluidics system to perform a sequencing-by-synthesis reaction on the input sample.

The single molecule fluorescence signal from millions of individual strands is captured by images using a high-sensitivity camera during multiple cycles of nucleotide incorporation. Our powerful image analysis system processes these images to produce the sequence data as an output. The output data contains millions of individual unique sequences with the average read length of between 35–60 nucleotide bases, with a range of 20–100 nucleotide bases. This length is sufficient to allow unambiguous identification of the origin of each sequence.

Our system still requires isolation and preparation of DNA or RNA samples; however, our system is adaptable to most purification and preparation kits and techniques that are currently available in the market and no additional or special steps are required to prepare the samples for sequencing.

The single molecule resolution of the sequence data in association with a sub-100 nucleotide base read length positions our platform as the only short-read single molecule sequencer commercially available in the market. The amplification-based short-read technologies are already helping the scientists in the fields of research, diagnostics and therapeutics. By giving the short-read technology the power of single molecule resolution, we believe our tSMS technology offers critical advantages over existing technologies, including:

- ***Minimal Sample Preparation***. Our tSMS platform offers a simple sample preparation process. The DNA strands are cut in shorter sizes, converted into single strands, and then tagged with a universal surface capture primer. By avoiding the complex multi-step library preparation method, the sample integrity is preserved, and the bias and errors in the sequence data output exhibited by other methods are avoided. The simplicity of our sample preparation workflow and its effect on the output data variance, compared to NGS data produced by an Illumina system, is illustrated in Figure 2 below. [*van den Oever et. al. (Clinical Chemistry, April 2012)*].

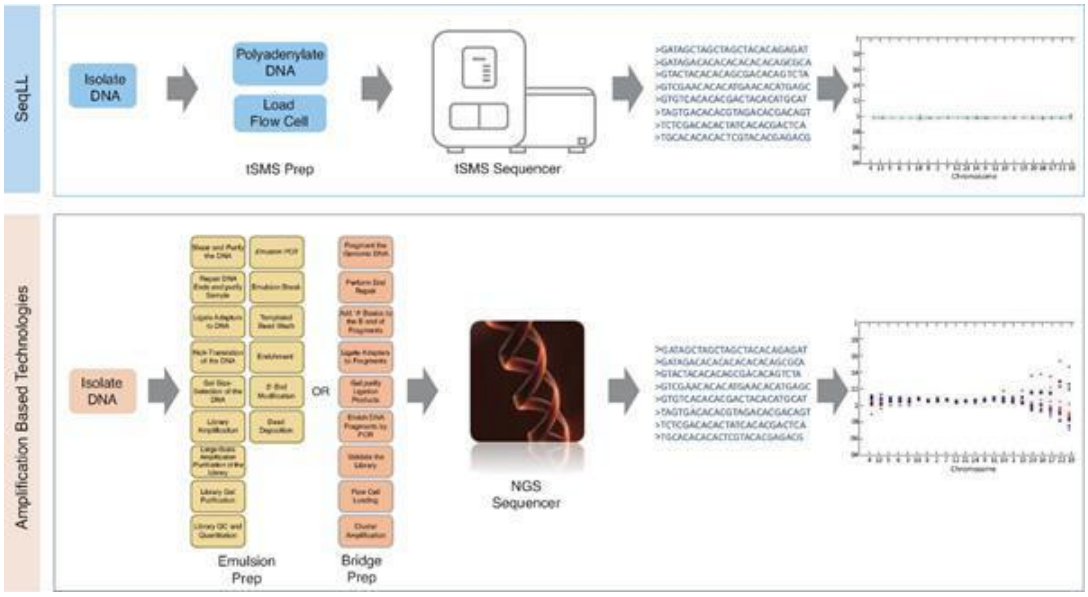


Figure 2. *tSMS* vs Amplification-based Technologies Workflow

- ***Greater Sensitivity***. Our tSMS platform offers a high level of sensitivity as each strand is identified and synthesized irrespective of its abundance in the sample. In the existing amplification-based technologies, low expressing transcripts are typically masked due to preferences and may be missed or have their numbers minimized in the final data analysis. The simplified sample preparation along with single molecule resolution facilitates the unbiased, proportionate representation of input sample, even of the low expressing transcripts and constructs. This allows for obtaining more accurate information earlier (for potential clinical treatments or decisions to be made sooner). Figure 3 below illustrates that the tSMS platform identified low-expression transcripts missed by the standard PCR-based methodology when using Illumina. The lowest expressed quartile of transcripts was detected with our tSMS technology at a 7.10x rate compared to a leading NGS platform [Sam LT, Lipson D, Raz T, et al. A Comparison of Single Molecule and Amplification Based Sequencing of Cancer Transcriptomes. *PLoS* One. 2011].

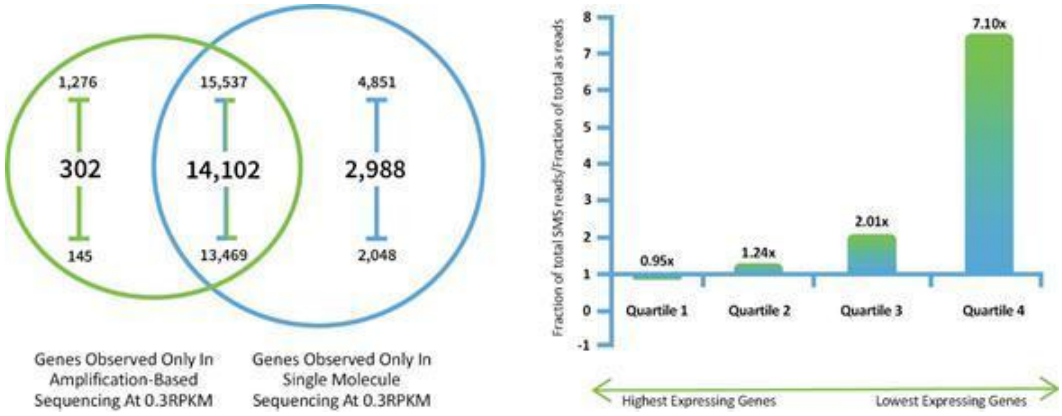


Figure 3. *tSMS* Improves Detection of Lowest Expressed Genes

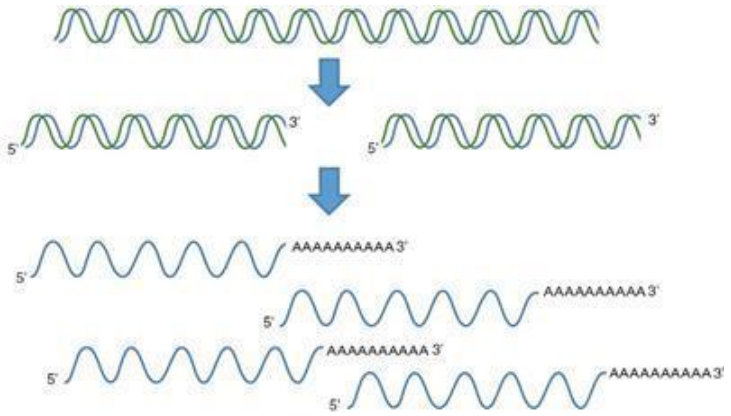
- ***High Accuracy***. Our tSMS platform provides an accurate set of data and results as well as a broader range of molecules to be evaluated. The ability to count each individual molecule, combined with simplified sample preparation and greater sample sensitivity, yields an accurate quantitative representation of sample in the final data. Our technology has been demonstrated to produce robust accurate short-reads for a variety of applications.

- ***Seamless Flexibility***. Our tSMS platform provides flexibility in two main aspects — throughput and applications. The tSMS platform has the ability to scale the throughput across a range of small to large projects. The programmable instrument workflow and modular design of sequencing kits provide flexibility to choose the sample coverage and read length required for the final data. The simplified sample preparation allows for analysis of any genetic material that can be attached to a glass surface.

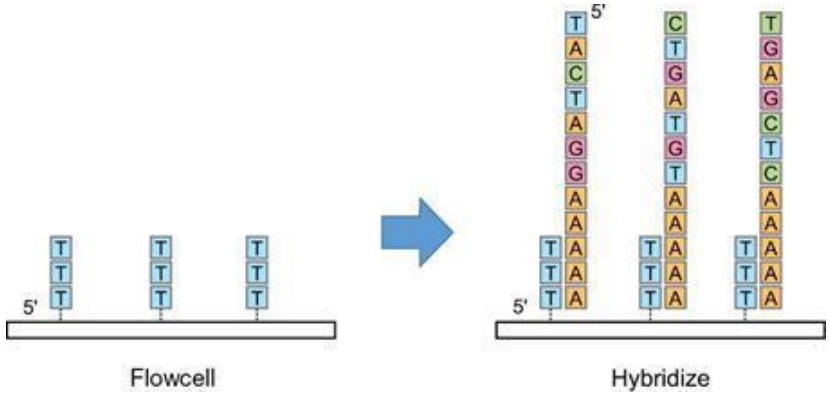
Our Gene Sequencing Methodology

The patented tSMS technology is the essence of our tSMS platform. The gene sequencing methodology takes genetic material as input and produces sequence data as an output through sequentially processing the following five major steps.

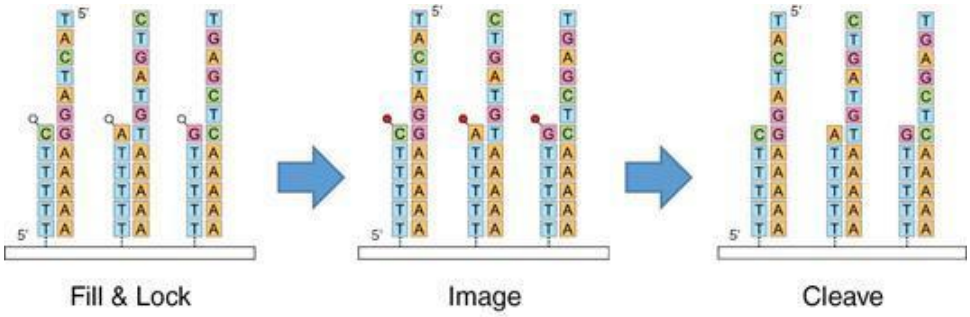
1. ***Sample preparation***: A double helix strand is cut into fragments of 100–200 nucleotides in length. In the case of cfDNA and cfRNA material, this step is not necessary as cell-free strands are generally short and fit the profile of the input material. The strand fragments are then denatured to a single strand, and a poly-A universal priming sequence is added to one end of each strand as shown in the following figure.



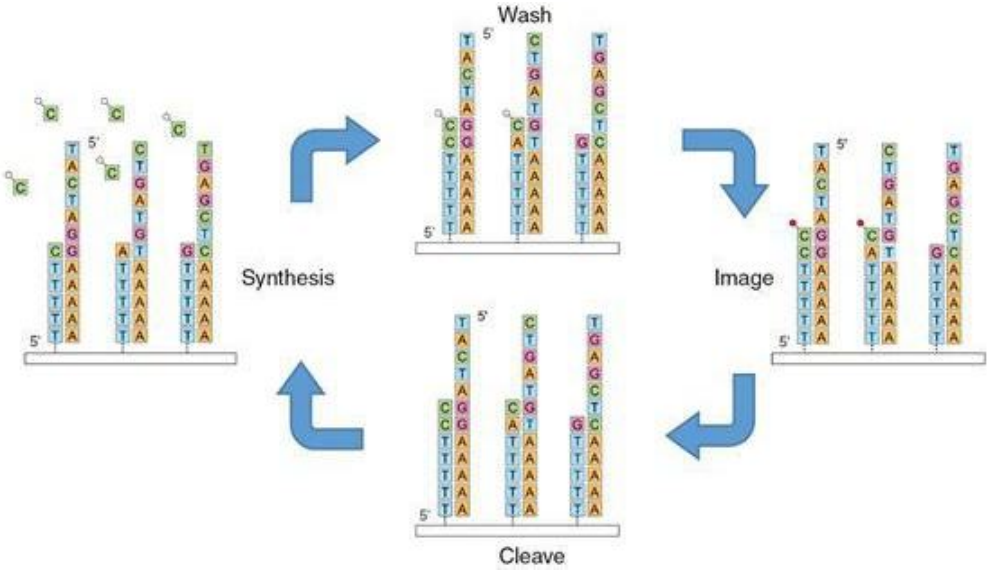
2. ***Sample loading***: The strands are hybridized in a flow cell with billions of universal Oligo T capture sites mobilized on the flow cell surface. The tSMS method typically utilizes a dT50 primer to initiate sequencing from a 3' poly-A tail, although other capture primers may be used to increase the specificity of sample hybridization.



3. ***Template registration***: Once hybridized, a "Fill & Lock" step fills up the rest of the open bases from the poly-A tail followed by the addition of fluorescently labelled nucleotides to the start of the strand. A laser illuminates the flow cell and the camera records the location of each captured sample strand. The flow cell is moved in sequential steps to allow the camera to cover its entire active area. The dye molecules are then cleaved and washed away.



4. ***tSMS sequencing-by-synthesis***:



   a. ***Synthesis***: DNA polymerase enzyme and the first of the four types of novel fluorescently labelled nucleotides are added. If the nucleotide is complementary to the next base in the template strand, the polymerase will add it to the primer strand. The nucleotides are designed to inhibit the polymerase from incorporating more than one base at a time on the same strand.

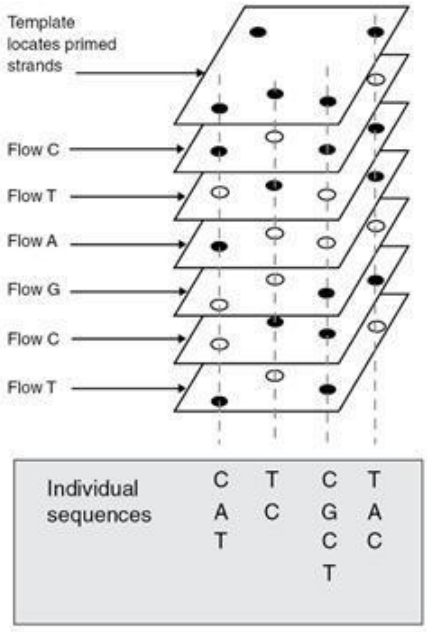
   b. ***Wash***: Excess polymerase and unincorporated nucleotides are then washed away. This step ensures that only the incorporated nucleotides are available for fluorescence imaging.

   c. ***Image***: The narrow bandwidth laser illuminates the flow cell surface to excite the fluorescently labelled nucleotides. The camera records the locations where fluorescently labelled nucleotides were added.

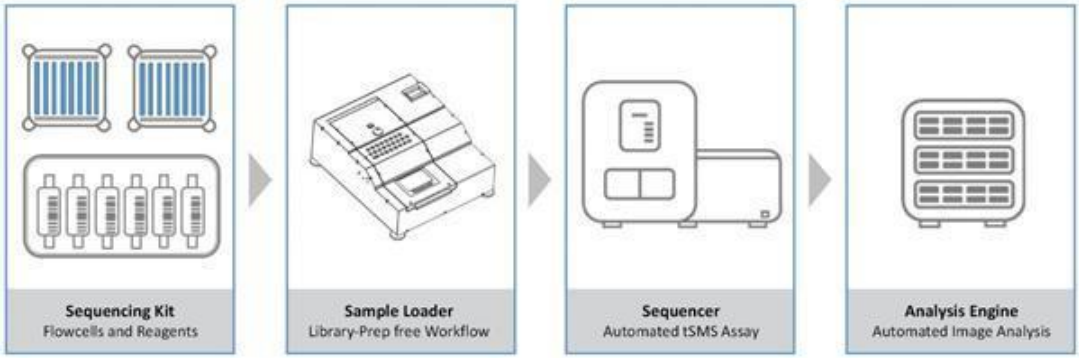
   d. ***Cleave***: The fluorescent dye molecules are then cleaved from the labelled nucleotides and washed away. This step ensures that these molecules are fluoresced only for that particular nucleotide addition cycle.

The process is repeated with each of the four types of labelled nucleotides until a desired sequence length is reached. As an example, repeating this cycle 120 times adds an average of more than 33 nucleotides to the primer strand. In sequencing, this is known as the “read length.”

5. ***Data processing*:** The image analysis computer analyzes the series of images from each cycle and determines the sequence of bases in the template strand. The sequence is “read” by correlating the position of a fluorescent molecule in its vertical track with the knowledge of which base was added at that cycle. The sequence data is packaged in standard sequencing data formats for further bioinformatics analysis.



Our True Single Molecule Sequencer (tSMS)



Described above is our gene sequencing methodology using our tSMS single molecule sequencing platform. It combines a simplified operation with powerful capabilities to directly sequence original samples of RNA and DNA consisting of major components:

1. ***Sequencing Kit***: The flow cells and reagents are the major components of a sequencing kit that the instrument needs at the start of every new run. The custom flow cell features 25 discrete flow channels, and each channel of the flow cell has millions of capture probes deposited on the cover glass. The sequencing samples are loaded into the flow cell channels using the sample loader. The sequencing run can sequence up to two flow cells in a single run. The reagent kit for the sequencing run consists of custom pre-packaged bottles that store proprietary tSMS chemistry reagents and wash buffers for the system. All of the flow cells and reagent kits are barcoded, so the sequencer can scan and store the barcodes as a part of the experiment setup procedure.

2. ***Sample Loader***: The sample loader facilitates loading the billions of tailed single strands onto the glass surface of the standard 25 channel flow cell. A temperature-controlled chamber improves the hybridization efficiency and houses a mechanism to hold a standard flow cell used in the system. The proprietary sample loading block design helps to keep the transfer volume to near zero microliter, while the system offers precision control of loading the sample in 25 discrete channels without any cross-contamination. The input material volume for the sample loader can be as little as 20 microliters.

3. ***tSMS Sequencer***: The sequencer accepts up to two flow cells for a sequencing run, allowing sequencing of up to 50 individual samples in a single run. The benchtop sequencer is a fully-automated device that combines a Total Internal Reflection Fluorescence (TIRF) microscopy technique with a high-precision, temperature-controlled microfluidics system. The microfluidics system houses the reagent kit required to perform tSMS chemistry, and uses high-precision pumps and valves to formulate the chemistry just-in-time for delivery to the flow cell chamber during each chemistry cycle. The two-flow cell design maximizes the machine utilization by performing the chemistry cycle on one flow cell while the other flow cell is going through the imaging cycle, and vice-a versa. The flow cells are mounted on a high-speed, high-accuracy multi-axis stage that moves the flow cell along the channel with nanometer grade precision. The high-power optics system consists of a narrow bandwidth laser to provide the excitation signal, while the high-fidelity imaging system uses a highly sensitive camera for capturing the single molecule signal emitted by the fluorophores. All of these subsystem operations are integrated and controlled by an on-board computer in a completely automated fashion over the course of the run. A simple touch screen based graphical user interface walks the user through an intuitive run setup. A typical run on the sequencer captures three to six million images containing information about billions of individual single molecules in the strands.

4. ***Image Analysis Engine***: The image analysis engine processes the images captured by the sequencer camera, aligns them with the template image at individual position, and creates the sequence data file to be used for further bioinformatics analysis. It features a high-power CPU array with large storage capacity hard drives specifically designed for intensive image analysis and storage purposes. The image analysis engine runs parallel to the camera, processing the images as soon as the camera starts imaging the flow cell. The image analysis engine software monitors the instrument status and automatically uploads the sequence data at the end of the run at a user-configurable network location.

The instrument has a web-based interface for remote monitoring that updates the key sequencing metrics and the instrument status in real time. The database system of the instrument stores the detailed logs for both record keeping and troubleshooting purposes.

Markets for Our Technology

The initial target market for our instruments and research services has been the life sciences research and development market where we provide solutions for a variety of applications, including biomarker discovery and diagnostic assay developments. This market includes laboratories associated with universities, scientific research centers, government institutions, and biotechnology and pharmaceutical companies.

Our tSMS technology platform produces data with potential diagnostic implications, detecting biomarkers for cardiovascular diseases and various types of cancer, and offers an optimal solution for use in sequencing applications. We anticipate using these strengths to capture a portion of the growing multi-billion dollar NGS market. We strive to build and control intellectual property around the instruments, sequencing kits and methods that enable these applications to strengthen our market position. The major consumers of the NGS include academic and government institutes, hospitals and medical centers, pharmaceutical and biotechnology companies, non-profit research organizations and agrigenomics organizations.

Introduction of new technologies and products, while positive to the overall development of these markets, may result in greater competition for the limited financial resources available. There are a number of emerging markets for sequencing-based technologies that represent significant potential opportunities for us, such as but not limited to:

- ***Life sciences research and development:*** NGS technologies are accelerating the discovery and development of more effective new drugs. The complex nature of biological pathways, disease mechanisms and multiple drug targets requires an accurate, unbiased, and sensitive molecular counting platform. Single molecule sequencing, with its unparalleled quantitative accuracy in large-scale expression profiling could enable high-throughput screening of promising drug leads. During clinical trials, our technology could potentially be used for companion diagnostics to generate individual genetic profiles that can provide valuable information on likely response to therapy, toxicology or risk of adverse events. The tSMS platform may also enable more precise selection of patient pools and individualization of therapy.

- ***Liquid biopsy:*** Liquid biopsy is emerging as a simple and non-invasive alternative to the traditional tissue biopsy approach for disease screening and monitoring. A simple draw of blood contains millions of tiny fragments of cell-free DNA/RNA material with lengths on the order of 100–200bp, which carry informative signatures of cancer and other life-threatening diseases even in a very early stage of the disease progression. With its quantitative accuracy, simple sample preparation methodology, and its ability to accurately sequence fragmented short molecules, our single molecule sequencing offers an excellent solution for liquid biopsy.

- ***Infectious disease:*** Infectious diseases are disorders caused by bacteria, viruses and fungi. These organisms contain DNA and RNA that act as infectious agents to transmit disease from person to person, by insect or animal, or through food and environmental means. The detection and sequencing of the DNA and RNA from pathogens provides medically actionable information for diagnosis, treatment and monitoring of infections. Accurate sequence information could also help to predict drug resistance.

- ***Clinical diagnostics:*** Our amplification and ligation free sequencing method allows us to identify subtle changes in the RNA transcript levels that are undetectable with other methods presumably due to bias and loss of low-level transcripts inherent to the other technologies. The power of our tSMS technology can help to address the large unmet need for biomarker discovery to diagnose diseases such as cardiovascular diseases and cancer at very early stages. The potential of our technology for bio-marker discovery is illustrated in Figure 4 below, where tSMS RNA-seq was utilized to identify RNA-based gene expression changes associated with ADHD [McCaffrey TA, St Laurent G 3rd, Shtokalo D, et al. Biomarker Discovery in Attention Deficit Hyperactivity Disorder: RNA Sequencing of Whole Blood in Discordant Twin and Case-controlled Cohorts. *BMC Med Genomics*. 2020]. Further studies offer the opportunity for validating future diagnostics applications.

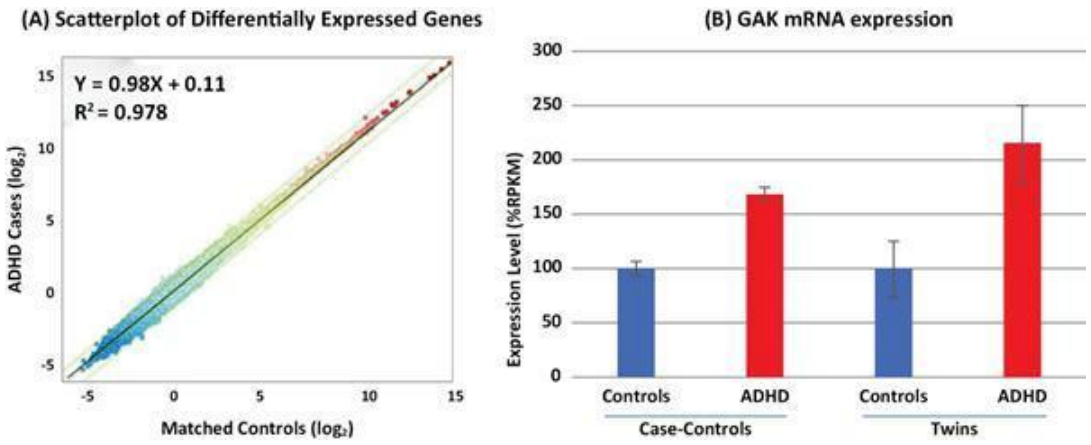


Figure 4. Biomarker Discovery in ADHD using tSMS RNA-seq

- ***Microbiome analysis:*** Microbial communities in and on the body show uniform bacterial diversity in healthy individuals. Drugs and diet can disrupt the microbial diversity, and thereby can affect disease progression and treatment efficacy. Our technology can accurately quantify the gene signature for all bacteria present and capture a real-time snapshot of the microbiome. This data can be used by physicians for disease treatment by applying methods to encourage growth of beneficial microbes and eliminate harmful microbes.

These examples of emerging markets for sequencing-based technologies represent significant potential opportunities for us. The development of these markets is subject to variability driven by ongoing changes in the competitive landscape, evolving regulatory requirements, government funding of research and development activities, and macroeconomic conditions. Given the ability of the tSMS platform to sequence nucleic acid fragments as well as to detect post-translational modifications within larger chromatin molecules, we believe our technology is uniquely positioned to produce data from molecules at both ends of the single molecule nucleic acid spectrum. This concept, and the technology leaders for each single molecule market segment, is illustrated in Figure 5 below, with our potential applications highlighted in blue font.

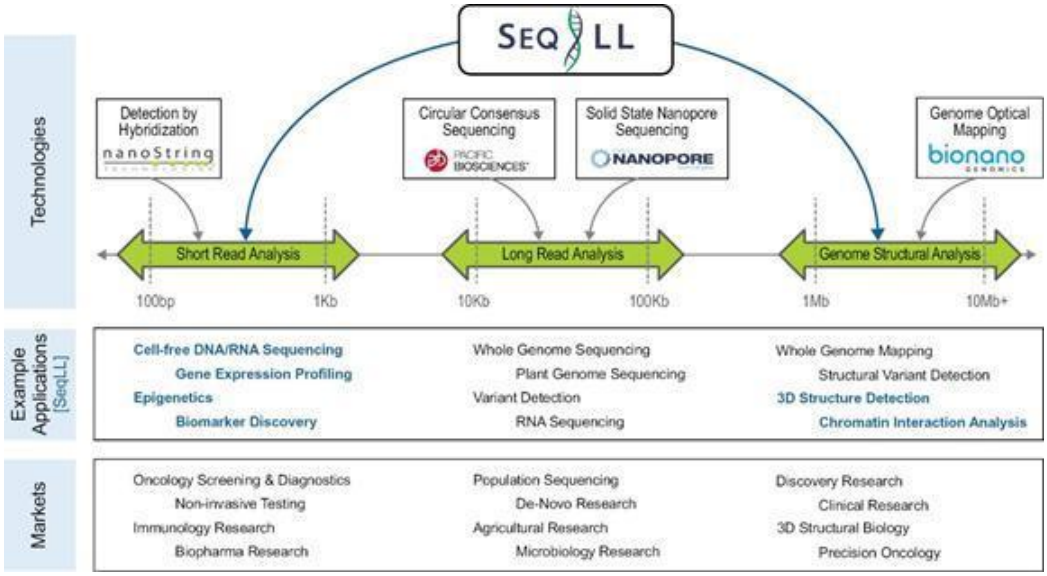


Figure 5. Illustrative Single Molecule Nucleic Acid Landscape

Our Business Strategy

Our mission is to empower researchers with improved genetic tools that enable scientists and physicians to better understand the molecular mechanisms of disease and the underlying biological systems. This knowledge is essential to the continued development of new approaches and breakthroughs in genomic medicine that address critical concerns relating to today's precision medicine efforts.

Our strategy is to integrate our tSMS platform with the development of novel applications across multiple market segments, and to generate revenue through partnership-specific systems and sequencing kit sales, research services and research grants. We strive to build and control intellectual property around the instruments, sequencing kits and methods that enable these applications to strengthen our market position. Integral to this strategy will be to work with existing customers in developing new instruments optimized for specific assay and chemistry performance in order to support a wide array of applications. Figure 6 below summarizes three priority areas of research and development for current and potential collaborations.

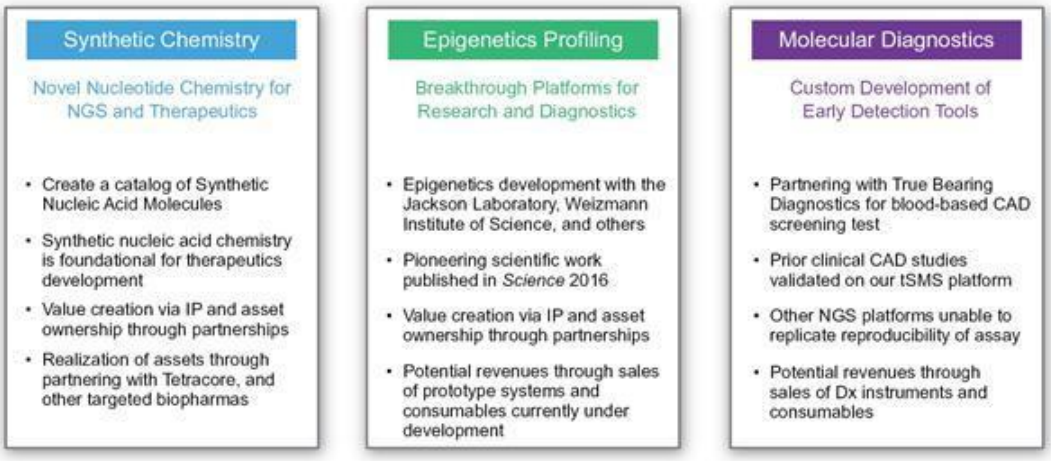


Figure 6. Three Priority Areas of Research and Development

Our target customers are consumers of NGS products and services engaged in research activities and the development of new or improved products, such as academic and government institutions, hospitals and medical centers, pharmaceutical and biotechnology companies, and non-profit research organizations.

We have generated only nominal revenues to date from our current operating model and we do not expect our revenues to scale significantly until one or more of our customers or third-party partners or collaborators has developed application-specific assays or tests for which our platform serves as a foundation. Over the longer term, we expect to generate revenues from our customers, partners and collaborators through a combination of product sales, research services and research grants. We plan to expand these revenues from recurring and prospective clients by the following key strategies:

- Provide the scientific community with a combination of research services and instrumentation to serve markets that we believe are inadequately addressed by existing technologies.
- Assist in the development of new classes of RNA-based diagnostics tests.
- Collaborate with researchers to enhance pharmacogenomics and biomarker discovery.
- Support drug developers seeking a better understanding of the side effects of their new drugs.
- Continue to innovate and develop new aspects of our products and technology, applications and instrumentation through scientific collaborations, including grants.
- Leverage our expertise and the broad applicability of our tSMS platform to grow into new markets through strategic collaborations, partnerships, existing data sets, and customers.
- Maintain a strong culture and network of technical resources while continuously attracting new talent to build an industry leading single molecule solutions company.

Our Customers and Collaborators

Our customer base is focused on academic research, biomarker discovery, and molecular diagnostic product development. These customers over the years have produced scientific achievements through collaborative research efforts. The majority of our current customers are early adopters of genomics technology including tSMS. A significant portion of the funding for these developing technologies has historically come from research grants provided by government agencies and non-profit research centers. We often collaborate with customers to drive innovation in the field of genomic sciences through grant funded research activities. Our key collaborators and our current activities are highlighted below:

U.S. Department of Justice's Federal Bureau of Investigation (FBI)

In February, we announced the establishment of a two-year Cooperative Research and Development Agreement (CRADA) with the FBI. Under this CRADA, SeqLL and the FBI Laboratory Division (FBI LD) will seek to evaluate and determine the forensic capabilities of direct RNA sequencing using our tSMS platform. The FBI LD and SeqLL will collaborate with a goal of producing an assay for forensic body fluid identification, without compromising traditional STR or DNA sequence analysis. This agreement is among the first times the FBI is utilizing the CRADA mechanism to further develop laboratory capabilities. CRADAs enable the sharing of resources and expertise for collaborative research that advances the FBI mission. Body fluid identification can provide investigative context and have probative value.

The Bernstein Laboratory

We have worked closely with the lab of Bradley Bernstein, M.D., Ph.D., Chair of Cancer Biology at the Dana Farber Cancer Institute and Harvard Medical School to address fundamental questions in chromatin biology and epigenetic regulation. Dr. Bernstein is also the founder and Director of the Broad Institute Epigenomics Program. Scientists from the Broad Institute have used antibody-based detection coupled with tSMS to begin decoding a dual-marking system in modified histones that signals for a gene to be activated or repressed. Early results, published in *Science*, suggest differentiated cells exhibit different patterns of "bivalent" markings than embryonic cells. Our collaboration encompasses technology development, single-cell RNA and DNA analysis, and the creation of novel intellectual property. In addition to completing NIH grant funded research activities, we have provided Dr. Bernstein with tSMS systems and onsite support. In 2021, we published a single-cell RNA focused technology development manuscript in the Peer-reviewed journal, Cell Report.

The Ting Laboratory

We have been a long-time research collaborator with David Ting, M.D., Assistant Professor, Medicine at Harvard Medical School and a leading member at the Dana Farber/Harvard Cancer Center in using tSMS to better understand cancer. His research is focused on the role of non-coding RNA transcription in cancer as it relates to tumorigenesis and as novel biomarkers. In this research area, the Ting Laboratory was first to discover aberrant overexpression of pericentromeric RNA repeats by RNA-seq using tSMS, which were found to play a significant role in pancreatic cancer and other epithelial cancers [Bersani, *PNAS*, December 2015]. This discovery resulted in new intellectual property related to pancreatic cancer biomarkers and the subsequent founding of Rome Therapeutics, an early-stage company focused on unlocking the repeatome to discover powerful new classes of medicines for cancer and autoimmune diseases. We have provided Dr. Ting with tSMS systems and onsite support, research services, and access to sample preparation methodologies.

The Jackson Laboratory for Genomic Medicine

Led by Chia-Lin Wei, Ph.D. with The Jackson Laboratory ("JAX") and supported by a recent four-year, $2.3 million grant from the National Institute of General Medical Sciences, we are assisting in the development of new methods for chromatin interaction analysis in single nuclei, with single-molecule resolution. JAX has stated that preliminary results indicate that, once fully developed, the methods under development have the potential to exceed previous methodologies and to revolutionize the field of three-dimensional ("3D") genome biology. Our research grant efforts, including instrument prototype and sequencing kit development, are continuing and will focus on generating genome-wide, single-molecule chromatin interaction maps in a variety of biological systems and uncovering the structural detail of multiplex chromatin loci that are currently unresolvable given standard NGS. We developed a prototype system in the second half of 2021 and utilized this system for sample testing and data generation in 2022.

Weizmann Institute of Science

In partnership with the laboratory of Efrat Shema, Ph.D., we have recently developed and applied innovative single-molecule technologies to gain a deeper understanding of chromatin regulation. We are working to establish robust single-molecule systems for genome-wide profiling of combinatorial chromatin and DNA modifications, as well as development of novel therapeutic and diagnostic tools. We published multiple manuscripts in 2022, including "H3-K27M-mutant nucleosomes interact with MLLI to shape the glioma epigenetic landscape" in Cell Reports and "Multiplexed, single-molecule, epigenetic analysis of plasma-isolated nucleosomes for cancer diagnostics" in "Nature Biotechnology. We have provided the Weizmann Institute with access to prototype sequencing systems, sequencing kits, and sample preparation methodologies.

True Bearing Diagnostics, Inc.

We have participated in a research collaboration with Timothy McCaffrey, Ph.D. of The George Washington University's Center of Genomic Medicine and True Bearing Diagnostics, Inc, performing tSMS on whole-blood RNA to identify transcripts associated with coronary artery disease ("CAD"). In comparison to other platforms that include NGS technologies, only our tSMS platform could consistently identify the novel mRNA signature in CAD patients. We believe this collaboration will provide the blueprint for a diagnostic test that could significantly reduce the more than one million U.S. catheterizations that are performed annually at a cost of approximately $20 billion per year. A scientific manuscript detailing biomarker discovery efforts for CAD was published in a 2021 peer reviewed journal. We have provided True Bearing Diagnostics with research services and access to sample preparation methodologies. Potential future work includes the development of a CAD-focused clinical system for regulatory clearance.

Tetracore, Inc.

Tetracore, Inc. focuses on antibody-based and nucleic acid-based detection reagents and technologies, and contracts with the U.S. Government for the development of real-time PCR diagnostic tests for biological warfare threat agents, novel nucleic acid extraction procedures, and specialized nucleic acid products. We have provided Tetracore with tSMS systems and onsite support. We are actively preparing applications for submission to the NIH, DARPA and other funding agencies regarding the use of our technology in the development and production of detection tools. These potential products, including non-NGS applications, are for clinical, animal health, and domestic preparedness testing.

Future Products

We expect to partner or collaborate with biotech and pharma companies to develop a clinical-grade tSMS sequencer for use with one or more diagnostic tests. We intend for our partners to commercialize diagnostic tests for applications for which the tSMS platform offers accurate diagnostic capability, such as non-invasive prenatal testing for early pregnancy and high-body-mass-index-mothers, liquid biopsy for oncology applications, microbiome analysis, and transcriptome-based diagnostics for cardiovascular disease, infectious disease and others. We will look to increase industry visibility and expand our reach globally for both sequencing services and instrument sales through strategic customer relationships and partnerships with larger organizations that can increase global support, supply and distribution. Through those partnerships, we plan to identify new, high-value, cutting-edge applications that are uniquely enabled by our amplification-free, direct DNA and RNA sequencing technology.

The accuracy, sensitivity and simplicity of the tSMS platform allows the technology to be applied for developing assays and instruments used for quality control of manufactured therapeutic products, including gene therapy and vaccine technologies. We plan to explore commercial-stage partnerships with therapeutics companies interested in accessing our tSMS platform.

As our partners or collaborators expand their product lines to address the diagnosis of disease, regulation by governmental authorities in the United States will become an increasingly significant factor in development, testing, production and marketing. Products developed for the diagnostics market, depending on their intended use, may be regulated as in vitro diagnostics by the FDA. Each medical device to be distributed commercially in the United States will likely require either 510(k) clearance or approval of a pre-market approval application (PMA) from the FDA prior to marketing the device for in-vitro diagnostic use. Clinical trials related to regulatory submissions may take years to complete and represent a significant expense. The 510(k) clearance pathway usually takes from three to 12 months, but can take longer. The PMA pathway is more costly, lengthy and uncertain, and can take from one to three years, or longer.

We have not sought FDA approval of our sequencers because to-date we have marketed them for research purposes and not for clinical diagnostics. Through our partners or collaborators, we will likely need to assist in pursuing regulatory approvals from the FDA when they attempt to enter the diagnostics market, which is expensive, involves a high degree of risk and there is no assurance that we will be able to develop a commercially viable product. Even if the products under development are authorized and approved by the FDA, our partners or collaborators must still meet the challenges of successful marketing, distribution and customer acceptance.

Marketing, Sales, Service and Support

Our business model is focused on offering our customers and collaborators access to our tSMS technology in order to drive comprehensive and reliable solutions that enhance acceptance, customer loyalty and confidence, revenue growth and shareholder value. We plan to focus on addressing specific markets for which there are not currently adequate solutions. This will require education and demonstration of added value by helping customers and collaborators meet program timelines, providing data that supports their programs, and implementing custom solutions to meet each customer's specific objectives. We currently generate revenue by selling to existing customers and through collaborative, research-focused efforts that create additional sales and growth opportunities.

To achieve recurring growth for our research services revenues and drive new value creation, we are implementing the following initiatives to increase market awareness of the tSMS platform:

- Defining our value proposition in terms of commercial value and solution to customer needs, as related to platform flexibility, speed to solution, and comprehensive quality of the genetic information provided.
- Creating new literature that highlights our technology, instruments and capabilities. This includes brochures, white papers, application notes, case studies, and solution's value proposition marketing material.
- Implementing new customer facing programs including trade show participation, posters and presentations to showcase the solutions for commercial needs, and attending scientific conferences that publish the research data from the tSMS platform.
- Expanding visibility in segment verticals with segment organization participation and by creating integrated training and education programs as a part of instrument sales and the training process.
- Furthering research collaborations with key opinion leaders to address critical, high potential needs and publish the findings in the peer-reviewed scientific journals.

We believe this approach maximizes value to our customers and shareholders by supporting the largest possible number of customers.

Manufacturing

We have the capability to manufacture the required sequencing kits and instrumentation at our own manufacturing facility. We believe manufacturing all system components internally results in greater trade secret protection for our proprietary formulations and mechanics, a higher degree of customer satisfaction in our research business, and lower production costs. In the future, we may outsource some of the non-proprietary reagents and basic instrumentation sub-assemblies for parallel inventory production ramp-ups. Relationships to various contract manufacturing organizations have already been established and we believe several are prepared to provide these services once production demand exceeds internal capacity.

Our current manufacturing staff is comprised of a team of engineers and technicians each having more than 10 years of experience with the tSMS product line. The manufacturing team has deep experience with the tSMS platform and has the ability to adapt to future needs on both the hardware and sequencing kits. In addition, this group has experience in FDA product clearance and working in an FDA regulated environment. The team has been involved in manufacturing commercially available tSMS instruments since its original design and subsequent production in 2008.

We are planning to establish a controlled manufacturing process and environment, and to implement standards according to the International Organization for Standardization (ISO), 5S lean manufacturing methodology, and other lean techniques. We also plan to create work cells for efficiency and material control for both sequencing kits and instrumentation. Implementation of quality assurance in manufacturing documentation and processes is one of our top priorities as we continue the path toward releasing a clinical grade tSMS sequencer that is compatible with the FDA clearance process.

We believe our current facilities are adequate and we have additional room to expand to meet our manufacturing needs for the foreseeable future.

Research and Development

Our research and development efforts focus on maintaining our advantage in single molecule sequencing. These efforts leverage our team's involvement and continuing development of the tSMS technology for over a decade. The tSMS technology blends a number of scientific disciplines, including optics, micro-fluidics, biochemistry and molecular biology, systems engineering, and bioinformatics. Over the years, we have continuously established strong relationships with technology leaders and leading academic centers that augment and complement our internal research and development efforts.

Some of our research and development accomplishments include:

- Production of a second generation tSMS sequencer in benchtop form-factor;
- Optimized sample preparation, flow cell and reagent tSMS processes;
- Innovated machine-learning methods-based image analysis algorithms;
- Co-authored multiple publications in scientific journals; and
- Received multiple National Institutes of Health grant awards for technology development.

We plan to continue our investment in research and development to enhance the performance and expand the application base of our current products, and to introduce additional products based on our technology. In addition, our engineering team will continue their focus on increasing instrument component and system reliability, reducing costs, and implementing additional system flexibility and versatility through the enhancement of existing products and development of new products.

Competition

Given the market opportunity, there are a significant number of competing companies offering gene sequencing equipment or sequencing kits. These include Illumina, Inc., Pacific Biosciences of California, Inc., Thermo Fisher Scientific, Inc., Singular Genomics System, Inc., Element Biosciences, Inc., Ultima Genomics, Inc., and Oxford Nanopore Technologies, Ltd. We believe we are uniquely positioned among the competition to be the only company offering high strand throughput with the power of single molecule resolution.

Our competitors have greater financial, technical, research and/or other resources than we do. These companies also have larger and more established manufacturing capabilities and marketing, sales and support functions. We expect the competition to intensify within this market. The increased competition may result in pricing pressures, which could harm our sales, profitability or market share. In order for us to successfully compete against these companies, we will need to demonstrate that our products deliver superior performance and value. We will also need to continually improve the breadth and depth of current and future products and applications.

Intellectual Property

Developing and maintaining a strong intellectual property position is an important element of our business. We maintain the intellectual property through a combination of licenses, patent protection and trade secrets.

We have sought, and will continue to seek, patent protection for our technology, for improvements to our technology, as well as for any of our other technologies for which we believe such protection will be advantageous. In 2013, as part of the Helicos bankruptcy proceedings, we entered into the following non-exclusive license agreements:

License Agreement with Helicos Biosciences Corporation. Our tSMS technology has been in development since 2004 at Helicos Biosciences Corporation ("Helicos"), which pioneered the first generation tSMS technology resulting in its commercialization as the HeliScope Genetic Analysis System. In 2013, Daniel Jones, a former scientist at Helicos and our current Chief Executive Officer, formed our company to further the development of tSMS. We then purchased much of our physical assets from Helicos, including, among other items, sequencers, laboratory equipment, internal servers, protocols and data analysis procedures, through Helicos' bankruptcy proceedings that began in 2012.

In 2013, we entered into, and since such date fully paid for, a non-exclusive, royalty-free license from Helicos, for the life of such patents, for over 60 patents, all but eight of which have since expired or been abandoned, covering key areas of our technology, including design, methods and chemistry. As part of the Helicos bankruptcy proceedings, Fluidigm Corporation, a U.S. public company engaged in the design, manufacture and sale of biological research equipment based on integrated fluid circuit technology, obtained the rights to this patent portfolio. The license grants to us the right to use or sell throughout the world products or processes based upon the intellectual property covered by the licensed patents in the field of contract gene sequencing, and prohibits us from sublicensing the intellectual property to any third party or to make any assignment of the license. The license may be terminated by Fluidigm in the event we sub-license or assign any of the intellectual to a third party; however, we have the right to use the patented technology in connection with any partnership or collaboration in which we have at least a 50% ownership interest. In addition, Fluidigm has a right to terminate the license in the event Daniel Jones, our Chief Executive Officer, fails to continue to work full time for us or if we fail to use reasonable care in the investigation, testing or solicitation of government approvals with respect to the intellectual property. In addition, the license will automatically terminate in the event we dissolve, cease to conduct business, file a petition for bankruptcy, assign all of our assets to a receiver or trustee or in the event we have an involuntary bankruptcy petition initiated against us that is not dismissed within 60 days. This license is provided to us on an "as is" basis only and without any representations or warranties, express or implied, regarding the intellectual property and the use thereof. In addition, Fluidigm has no obligation under the license agreement to prosecute any patent application or to maintain any rights to the intellectual property by payment of any fees to any governmental agency. While the remaining patents comprising this patent portfolio are expected to expire in 2025 through 2028, as this patent portfolio has been broadly licensed, we do not expect such expirations to have a material adverse effect upon our business operations.

Sub-License Agreement with Helicos Biosciences Corporation. As part of the Helicos bankruptcy proceeding, Arizona Science and Technology Enterprises LLC ("AzTE") agreed that Helicos could sub-license to us the license agreement between Helicos and AzTE with respect to 10 patents owned by AzTE for the life of such patents. All of the patents under this sublicense have since expired.

We have two pending patent applications, one filed in 2021 and the other filed in 2022. We received a Notice of Allowance regarding our previous patent application 15/754.222. In October 2022, the USPTO notified us that the related patent term adjustment was 779 days. Our issued and pending patents cover various aspects of our sequencing technology, and we expect to continue to file new patent applications to protect the improvements to our technologies.

We have registered our corporate name (SeqLL) and design logo, as well as the phrase "tSMS" and "DRS". We protect trade secrets, know-how, copyrights, and trademarks, as well as continuing technological innovation and licensing opportunities to develop and maintain our competitive position. Our success depends in part on obtaining patent protection for our products and processes, preserving trade secrets, patents, copyrights and trademarks, operating without infringing the proprietary rights of third parties, and acquiring licenses for technology or products.

Employees

As of December 31, 2022, we had seven employees. None of our employees are represented by a collective bargaining agreement, and we have never experienced any work stoppage. We believe we have good relations with our employees.

Properties and Facilities

On February 2, 2022, we entered into a new lease agreement for approximately 15,538 square feet of corporate office and laboratory space in Billerica, Massachusetts. The lease has a term of 92 months with the rent escalating from $14,317 to $26,453 per month over the lease term.

Legal Proceedings

From time to time, we may be involved in various disputes and litigation matters that arise in the ordinary course of business. We are currently not a party to any material legal proceedings.

ITEM 1A. RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the following information about these risks, together with the other information appearing elsewhere in this report, including our financial statements, the notes thereto and the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding to invest in our securities. The occurrence of any of the following risks could have a material and adverse effect on our business, reputation, financial condition, results of operations and future growth prospects, as well as our ability to accomplish our strategic objectives. As a result, the trading price of our securities could decline, and you could lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations and stock price.

As we have incurred recurring losses and negative operating cash flows since our inception, there is no assurance that we will be able to continue as a going concern absent additional financing, which we may not be able to obtain on favorable terms or at all.

We have incurred net losses since our incorporation in 2014 and we cannot be certain if or when we will produce sufficient revenue from our operations to support our costs. Even if profitability is achieved in the future, we may not be able to sustain profitability on a consistent basis. We expect to continue to incur substantial losses and negative cash flow from operations for the foreseeable future. Our future is dependent upon our ability to obtain financing and upon future profitable operations from the sale of future sequencing products.

Our ability to obtain additional financing will be subject to a number of factors, including market conditions, our operating performance and investor sentiment. If we are unable to raise additional capital when required or on acceptable terms, we may have to significantly delay, scale back or discontinue our operations or obtain funds by entering into agreements on unattractive terms, which would likely have a material adverse effect on our business, stock price and our relationships with third parties with whom we have business relationships, at least until additional funding is obtained. If we do not have sufficient funds to continue operations, we could be required to seek bankruptcy protection or other alternatives that would likely result in our stockholders losing some or all of their investment in us.

We do not have any credit facilities as a source of future funds, and there can be no assurance that we will be able to raise sufficient additional capital on acceptable terms, or at all. We may seek additional capital through a combination of private and public equity offerings, debt financing and strategic collaborations. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. Debt financing, if obtained, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, could increase our expenses and require that our assets secure such debt. Moreover, any debt we incur must be repaid regardless of our operating results.

We are an early, commercial-stage company with a limited operating history.

We were incorporated in 2014 and we have had limited sales to date. As such, we have limited historical financial data upon which to base our projected revenue, planned operating expenses or upon which to evaluate us and our commercial prospects. Based on our limited experience in developing and marketing our existing products and services as well as launching new products, we may not be able to effectively:

- drive adoption of our current and future products and services;
- attract and retain customers for our products and services;
- provide appropriate levels of customer training and support for our products and services;
- implement an effective marketing strategy to promote awareness of our products and services;
- develop, manufacture and commercialize new products or achieve an acceptable return on our manufacturing or research and development efforts and expenses;
- anticipate and adapt to changes in our market or predict future performance;
- accommodate customer expectations and demands with respect to our products and services;
- grow our market share by marketing and selling our products and services to new and additional market segments;
- maintain and develop strategic relationships with vendors and manufacturers to acquire necessary materials for the production of our existing or future products;
- adapt or scale our manufacturing activities to meet potential demand at a reasonable cost;
- avoid infringement and misappropriation of third-party intellectual property;
- obtain any necessary licenses to third-party intellectual property on commercially reasonable terms;
- obtain valid and enforceable patents that give us a competitive advantage;
- protect our proprietary technology; and
- attract, retain and motivate qualified personnel.

If our tSMS sequencing instruments or sequencing services fail to achieve and sustain sufficient market acceptance, we will not generate expected revenue and our business may not succeed.

We cannot be sure that our current or future tSMS sequencers or services will gain acceptance in the marketplace at levels sufficient to support our costs. We must successfully develop and commercialize our technology for use in a variety of life sciences and other applications. Even if we are able to implement our technology and develop products successfully, we and/or our sales and distribution partners may fail to achieve or sustain market acceptance of our products across the full range of our intended life science and other applications. Our sequencing instruments require sequencing kits in order to produce sequencing data at sufficient levels to generate expected revenue. We will have to increase our internal capabilities and to collaborate with other partners in order to successfully expand sales of our sequencing kits in the markets we seek to reach, which we may be unable to do at the scale required to support our business.

Our research and development efforts may not result in the benefits we anticipate, and our failure to successfully market, sell and commercialize our current and future sequencing instruments and services products could have a material adverse effect on our business, financial condition and results of operations.

We have dedicated significant resources to developing sequencing instruments and services. We are also engaged in substantial and complex research and development efforts, such as Direct RNA Sequencing (DRS™), single cell sequencing, biomarker discovery, and epigenetic modification detection, which, if successful, may result in the introduction of new products in the future. Our research and development efforts are complex and require us to incur substantial expenses. We may not be able to develop and commercialize new products, or achieve an acceptable return, if any, on our research and development efforts and expenses. There can also be no assurance that we will be able to develop and manufacture future sequencing instruments and applications as a result of our research and development efforts, or that we will be able to market, sell and commercialize the products that result from our research and development efforts. We will need to expand our internal capabilities and seek new partnerships or collaborations in order to successfully market, sell and commercialize the sequencing instruments and applications that we have developed in the markets we seek to reach.

The pioneer of our tSMS technology, Helicos Biosciences Corporation, was unable to successfully commercialize its tSMS product offerings and there can be no assurance that the business strategy that we have developed and are pursuing to commercialize our tSMS offerings will be successful.

Our tSMS technology has been in development since 2004 at Helicos Biosciences Corporation ("Helicos"), which pioneered the first generation tSMS technology resulting in its commercialization as the HeliScope Genetic Analysis System. Helicos was unable to successfully commercialize its product offerings and filed for protection under Chapter 11 of the United States Bankruptcy Code in 2012. In 2013, Daniel Jones, a former scientist at Helicos and our current Chief Executive Officer, formed our company to further the development of tSMS. We then purchased much of our physical assets from Helicos, including, among other items, sequencers, laboratory equipment, internal servers, protocols and data analysis procedures, through Helicos' bankruptcy proceedings. While we believe we have developed and are pursuing a unique business strategy for our company that is distinguishable from the business strategy that was pursued by Helicos, there can be no assurance that our business strategy will be successful or that we will ultimately be profitable. If our current or future tSMS sequencers or services do not gain acceptance in the marketplace, our business and financial condition would be harmed, and you could lose all or a portion of your investment in our securities.

If we are unable to successfully develop and timely manufacture our sequencing instruments and reagents, our business may be adversely affected.

In light of the highly complex technologies involved in our sequencing products, including instruments and reagents, there can be no assurance that we will be able to manufacture and commercialize our new sequencing instruments and reagents on a timely basis or provide adequate support for such products. The commercial success of our sequencers and reagents depends on a number of factors, including performance and reliability, our anticipating and effectively addressing customer preferences and demands, the success of our sales and marketing efforts, effective forecasting and management of instrument and sequencing services demand, purchase commitments and inventory levels and effective management of manufacturing and supply costs. Our ability to manufacture benchtop sequencers and reagents could be negatively impacted by changes to personnel, hiring delays, resource availability, supply chain disruption or facilities disruption, and may be insufficient to achieve customer acceptance and growth.

The development of our sequencing instruments and reagents is complex and costly, requiring successful systems integration and reagent quality to generate usable data for customers and collaborators. Problems in the design or quality of our products may have a material and adverse effect on our brand, business, financial condition and operating results. Unanticipated problems with our products could divert substantial resources, which may impair our ability to support our new and existing products, and could substantially increase our costs. If we encounter development challenges or discover errors in our products late in our development cycle, we may be forced to delay product shipments or the scaling of manufacturing or supply. The expenses or losses associated with delayed or unsuccessful product development or lack of market acceptance of our new products could materially and adversely affect our business, financial condition and results of operations.

We must successfully manage new product introductions and transitions related to the tSMS technology, we may incur significant costs during these transitions, and they may not result in the benefits we anticipate.

The introduction of future products may lead to our limiting or ceasing development of further enhancements to our existing sequencing instruments and applications, as we focus our resources on new products, and could result in reduced marketplace acceptance and loss of sales of our existing sequencing instruments or sequencing services, which could materially adversely affect our revenue and operating results. The introduction of new products may also have a negative impact on our revenue in the near-term as our current and future customers may delay or cancel orders of existing sequencing instruments or sequencing services in anticipation of new products and we may also be pressured to decrease prices for our existing products. Further, we could experience difficulty in managing or forecasting customer reactions, purchasing decisions or transition requirements with respect to newly-launched sequencing instruments or sequencing services. We could incur significant costs in completing the transitions, including costs of inventory write-downs of our products, as current or future customers transition to the new products. If we do not successfully manage these product transitions, our business, reputation and financial condition may be materially and adversely affected.

The coronavirus (COVID-19) pandemic has disrupted our business and could negatively impact our financial condition.

The unprecedented global outbreak of the novel coronavirus (***COVID-19***) that began in the first quarter of 2020 had a significant impact on certain aspects of our business, including strains on our supply chain due and the significant reductions of research grants made available during the pandemic, particularly for sequencing research and development that is not dedicated to COVID-19 related disorders. The initial target market for our instruments and research services has been the life sciences research and development market where we provide solutions for a variety of applications, including biomarker discovery and diagnostic assay developments. This market, which includes laboratories associated with universities, scientific research centers, government institutions, and biotechnology and pharmaceutical companies, often depends on research grants and donations for a significant portion of their funding, and the demand for our products in this customer segment has been affected by a reduction in their non-COVID-19 related research grants and may continue to be so affected in the future. While our operations have generally stabilized since the peak of the pandemic, our operations may continue to be impacted by any continuing effects of ***COVID-19***, including resurgences and variants of ***COVID-19*** or outbreaks of any new viruses or contagions.

The full extent to which the ***COVID-19*** pandemic impacts our business and financial condition will largely depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of the pandemic, emergence of variants and the actions necessary to contain ***COVID-19*** or treat its impact.

Our future capital needs are uncertain, and we may need to raise additional funds to support those needs.

We believe our cash on hand and cash generated from commercial sales and research activity will enable us to fund our operations for at least 24 months. However, we expect to seek significant future financing, namely to:

- expand our sales and marketing efforts to further commercialize our products and services;
- hire additional personnel;
- add operational, financial and management information systems;
- pay increased costs as a result of operating as a public company;

- lease additional laboratory space to accommodate expanded operations and increased human resources;
- expand our research and development efforts to improve our product offerings and to successfully launch new products;
- enter into collaboration agreements, if any, or in-license other products and technologies; and
- seek FDA approval to market our existing products or new products that would be utilized for diagnostic purposes.

Our future funding requirements will depend on many factors, including:

- market acceptance of our products;
- the cost and timing of establishing additional sales, marketing and distribution capabilities;
- the cost of our research and development activities;
- the success of our existing distribution and marketing arrangements and our ability to enter additional arrangements in the future; and
- the effect of competing technological and market developments.

We cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all. Our ability to obtain additional financing will be subject to market conditions, our operating performance and investor sentiment, among other factors. If we raise additional funds by issuing equity or equity-linked securities, our stockholders may experience dilution. Future debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt or equity financing may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. If we do not have, or are not able to obtain, sufficient funds, we may have to delay development or commercialization of our products. We also may have to reduce marketing, customer support or other resources devoted to our products or cease operations. Any of these factors could have a material adverse effect on our financial condition, operating results and business.

We rely on other companies for certain components and materials and intend to outsource sub-assembly manufacturing in the future. We may not be able to successfully assemble or manufacture reagents and instruments or scale the manufacturing process necessary to build and test multiple products on a full commercial basis, which could materially harm our business.

Our products are complex and involve a large number of unique components, many of which require precision in manufacturing that is performed in-house using third-party components. The nature of our products requires significant use of customized components that are currently available only from a limited number of sources, and in some cases, single sources. If we are required to purchase these components from alternative sources, it could take several months or longer to qualify the alternative sources. If we are unable to secure a sufficient supply of these product components on a timely basis, or if these components do not meet our expectations or specifications for quality and functionality, our operations and manufacturing will be materially and adversely affected, we could be unable to meet customer demand and our business and results of operations may be materially and adversely affected.

The operations of our suppliers could be disrupted by conditions unrelated to our business or operations or that are beyond our control, including but not limited to international trade restrictions or changes resulting from factors beyond our control. If our suppliers are unable or fail to fulfill their obligations to us for any reason, we may not be able to manufacture our instruments or reagents and satisfy customer demand or our obligations under sales agreements in a timely manner, and our business could be harmed as a result. Our current manufacturing process is characterized by long lead times between the placement of orders for and delivery of our products. If we have received insufficient components to manufacture our products on a timely basis to meet customer demand, our sales and our gross margin may be adversely affected, and our business could be materially harmed. If we are unable to reduce our manufacturing costs and establish and maintain reliable, high-volume manufacturing suppliers as we scale our operations, our business could be materially harmed.

We may be unable to consistently manufacture our instruments and reagents to the necessary specifications or in quantities necessary to meet demand at an acceptable cost.

In order to successfully generate revenue from our products, we need to supply our customers with products that meet their expectations relating to read length, error rates and data yield in accordance with established specifications. There is no assurance that we will be able to manufacture our products so that they consistently achieve the product specifications and quality that our customers expect, including any products developed for clinical uses. Problems in the design or quality of our products may have a material adverse effect on our brand, business, financial condition, and operating results. There is also no assurance that we will be able to increase manufacturing output and decrease costs, or that we will be successful in forecasting customer demand or manufacturing and supply costs. Furthermore, we may not be able to increase manufacturing to meet anticipated demand or may experience downtime in our existing or new manufacturing facilities. An inability to manufacture sequencing instruments and reagents or provide sequencing services, that consistently meet specifications, in necessary quantities and at commercially acceptable costs, will have a negative impact, and may have a material adverse effect, on our business, financial condition and results of operations.

Rapidly-changing technology in life sciences and diagnostics could make our technology obsolete unless we continue to develop and commercialize new and improved products and pursue new market opportunities.

The biotechnology industry is characterized by rapid and significant technological changes, frequent new product introductions and enhancements and evolving industry standards. Our future success will depend on our ability to continually improve our products, to develop and introduce new products that address the evolving needs of our customers on a timely and cost-effective basis and to pursue new market opportunities. These new market opportunities may be outside the scope of our proven expertise or in areas where the market demand is unproven, and new products and services developed by us may not gain market acceptance. Our inability to develop and introduce new products and to gain market acceptance of such products could harm our future operating results. Unanticipated difficulties or delays in replacing existing products with new products or other new or improved products in sufficient quantities to meet customer demand could diminish future demand for our products and harm our future operating results.

Increased market adoption of our products by customers may depend on the availability of sample preparation and informatics tools, some of which may be developed by third parties.

Our commercial success may depend in part upon the development of sample preparation and software by third parties for use with our sequencing and data analysis workflow. We cannot guarantee that third parties will develop tools that our current and future customers will find useful with our sequencing instruments given that our sample preparation methods are uniquely tailored to single molecule sequencing. Similarly, as our sequencing methodology does not require amplification and bridge PCR, the downstream data analysis tools required for informatics analysis are specialized. A lack of complementary sample preparation options and software to enable broader usability may impede the adoption of our technology and may materially and adversely impact our business.

We operate in a highly competitive industry and if we are not able to compete effectively, our business and operating results will likely be harmed.

Some of our current competitors, including Illumina, Inc., Pacific Biosciences of California, Inc., Thermo Fisher Scientific Inc., and BGI Group (formerly known as the Beijing Genomic Institute) as well as other potential competitors, have greater name recognition, more substantial intellectual property portfolios, longer operating histories, significantly greater financial, technical, research and/or other resources, more experience in new product development, larger and more established manufacturing capabilities and marketing, sales and support functions, and/or more established distribution channels to deliver products to customers than we do. These competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. In light of these advantages, even if our technology is more effective than the products or service offerings of our competitors, current and potential customers might purchase competitive products and services instead of our products. There are also several companies that are in the process of developing or have already developed new, potentially competing technologies, products and/or services. Increased competition may result in pricing pressures, which could harm our sales, profitability or market share. Our failure to further enhance our existing products and to introduce new products to compete effectively could materially and adversely affect our business, financial condition or results of operations.

Single molecule sequencers are highly complex, have recurring support requirements and could have unknown defects or errors, which may give rise to claims against us or divert application of our resources from other purposes.

Products using our technology are highly complex and may develop or contain undetected defects or errors. Despite testing, defects or errors may arise in our products, which could result in a failure to maintain or increase market acceptance of our products, diversion of development resources, injury to our reputation and increased warranty, service and maintenance costs. New products or enhancements to our existing products in particular may contain undetected errors or performance problems that are discovered only after delivery to customers. If our products have reliability or other quality issues or require unexpected levels of support in the future, the market acceptance and utilization of our products may not grow to levels sufficient to support our costs and our reputation and business could be harmed. We generally ship our sequencing instruments with one year of service included in the purchase price with an option to purchase one or more additional years of service. We also provide a warranty for our sequencing kits, which is generally limited to replacing, or at our option, giving credit for any sequencing kit with defects in material or workmanship. Defects or errors in our products may also discourage customers from purchasing our products. The costs incurred in correcting any defects or errors may be substantial and could materially and adversely affect our operating margins. If our service and support costs increase, our business and operations may be materially and adversely affected.

In addition, such defects or errors could lead to the filing of product liability claims against us or against third parties who we may have an obligation to indemnify against such claims, which could be costly and time-consuming to defend and result in substantial damages. Although we have product liability insurance, any product liability insurance that we have or procure in the future may not protect our business from the financial impact of a product liability claim. Moreover, we may not be able to obtain adequate insurance coverage on acceptable terms. Any insurance that we have or obtain will be subject to deductibles and coverage limits. A product liability claim could have a serious adverse effect on our business, financial condition and results of operations.

We depend on the continuing efforts of our senior management team and other key personnel. If we lose members of our senior management team or other key personnel or are unable to successfully retain, recruit and train qualified scientists, engineers and other personnel, our ability to maintain and develop our products could be harmed and we may be unable to achieve our goals.

Our future success depends upon the continuing services of members of our senior management team and scientific and engineering personnel. We compete for qualified management and scientific personnel with other life science companies, academic institutions and research institutions, particularly those focusing on genomics. If one or more of our senior executives or other key personnel is unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all, and other senior management may be required to divert attention from other aspects of the business. In addition, we do not have “key person” life insurance policies covering any member of our management team or other key personnel. The loss of any of these individuals or our inability to attract or retain qualified personnel, including scientists, engineers and others, could prevent us from pursuing collaborations and materially and adversely affect our support of existing products, product development and introductions, business growth prospects, results of operations and financial condition.

A significant portion of our potential sales depends on customers’ spending budgets that may be subject to significant and unexpected variation which could have a negative effect on the demand for our products.

Our instruments represent significant capital expenditures for our customers. Potential customers for our current or future products include academic and government institutions, genome centers, medical research institutions, clinical laboratories, pharmaceutical, agricultural, biotechnology, diagnostic and chemical companies. Their spending budgets can have a significant effect on the demand for our products. Spending budgets are based on a wide variety of factors, including the allocation of available resources to make purchases, funding from government sources which is highly uncertain and subject to change, the spending priorities among various types of research equipment and policies regarding capital expenditures during economically uncertain periods. Any decrease in capital spending or change in spending priorities of our current and potential customers could significantly reduce the demand for our products. Any delay or reduction in purchases by potential customers or our inability to forecast fluctuations in demand could harm our future operating results.

Delivery of our reagents could be delayed or disrupted by factors beyond our control, and we could lose customers as a result.

We rely on third-party carriers for the timely delivery of our products both domestically and internationally. As a result, we are subject to carrier disruptions and increased costs that are beyond our control. Any failure to deliver products to our customers in a safe and timely manner may damage our reputation and brand and could cause us to lose customers. If our relationship with any of these third-party carriers is terminated or impaired or if any of these carriers are unable to deliver our products, the delivery and acceptance of our products by our customers may be delayed, which could harm our business and financial results. Specific reagents utilized in our sequencing reactions are temperature-sensitive and are required to be kept and stored in a temperature-controlled method in order to properly ship. In addition, many of the raw materials used during the manufacturing process of our reagents require temperature control during shipment. The failure to deliver our products in a safe, temperature-controlled, and timely manner may harm our relationship with our customers, increase our costs and otherwise disrupt our operations.

We are, and may become, subject to governmental regulations that may impose burdens on our operations, and the markets for our products may be narrowed.

We are subject, both directly and indirectly, to the adverse impact of government regulation of our operations and markets. Moreover, the life sciences industry, which is expected to be one of the primary markets for our technology, has historically been heavily regulated. There are, for example, laws in several jurisdictions restricting research in genetic engineering, which may narrow our markets. At a minimum, biosafety regulations enforced by local government must be followed and updated should new regulations pass the approval process. Given the evolving nature of this industry, legislative bodies or regulatory authorities may adopt additional regulations that may adversely affect our market opportunities. Additionally, if ethical and other concerns surrounding the use of genetic information, diagnostics or therapies become widespread, there may be less demand for our products.

Our business is also directly affected by a wide variety of government regulations applicable to business enterprises generally and to companies operating in the life science industry in particular. Failure to comply with government regulations or obtain or maintain necessary permits and licenses could result in a variety of fines or other censures or an interruption in our business operations which may have a negative impact on our ability to generate revenue and the cost of operating our business. In addition, changes to laws and government regulations could cause a material adverse effect on our business as we will need to adapt our business to comply with such changes.

Our products could become subject to regulation by the U.S. Food and Drug Administration or other domestic and international regulatory agencies, which could increase our costs and impede or delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations.

Our products are not currently subject to the FDA clearance or approval since they are not intended for use in the diagnosis or treatment of disease. However, in the future, certain of our products or related applications, such as those that may be developed for clinical uses, could be subject to FDA regulation, or the FDA's regulatory jurisdiction could be expanded to include our products. Even where a product is exempted from FDA clearance or approval, the FDA may impose restrictions as to the types of customers to which we or our partners can market and sell our products. Such regulation and restrictions may materially and adversely affect our business, financial condition and results of operations. In the event that we fail to obtain and maintain necessary regulatory clearances or approvals for products that we develop for clinical uses, or if clearances or approvals for future products and indications are delayed or not issued, our commercial operations may be materially harmed. Furthermore, even if we are granted regulatory clearances or approvals, they may include significant limitations on the indicated uses for the product, which may limit the market for the product. We do not have experience in obtaining FDA approvals and no assurance can be given that we will be able to obtain or to maintain such approvals. Furthermore, any approvals that we may obtain can be revoked if safety or efficacy problems develop.

We believe we can produce accurate financial statements on a timely basis, however, this could be impacted by the loss of any of our accounting staff, which would adversely affect our business and our stock price.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be evaluated frequently. We believe our ability to produce accurate financial statements on a timely basis could be impaired due to our small internal accounting team. We may in the future discover other areas of our internal financial and accounting controls and procedures that need improvement. Operating as a public company requires sufficient resources within the accounting and finance functions in order to produce timely financial information, ensure the level of segregation of duties, and maintain adequate internal control over financial reporting customary for a U.S. public company.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States (U.S. GAAP). Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected.

Our ability to use net operating losses to offset future taxable income may be subject to substantial limitations.

Under Section 382 of the Internal Revenue Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating losses ("NOLs") to offset future taxable income. Significant changes in our stock ownership could result in us being unable to utilize a material portion of our NOLs even if we attain profitability.

Our sales cycle is unpredictable and lengthy, which makes it difficult to forecast revenue and may increase the magnitude of quarterly or annual fluctuations in our operating results.

The sales cycle for our sequencing instruments is lengthy because our products represent a major capital expenditure and generally require the approval of our customers' senior management. This may contribute to substantial fluctuations in our quarterly or annual operating results, particularly during the periods in which our sales volume is low. Factors that may cause fluctuations in our quarterly or annual operating results include, without limitation:

- market acceptance for our products;
- our ability to attract new customers;
- publications of studies by us, competitors or third parties;
- the timing and success of new product introductions by us or our competitors or other changes in the competitive dynamics of our industry, such as consolidation;
- the amount and timing of our costs and expenses;
- general economic, industry and market conditions;
- changes in our pricing policies or those of our competitors;
- the regulatory environment;
- expenses associated with warranty costs or unforeseen product quality issues;
- the hiring, training and retention of key employees, including our ability to grow our sales organization;
- litigation or other claims against us for intellectual property infringement or otherwise;
- our ability to obtain additional financing as necessary; and
- changes or trends in new technologies and industry standards.

Because of these fluctuations, it is likely that in some future quarters our operating results will fall below the expectations of securities analysts or investors.

Our operations involve the use of hazardous materials, and we must comply with environmental, health and safety laws, which can be expensive and may adversely affect our business, operating results and financial condition.

Our research and development and manufacturing activities involve the use of hazardous materials, including chemicals and biological materials. Our sequencing reagents, such as tris (2-carboxyethyl) phosphine and acetonitrile, include hazardous materials. Accordingly, we are subject to federal, state, local and foreign laws, regulations and permits relating to environmental, health and safety matters, including, among others, those governing the use, storage, handling, exposure to and disposal of hazardous materials and wastes, the health and safety of our employees, and the shipment, labelling, collection, recycling, treatment and disposal of products containing hazardous materials. Liability under environmental laws and regulations can be joint and several and without regard to fault or negligence. For example, under certain circumstances and under certain environmental laws, we could be held liable for costs relating to contamination at our or our predecessors' past or present facilities and at third-party waste disposal sites. We could also be held liable for damages arising out of human exposure to hazardous materials. There can be no assurance that violations of environmental, health and safety laws will not occur as a result of human error, accident, equipment failure or other causes. The failure to comply with past, present or future laws could result in the imposition of substantial fines and penalties, remediation costs, property damage and personal injury claims, investigations, the suspension of production or product sales, the loss of permits or a cessation of operations. Any of these events could harm our business, operating results and financial condition. We also expect that our operations will be affected by new environmental, health and safety laws and regulations on an ongoing basis, or more stringent enforcement of existing laws and regulations. New laws or changes to existing laws may result in additional costs and may increase penalties associated with violations or require us to change the content of our products or how we manufacture them, which could have a material adverse effect on our business, operating results and financial condition.

Ethical, legal, privacy and social concerns or governmental restrictions surrounding the use of genetic information could reduce demand for our technology.

Our products may be used to provide genetic information about humans and other living organisms. The information obtained from our products could be used in a variety of applications that may have underlying ethical, legal, privacy and social concerns, including the genetic engineering or modification of agricultural products or testing for genetic predisposition for certain medical conditions. Governmental authorities could, for safety, social or other purposes, call for limits on or regulation of the use of genetic testing. Such concerns or governmental restrictions could limit the use of our products, which could have a material adverse effect on our business, financial condition and results of operations.

Disruption of critical information technology systems or material breaches in the security of our systems could harm our business, customer relations and financial condition.

Information technology ("IT") helps us to operate efficiently, interface with customers, maintain financial accuracy and efficiently and accurately produce our financial statements. IT systems are used extensively in virtually all aspects of our business, including sales forecast, order fulfilment and billing, customer service, logistics, and management of data from running samples on our products. Our success depends, in part, on the continued and uninterrupted performance of our IT systems. IT systems may be vulnerable to damage from a variety of sources, including telecommunications or network failures, power loss, natural disasters, human acts, computer viruses, computer denial-of-service attacks, unauthorized access to customer or employee data or company trade secrets, and other attempts to harm our systems. Certain of our systems are not redundant, and our disaster recovery planning is not sufficient for every eventuality. Despite any precautions we may take, such problems could result in, among other consequences, disruption of our operations, which could harm our reputation and financial results.

If we do not allocate and effectively manage the resources necessary to build and sustain the proper IT infrastructure, we could be subject to transaction errors, processing inefficiencies, loss of customers, business disruptions or loss of or damage to intellectual property through security breach. If our data management systems do not effectively collect, store, process and report relevant data for the operation of our business, whether due to equipment malfunction or constraints, software deficiencies or human error, our ability to effectively plan, forecast and execute our business plan and comply with applicable laws and regulations will be impaired, perhaps materially. Any such impairment could materially and adversely affect our reputation, financial condition, results of operations, cash flows and the timeliness with which we report our internal and external operating results.

Security breaches and other disruptions could compromise our information and expose us to liability, which would cause our business and reputation to suffer.

In the ordinary course of our business, we collect and store sensitive data, including intellectual property, our proprietary business information and that of our customers, suppliers and business partners, and personally identifiable information of our employees, on our networks. The secure processing, maintenance and transmission of this information is critical to our operations. Despite our security measures, our IT infrastructure may be vulnerable to attacks by hackers, computer viruses, malicious codes, unauthorized access attempts, and cyber- or phishing-attacks, or breached due to employee error, malfeasance, faulty password management or other disruptions. Third parties may attempt to fraudulently induce employees or other persons into disclosing usernames, passwords or other sensitive information, which may in turn be used to access our IT systems, commit identity theft or carry out other unauthorized or illegal activities. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, disruption of our operations and damage to our reputation, which could divert our management's attention from the operation of our business and materially and adversely affect our business, revenues and competitive position. Moreover, we may need to increase our efforts to train our personnel to detect and defend against cyber- or phishing-attacks, which are becoming more sophisticated and frequent, and we may need to implement additional protective measures to reduce the risk of potential security breaches, which could cause us to incur significant additional expenses.

We are subject to certain U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations. We can face serious consequences for violations.

Among other matters, U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations, which are collectively referred to as Trade Laws, prohibit companies and their employees, agents, clinical research organizations, legal counsel, accountants, consultants, contractors, and other partners from authorizing, promising, offering, providing, soliciting or receiving, directly or indirectly, corrupt or improper payments or anything else of value to or from recipients in the public or private sector. Violations of Trade Laws can result in substantial criminal fines and civil penalties, imprisonment, the loss of trade privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We also expect our non-U.S. activities to increase in time. We plan to engage third parties for collaborations, sales and distribution of sequencing products and we can be held liable for the corrupt or other illegal activities of our personnel, agents, or partners, even if we do not explicitly authorize or have prior knowledge of such activities.

Risks Related to Our Intellectual Property

Failure to secure patent or other intellectual property protection for our products and improvements to our products may reduce our ability to maintain any technological or competitive advantage over our current and potential competitors.

Our ability to protect and enforce our intellectual property rights is uncertain and depends on complex legal and factual questions. Our ability to establish or maintain a technological or competitive advantage over our competitors may be diminished because of these uncertainties. For example:

- we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications or issued patents;
- we or our licensors might not have been the first to file patent applications for these inventions;
- the scope of the patent protection we or our licensors obtain may not be sufficiently broad to prevent others from practicing our technologies, developing competing products, designing around our patented technologies or independently developing similar or alternative technologies;
- our and our licensors' patent applications or patents have been, are and may in the future be, subject to interference, opposition or similar administrative proceedings, which could result in those patent applications failing to issue as patents, those patents being held invalid, or the scope of those patents being substantially reduced;

- the current assignee of our intellectual property may elect to forego paying maintenance fees, placing us at risk to lose the licensed IP, or the assignee may neglect to enforce the intellectual property we license from them;

- we or our partners may not adequately protect our trade secrets;

- we may not develop additional proprietary technologies that are patentable; or

- the patents of others may limit our freedom to operate and prevent us from commercializing our technology in accordance with our plans.

The occurrence of any of these events could impair our ability to operate without infringing upon the proprietary rights of others or prevent us from establishing or maintaining a competitive advantage over our competitors.

The intellectual property that is important to our business is owned by other companies or institutions and licensed to us, and changes to the rights we have licensed may adversely impact our business.

We license the intellectual property that is important to our business from Fluidigm Corporation ("Fluidigm") (which obtained this intellectual property portfolio from Helicos Biosciences Corporation ("Helicos")) pursuant to a non-exclusive licensing agreement. If we fail to comply with the terms of the license, Fluidigm could terminate the license. If these third parties who license intellectual property to us fail to maintain the intellectual property that we have licensed, or lose rights to that intellectual property, the rights we have licensed may be reduced or eliminated, which could subject us to claims of intellectual property infringement. Termination of our license from Fluidigm or reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms or could subject us to claims of intellectual property infringement in litigation or other administrative proceedings that could result in damage awards against us and injunctions that could prohibit us from selling our products. In addition, our license agreement from Fluidigm is non-exclusive, and Fluidigm may license the technology to our competitors, which may result is significant competition for us.

In addition, we have limited rights to participate in the prosecution and enforcement of the patents and patent applications that we have licensed. As a result, we cannot be certain that these patents and applications will be prosecuted and enforced in a manner consistent with the best interests of our business. Further, because of the rapid pace of technological change in our industry, we may need to rely on key technologies developed or licensed by third parties, and we may not be able to obtain licenses and technologies from these third parties at all or on reasonable terms. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

A license agreement for intellectual property that is important to our business may be terminated in the event that Daniel Jones, our Chief Executive Officer, fails to continue to work full time for us.

As discussed above, we license certain intellectual property that is important to our business from Fluidigm (which obtained this intellectual property portfolio from Helicos) pursuant to a non-exclusive licensing agreement. The license agreement provides that Fluidigm has a right to terminate the license in the event Daniel Jones, our Chief Executive Officer, fails to continue to work full time for us. If we lose our rights to such intellectual property, the rights we have licensed may be reduced or eliminated, which could subject us to claims of intellectual property infringement, require us to cease selling certain or all of our products, negotiate less favorable agreements or otherwise result in a loss of business. In addition, such language could prevent us from terminating Mr. Jones from his position when it would otherwise be favorable for stockholders or our business in general.

Our licensed intellectual property and future intellectual property will have limited window of enforcement.

Our licensed intellectual property and future intellectual property will have limited windows of enforcement. The patents on substantially all of our licensed IP are expected to expire between 2025 and 2028, excluding any extension or adjustment of patent terms that may be available. Following the expiration and termination of the patents relating to our licensed technology, we may face the development of similar technology from our competitors or other market participants, which could impede our revenue and growth.

We may not be able to protect intellectual property and proprietary rights worldwide.

The majority of our intellectual property is licensed from third parties through non-exclusive license agreements. Although our company has accumulated trade secrets and know-how to make this technology work effectively and reliably over the last decade, other entities may attempt to commercialize this technology by gaining access to the intellectual property. As a result, we may encounter additional competition from third parties, and may require significant amounts of time and resources to protect our intellectual property and proprietary rights.

Filing, prosecuting and defending patents on our products and other technologies in all countries throughout the world would be cost prohibitive, and the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Intellectual property laws, and patent laws and regulations in particular, have been subject to significant variability either through administrative or legislative changes to such laws or regulations or changes or differences in judicial interpretation, and it is expected that such variability will continue to occur. Additionally, intellectual property laws and regulations differ by country. Variations in the patent laws and regulations or in interpretations of patent laws and regulations in the United States and other countries may diminish the value of our intellectual property and may change the impact of third-party intellectual property on us. Accordingly, we cannot predict the scope of the patents that may be granted to us with certainty, the extent to which we will be able to enforce our patents against third parties or the extent to which third parties may be able to enforce their patents against us.

If the scope of any patent protection we obtain is not sufficiently broad, or if we lose any of our patent protection, our ability to prevent our competitors from commercializing similar or identical sequencing technology and applications would be adversely affected.

The patent position of biotechnology companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. Our owned or in-licensed pending and future patent applications may not result in patents being issued which protect our tSMS platform, or other technologies or which effectively prevent others from commercializing competitive technologies and applications.

Our ability to stop third parties from making, using, selling, offering to sell, or importing products that infringe our intellectual property will depend in part on our success in obtaining and enforcing patent claims that cover our technology, inventions and improvements. With respect to both licensed and company-owned intellectual property, we cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our products and the methods used to manufacture those products. Moreover, even our issued patents do not guarantee us the right to practice our technology in relation to the commercialization of our products. The area of patent and other intellectual property rights in biotechnology is an evolving one with many risks and uncertainties, and third parties may have blocking patents that could be used to prevent us from commercializing our sequencing instruments and practicing our proprietary technology. Our issued patent and those that may be issued in the future may be challenged, invalidated, or circumvented, which could limit our ability to stop competitors from marketing related products or limit the length of the term of patent protection that we may have for our technology. In addition, the rights granted under any issued patents may not provide us with protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies. For these reasons, we may have competition for our products. Moreover, because of the extensive time required for development and testing of new sequencing instruments, it is possible that, before any particular product can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of the patent.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we own or license issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own or in-license may be challenged, narrowed, circumvented or invalidated by third parties. Consequently, we do not know whether our tSMS platform or other technologies will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner which could materially adversely affect our business, financial condition, results of operations and prospects.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and patents that we own or license may be challenged in the courts or patent offices in the United States and abroad. We or our licensors may be subject to a third-party reissuance submission of prior art to the U.S. Patent and Trademark Office (“USPTO”) or to foreign patent authorities or become involved in opposition, derivation, revocation, re-examination, post-grant and *inter partes* review, or interference proceedings or other similar proceedings challenging our owned or licensed patent rights. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our owned or in-licensed patent rights, allow third parties to commercialize our tSMS platform technologies or other technologies and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. Moreover, we, or one of our licensors, may have to participate in interference proceedings declared by the USPTO to determine priority of invention or in post-grant challenge proceedings, such as oppositions in a foreign patent office, that challenge our or our licensor’s priority of invention or other features of patentability with respect to our owned or in-licensed patents and patent applications. Such challenges may result in loss of patent rights, loss of exclusivity, or in patent claims being narrowed, invalidated, or held unenforceable, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our tSMS Platform and other technologies. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us.

We may in the future co-own patent rights relating to future sequencing instruments, reagents, applications, or our tSMS platform with third parties. Some of our in-licensed patent rights are, and may in the future be, co-owned with third parties. In addition, our licensors may co-own the patent rights we in-license with other third parties with whom we do not have a direct relationship.

We could in the future be subject to legal proceedings with third parties who may claim that our products infringe or misappropriate their intellectual property rights.

Our products are based on complex, rapidly developing technologies. We may not be aware of issued or previously filed patent applications that belong to third parties that mature into issued patents that cover some aspect of our products or their use. In addition, because patent litigation is complex and the outcome inherently uncertain, our belief that our products do not infringe third-party patents of which we are aware or that such third-party patents are invalid and unenforceable may be determined to be incorrect. As a result, third parties have claimed, and may in the future claim, that we infringe their patent rights and have filed, and may in the future file, lawsuits or engage in other proceedings against us to enforce their patent rights. In addition, as we enter new markets, our competitors and other third parties may claim that our products infringe their intellectual property rights as part of a business strategy to impede our successful entry into those markets. Furthermore, parties making claims against us may be able to obtain injunctive or other relief, which effectively could block our ability to develop further, commercialize, or sell products or services, and could result in the award of substantial damages against us. Patent litigation between competitors in our industry is common. In defending ourselves against any of these claims, we could in the future incur, substantial costs, and the attention of our management and technical personnel could be diverted. We may be unable to modify our products so that they do not infringe the intellectual property rights of third parties. In some situations, the results of litigation or settlement of claims may require us to cease allegedly infringing activities, which could prevent us from selling some or all of our products. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

In addition, in the course of our business, we may from time to time have access or be alleged to have access to confidential or proprietary information of others, which, though not patented, may be protected as trade secrets. Others could bring claims against us asserting that we improperly used their confidential or proprietary information, or that we misappropriated their technologies and incorporated those technologies into our products. A determination that we illegally used the confidential or proprietary information or misappropriated technologies of others in our products could result in us paying substantial damage awards or being prevented from selling some or all of our products, which could materially and adversely affect our business.

We have not yet registered some of our trademarks in all of our potential markets, and failure to secure those registrations could adversely affect our business.

While we believe our trademarks are registered in the markets in which we currently operate, some of our trademark applications may not be allowed for registration in markets in which we may seek to enter in the future, and our registered trademarks may not be maintained or enforced. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose new or pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings.

Risks Related to our Collaborations with Third Parties

Our future collaborations may be important to our business. If we are unable to maintain any of these collaborations, or if these collaborations are not successful, our business could be adversely affected.

We have limited capabilities for technology development, sales, marketing or distribution. Accordingly, we may enter into collaborations with academic and commercial entities to provide us with important technologies and funding for our programs and technology, and we may receive additional technologies and funding under these and other collaborations in the future. Any future collaborations we enter into may pose a number of risks, including the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any platform or may elect not to continue or renew development or commercialization programs or license arrangements based on changes in the collaborators' strategic focus or available funding, or external factors, such as a strategic transaction that may divert resources or create competing priorities;
- collaborators may provide insufficient funding for the research program;

- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our sequencing instruments and applications if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;

- biomarkers discovered by our collaborators in collaboration with us may be viewed by our collaborators as competitive with their own products, which may cause collaborators to cease to devote resources to the commercialization of our product;

- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or terminations of the research, development or commercialization of new products or platforms, might lead to additional responsibilities for us with respect to technology development, or might result in litigation or arbitration, any of which would be time-consuming and expensive;

- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;

- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;

- if a collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate the development or commercialization of any product licensed to it by us; and

- collaborations may be terminated by the collaborator, and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable sequencing technology.

If our potential future collaborations do not result in the successful discovery, development and commercialization of products or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone potential payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of our technology and applications could be delayed and we may need additional resources to develop products and our technology. All of the risks relating to product development, regulatory approval and commercialization described in this prospectus also apply to the activities of our therapeutic collaborators.

Additionally, if one of our potential future collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

Risks Related to Ownership of Our Common Stock and Publicly-Traded Warrants

The market price of our common stock and publicly-traded warrants may be highly volatile, and you could lose all or part of your investment.

The prices of our common stock or publicly-traded warrants could be subject to wide fluctuations in response to a variety of factors, which include:

- actual or anticipated fluctuations in our financial condition and operating results;

- announcements of technological innovations by us or our competitors;

- announcements by our customers, partners or suppliers relating directly or indirectly to our products, services or technologies;

- overall conditions in our industry and market;

- addition or loss of significant customers;

- changes in laws or regulations applicable to our products;

- actual or anticipated changes in our growth rate relative to our competitors;

- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, capital commitments or achievement of significant milestones;

- additions or departures of key personnel;
- competition from existing products or new products that may emerge;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patents, litigation matters or our ability to obtain intellectual property protection for our technologies;
- announcement or expectation of additional financing efforts;
- sales of our common stock or warrants by us or our stockholders;
- stock price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- reports, guidance and ratings issued by securities or industry analysts; and
- general economic and market conditions.

If any of the forgoing occurs, it would cause our stock and Warrant prices or trading volume to decline. Stock markets in general and the market for companies in our industry in particular have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock or Warrants. You may not realize any return on your investment in us and may lose some or all of your investment.

We may be subject to securities litigation, which is expensive and could divert our management's attention.

The market price of our securities may be volatile, and in the past companies that have experienced volatility in the 2,market price of their securities have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

Our directors, executive officers and principal stockholders have substantial control over our company, which could limit your ability to influence the outcome of key transactions, including a change of control.

On March 1, 2023, our executive officers, directors and 10% stockholders owned 5,918,264 shares of our common stock, or approximately 43% of the outstanding shares of our common stock, based on the number of shares outstanding as of such date. As a result, these stockholders will be able to exercise a significant level of control over all matters requiring stockholder approval, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. They may also have interests that differ from yours and may vote in a way with which you disagree and which may be adverse to your interests. This concentration of ownership may have the effect of delaying, preventing or deterring a change of control of our company, could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company and might ultimately affect the market price of our common stock.

The price of our common stock has not met the requirements for continued listing on the Nasdaq Capital Market. If we fail to regain or maintain compliance with the minimum listing requirements, our common stock will be subject to delisting. Our ability to publicly or privately sell equity securities and the liquidity of our common stock could be adversely affected if our common shares are delisted.

On June 21, 2022, we received a notification letter from The Nasdaq Stock Market LLC ("Nasdaq") notifying us that we are not in compliance with the minimum bid price requirement, which requires that the closing bid price for our common stock listed on Nasdaq be maintained at a minimum of $1.00 and failure to maintain it for 30 consecutive business days constitutes a compliance deficiency. On December 20, 2022, we received notice from Nasdaq indicating that, while we have not regained compliance with the Bid Price Requirement, Nasdaq has determined that we are eligible for an additional 180-day period, or until June 19, 2023, to regain compliance. According to the notification from Nasdaq, the Staff's determination was based on (i) our meeting the continued listing requirement for market value of our publicly-held shares and all other Nasdaq initial listing standards, with the exception of the minimum bid price requirement, and (ii) our written notice to Nasdaq of our intention to cure the deficiency during the second compliance period by effecting a reverse stock split, if necessary. If at any time during this second 180-day compliance period, the closing bid price of our common stock is at least $1 per share for a minimum of 10 consecutive business days, Nasdaq will provide us with written confirmation of compliance. If compliance cannot be demonstrated by June 19, 2023, Nasdaq will provide written notification that our common stock will be delisted. At that time, we may appeal Nasdaq's determination to a Hearings Panel.

If we do not regain compliance within the allotted compliance period(s), including any extensions that may be granted by Nasdaq, Nasdaq will provide notice that our common stock will be subject to delisting. Delisting from Nasdaq could adversely affect our ability to consummate a strategic transaction and raise additional financing through the public or private sale of equity securities, and would significantly affect the ability of investors to trade our securities and negatively affect the value and liquidity of our common stock. Delisting could also have other negative results, including the potential loss of confidence by employees and the loss of institutional investor interest.

If our shares become subject to the penny stock rules, it would become more difficult to trade our shares.

The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than $5.00, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If the price of our common stock is less than $5.00, our common stock will be deemed a penny stock. The penny stock rules require a broker-dealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks; and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our common stock, and therefore stockholders may have difficulty selling their shares.

We are an "emerging growth company" and the reduced disclosure requirements applicable to emerging growth companies could make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act. We may remain an emerging growth company until as late as December 2026 (the fiscal year-end following the fifth anniversary of the completion of our initial public offering), though we may cease to be an emerging growth company earlier under certain circumstances, including (1) if the market value of our common stock that is held by non-affiliates exceeds $700 million as of any June 30, in which case we would cease to be an emerging growth company as of the following December 31, or (2) if our gross revenue exceeds $1.235 billion in any fiscal year. Emerging growth companies may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. Investors could find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, Section 102 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, or the Securities Act, for complying with new or revised accounting standards. An emerging growth company can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We will incur significant costs as a result of operating as a public company and our management expects to devote substantial time to public company compliance programs.

As a public company, we will incur significant legal, accounting and other expenses due to our compliance with regulations and disclosure obligations applicable to us, including compliance with the Sarbanes-Oxley Act, as well as rules implemented by the SEC and Nasdaq. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact, in ways we cannot currently anticipate, the manner in which we operate our business. Our management and other personnel will devote a substantial amount of time to these compliance programs and monitoring of public company reporting obligations and as a result of the new corporate governance and executive compensation related rules, regulations and guidelines prompted by the Dodd-Frank Act and further regulations and disclosure obligations expected in the future, we will likely need to devote additional time and costs to comply with such compliance programs and rules. These rules and regulations will cause us to incur significant legal and financial compliance costs and will make some activities more time-consuming and costlier.

To comply with the requirements of being a public company, we may need to undertake various actions, including implementing new internal controls and procedures and hiring new accounting or internal audit staff. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal control over financial reporting. However, for so long as we remain an "emerging growth company" as defined in the JOBS Act or a "smaller reporting company", we intend to take advantage of certain exemptions from various reporting requirements that are applicable to public companies that are not emerging growth companies and/or smaller reporting companies, including, but not limited to, for emerging growth companies, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act. Once we are no longer an "emerging growth company" and if our public float is above $75 million as of the last business day of our most recently completed second fiscal quarter or, if before such date, we opt to no longer take advantage of the applicable exemption, we will be required to include an opinion from our independent registered public accounting firm on the effectiveness of our internal control over financial reporting.

We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), is accumulated and communicated to our principal executive and financial officers. Our current controls and any new controls that we develop may become inadequate and weaknesses in our internal control over financial reporting may be discovered in the future. Any failure to develop or maintain effective controls when we become subject to this requirement could negatively impact the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting that we may be required to include in our periodic reports we will file with the SEC under Section 404 of the Sarbanes-Oxley Act, harm our operating results, cause us to fail to meet our reporting obligations or result in a restatement of our prior period financial statements. In the event that we are not able to demonstrate compliance with the Sarbanes-Oxley Act, that our internal control over financial reporting is perceived as inadequate or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and the price of our common stock could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on Nasdaq.

Because we have elected to use the extended transition period for complying with new or revised accounting standards for an emerging growth company our financial statements may not be comparable to companies that comply with public company effective dates.

We have elected to use the extended transition period for complying with new or revised accounting standards under Section 102(b)(1) of the JOBS Act. This election allows us to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards apply to private companies. As a result of this election, our financial statements may not be comparable to companies that comply with public company effective dates, and thus investors may have difficulty evaluating or comparing our business, performance or prospects in comparison to other public companies, which may have a negative impact on the value and liquidity of our common stock and publicly-traded warrants.

If securities or industry analysts do not publish research, or publish inaccurate or unfavorable research, about our business, our stock and warrant prices and trading volume could decline.

The trading market for our common stock and publicly-traded warrants will depend, in part, on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on us. If no securities or industry analysts commence coverage of us, the price for our common stock and publicly-traded warrants could be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, the prices of our common stock and publicly-traded warrants could decline. In addition, if our operating results fail to meet the forecast of analysts, the prices of our common stock and publicly-traded warrants could decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock and publicly-traded warrants could decrease, which might cause the prices of our common stock and publicly-traded warrants and trading volume to decline.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management and limit the market price of our common stock and Warrants.

Provisions in our certificate of incorporation and bylaws, may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and bylaws include provisions that:

- provide for a staggered board of directors;
- authorize our board of directors to issue, without further action by the stockholders, up to 20,000,000 shares of undesignated preferred stock and up to approximately 80,000,000 shares of authorized but unissued shares of common stock;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our board of directors, the Chairman of the Board, the Chief Executive Officer or the President;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- provide that our directors may be removed only for cause; and
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us.

Our Amended and Restated Certificate of Incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for certain litigation that may be initiated by our stockholders.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory law or Delaware common law, subject to certain exceptions: (1) any derivative action or proceeding brought on our behalf; (2) any action asserting a claim of breach of a fiduciary duty or other wrongdoing by any of our directors, officers, employees or agents to us or our stockholders; (3) any action asserting a claim against us arising pursuant to provisions of the Delaware General Corporation Law or our amended and restated certificate of incorporation or amended and restated bylaws; or (4) any action asserting a claim governed by the internal affairs doctrine. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, employees or agents, which may discourage such lawsuits against us and our directors, officers, employees and agents. Stockholders who do bring a claim in the Court of Chancery could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near the State of Delaware. The Court of Chancery may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition. By agreeing to the exclusive forum provisions, investors will not be deemed to have waived our compliance obligations with any federal securities laws or the rules and regulations thereunder.

We do not anticipate paying any cash dividends on our common stock in the foreseeable future and, as such, capital appreciation, if any, of our common stock and publicly-traded warrants will be your sole source of gain for the foreseeable future.

We have never declared or paid cash dividends on our common stock. We do not anticipate paying any cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. In addition, and any future loan arrangements we enter into may contain, terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. As a result, capital appreciation, if any, of our common stock and publicly-traded warrants will be your sole source of gain for the foreseeable future.

ITEM 1B. UNRESOLVED STAFF COMMENTS

As a Smaller Reporting Company as defined by Rule 12b-2 of the Exchange Act and in Item 10(f)(1) of Regulation S-K, we are electing scaled disclosure reporting obligations and therefore are not required to provide the information requested by this Item 1B.

ITEM 2. PROPERTIES.

On February 2, 2022, we entered into a new lease agreement for approximately 15,538 square feet of corporate office and laboratory space in Billerica, Massachusetts. The lease has a term of 92 months with the rent escalating from $14,317 to $26,453 per month over the lease term.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we may become involved in various lawsuits and legal proceedings that arise in the ordinary course of business. Neither we nor any of our subsidiaries currently is a party to any legal proceeding that, individually or in the aggregate, is material to our company as a whole.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

Market Information for Common Stock

Our common stock and publicly-traded warrants are trading on the Nasdaq Capital Market under the ticker symbols "SQL" and "SQLLW," respectively.

Holders

As of March 1, 2023, there were approximately 17 stockholders of record, according to the records of our transfer agent, and an unknown number of additional holders of common stock held in 'street name'.

Dividends

We have not declared any common stock dividends to date. We have no present intention of paying any cash dividends on our common stock in the foreseeable future, as we intend to use earnings, if any, to generate growth. The payment by us of dividends, if any, in the future, is within the discretion of our board of directors and will depend upon, among other things, our earnings, capital requirements and financial condition, as well as other relevant factors. There are no material restrictions in our Certificate of Incorporation, as amended, or Bylaws that restrict us from declaring dividends.

Unregistered Sales of Equity Securities

None.

Issuer Purchases of Equity Securities

None.

ITEM 6. [Reserved]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

You should read the following discussion of our financial condition and results of operations in conjunction with our audited consolidated financial statements for the year ended December 31, 2022, and related notes included elsewhere in this report. This discussion and analysis and other parts of this report contain forward-looking statements based upon current beliefs, plans and expectations that involve risks, uncertainties and assumptions. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this report. You should carefully read the "Risk Factors" section of this report to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Cautionary Note Regarding Forward-Looking Statements and Industry and Market Data" in this report.

Overview

This overview and outlook provide a high-level discussion of our operating results and significant known trends that affect our business. We believe that an understanding of these trends is important to understanding our financial results for the periods being reported herein as well as our future financial performance. This summary is not intended to be exhaustive, nor is it intended to be a substitute for the detailed discussion and analysis provided elsewhere in this report.

About SeqLL

We are an early commercial-stage life sciences instrumentation and research services company engaged in the development of scientific assets and novel intellectual property across multiple "omics" fields. We leverage our expertise with True Single Molecule Sequencing (tSMS) technology enabling researchers and clinicians to contribute major advancements to scientific research and development.

Our customers are primarily the early adopters of genomics technology and tSMS in academic research, biomarker discovery, and molecular diagnostic product development.

Our financial results have been, and will continue to be, impacted by several significant trends, which are described below. While these trends are important to understanding and evaluating our financial results, this discussion should be read in conjunction with our consolidated financial statements and the notes thereto within the Consolidated Financial Statements section of this report, and trends discussed in "Risk Factors" within the Business& Market Information section of this report.

We incurred net losses of $4,094,833 and $3,703,558 for the year ended December 31, 2022 and 2021, respectively. We had negative cash flow from operating activities of $3,662,568 and $1,989,877 for the year ended December 31, 2022 and 2021, respectively, and had an accumulated deficit of $18,508,684 as of December 31, 2022.

Results of operations may be adversely affected by various factors that could cause economic uncertainty and volatility in the financial markets, many of which are beyond our control. Our business could be impacted by, among other things, downturns in the financial markets or in economic conditions, inflation, increases in interest rates, the ongoing effects of the COVID-19 pandemic, including resurgences and the emergence of new variants, and geopolitical instability, such as the military conflict in the Ukraine. We cannot at this time fully predict the likelihood of one or more of the above events, their duration or magnitude or the extent to which they may negatively impact our business.

Our financial results have been, and will continue to be, impacted by several significant trends, which are described below. While these trends are important to understanding and evaluating our financial results, this discussion should be read in conjunction with our consolidated financial statements and the notes thereto within the Consolidated Financial Statements section of this report, and trends discussed in "Risk Factors" in Item 1-A of Part I of this report.

Results of Operations

Comparison of the Years Ended December 31, 2022 and 2021

The following table summarizes our results of operations for the years ended December 31, 2022 and 2021:

SeqLL Inc.
Consolidated Statements of Operations and Comprehensive Loss

	December 31,	
	2022	**2021**
Revenue		
Sales	$ 1,177	$ 48,021
Grant revenue	77,482	161,974
Total revenue	78,659	209,995
Cost of sales	690	57,690
Gross profit	77,969	152,305
Operating expenses		
Research and development	1,568,266	530,076
General and administrative	2,506,851	2,170,857
Total operating expenses	4,075,117	2,700,933
Operating loss	(3,997,148)	(2,548,628)
Other (income) and expenses		
Interest and dividend income	(44,879)	(36,463)
Other income	-	(190,193)
Unrealized (gain)/loss on marketable equity securities	(54,508)	43,078
Realized loss on marketable equity securities	106,324	-
Change in fair value of convertible notes	-	195,962
Loss on extinguishment of convertible notes	-	934,257
Interest expense	90,748	208,289
Net loss	(4,094,833)	(3,703,558)
Other comprehensive income		
Unrealized gain on marketable debt securities	22,451	-
Total comprehensive loss	$ (4,072,382)	$ (3,703,558)
Net loss per share - basic and diluted	$ (0.34)	$ (0.51)
Weighted average common shares - basic and diluted	11,886,379	7,216,001

Revenues

Our revenues during the year ended December 31, 2022, were $78,659 as compared to revenues of $209,995 during the year ended December 31, 2021, representing a decrease of $131,336, or 63%. During the year ended December 31, 2022, revenue included grant revenue of $77,482 and $1,177 from product sales, and no sales from research services as compared to the revenue during the year ended December 31, 2021 from product sales of $31,537, grants of $161,974 and $16,484 in sequencing services. The decrease in revenue was due to the reduction in research services and revenue generating activities due to our relocation to Billerica, Massachusetts. This relocation, which was finalized in September of 2022, resulted in the Company temporarily not having facilities that were sufficient to perform our research services and business activities. We expect to resume normal operations in 2023.

Gross Profit

Gross profit for the year ended December 31, 2022 was $77,969, as compared to gross profit of $152,305 for the year ended December 31, 2021, which represented a decrease of $74,336, or 49%, primarily due to the fact that we had lower product and services sales in 2022 due to our relocation to Billerica, Massachusetts as well as there was a decrease in grant revenue for the year ended December 31, 2022.

Research and Development Expenses

Research and development expenses increased by $1,038,190, or 196%, from $530,076 for the year ended December 31, 2021 compared to $1,568,266 for the year ended December 31, 2022. The increase in expenses was a result of our progressive return to research and development activities to levels of pre-COVID-19 pandemic. We expect these expenditures to increase in 2023 and beyond as we increase our research and development efforts to pre-pandemic levels.

General and Administrative Expenses

General and administrative expenses increased by $335,994, or 15%, from $2,170,857 for the year ended December 31, 2021 compared to $2,506,851 for the year ended December 31, 2022. The increase was primarily attributable to increased operating expenses as a public company, including the addition of accounting, legal, insurance and audit related expenses. General and administrative expenditures will continue to increase to support ongoing financial reporting and compliance activities.

Interest and Other Income/Loss

We recognized $44,879 of interest and dividend income in the year ended December 31, 2022 as compared to $36,463 for the year ended December 31, 2021. This primarily relates to the dividend income earned on the Company's investments in equity securities. The Company expects to see increases in interest income over the next twelve months based on the current interest rates and market conditions.

We recognized zero other income in the year ended December 31, 2022 as compared to $190,193 of other income in the year ended December 31, 2021 related to forgiveness of Paycheck Protection Program loans.

We recognized $51,816 in net realized and unrealized losses on the marketable equity securities during the year ended December 31, 2022 as compared to $43,078 for the year ended December 31, 2021.

We recognized $195,962 related to the change in fair value of our convertible notes in the year ended December 31, 2021. No such convertible notes were in existence for the year ended December 31, 2022. Additionally, we recognized a loss on extinguishment of debt totaling $934,257 in the year ended December 31, 2021 related to certain convertible notes. The loss on the extinguishment of debt represented the excess of the fair value of these convertible notes totaling $3,075,987 over their carrying value of $2,141,730 at their amendment date in the first quarter of 2021. We did not incur such losses during the year ended December 31, 2022.

We recognized interest expense of $90,748 and $208,289 in the year ended December 31, 2022 and 2021, respectively, representing a decrease of $117,541, or 56%. The decrease in interest expense was due to a decrease in our outstanding indebtedness as a result of the conversion of $2.1 million in notes to equity concurrently with the consummation of our initial public offering on August 31, 2021.

Net Loss

Overall, the net loss increased by $391,275, or 11%, to $4,094,833 as compared to $3,703,558 for the year ended December 31, 2022. This increase in net loss is primarily attributable to increased operating expenses as a public company and our progressive return to research and development activities to levels of pre-COVID-19 pandemic. This increase in operating expenses was partially offset by the decrease in the interest expense for the year ended December 31, 2022 as compared to the year ended December 31, 2021 and the loss on extinguishment of the convertible notes in the year ended December 31, 2021 in the amount of $934,257.

Liquidity and Capital Resources

The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Even though we experienced negative cash flows from operations of $3,662,568 for the year ended December 31, 2022, we had cash and cash equivalents of $2,180,525 and short-term investments in marketable securities of $4,036,014 at December 31, 2022.

Cash and cash equivalents decreased $1,834,603 at December 31, 2022 as compared to December 31, 2021 due to cash spending for operating activities for the year period ended December 31, 2022, partially offset by the net sale of $1,867,985 in marketable securities.

Since inception, we have funded our operations primarily through equity and debt financings, as well as from modest sales of products and research services. As of December 31, 2022, and we had an accumulated deficit of $18,508,684.

On February 15, 2023, we sold to institutional investors, in a registered direct offering, an aggregate of 2,000,000 shares of common stock for aggregate gross proceeds of $1,800,000 before deducting placement agent fees and other offering expenses payable by the Company.

We believe our cash on hand, together with our cash generated from commercial sales and research activity, will enable us to fund our operations for at least one year from the date of this Report. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect.

Our future capital requirements will depend on many factors, including:

- our ability to successfully further develop our technologies and create innovative products in our markets, including the costs associated with the development of our tSMS platform across multiple market segments, for which we have budgeted approximately $1.5 million in 2023 in support of our collaborative efforts in detection tools for heart disease and cancer, and chromatin mapping in genome biology;

- scientific progress in research and development of our collaborative programs, including the costs of obtaining, maintaining and enforcing our patents and other intellectual property rights, as well as the costs associated with any product or technology that we may in-license or acquire; and

- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements; including the need to enter into other collaborations to enhance or complement our product and service offerings.

We plan to continue seeking additional financing sources from time to time to meet our working capital requirements, make continued investment in research and development and make capital expenditures needed for us to maintain and expand our business. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, or if we expend capital on projects that are not successful, our ability to continue to support our business growth and to respond to business challenges could be significantly limited. In addition, if we raise additional funds through further issuances of equity or debt securities, our existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our common stock.

Cash Flows

The following table sets forth the primary sources and uses of cash and cash equivalents for each of the periods presented.

	For the Years Ended December 31,	
	2022	**2021**
Cash proceeds provided by (used in):		
Operating activities	$ (3,662,568)	$ (1,989,877)
Investing activities	1,827,965	(5,990,912)
Financing activities	-	11,995,917
Net (decrease) increase in cash and cash equivalents	$ (1,834,603)	$ 4,015,128

Net cash used in operating activities

Net cash used in operating activities was approximately $3.7 million and $2.0 million for the year ended December 31, 2022 and 2021, respectively. The increase in operating spending was a result of our progressive return to research and development activities to levels of pre-COVID-19 pandemic. In addition, we experienced an increase in our general and administrative spending since we became a public company in August 2021.

We anticipate our research and development efforts and on-going general and administrative costs will generate negative cash flows from operating activities for the foreseeable future.

Net cash used provided by/used in investing activities

Net cash provided by investing activities was approximately $1.8 million for the year ended December 31, 2022 as compared to cash used in investing activities of approximately $6.0 million for the year ended December 31, 2021. The net inflow of funds is related to the disposition of the marketable securities during the year ended December 31, 2022 as compared to the investment of the proceeds from our initial public offering, which occurred in August 2021, into marketable securities during the year ended December 31, 2021.

Net cash provided by financing activities

Net cash provided by financing activities was $0 and approximately $12.0 million for the years ended December 31, 2022 and 2021, respectively. This decrease was primarily attributable to the proceeds raised in our initial public offering on August 31, 2021, with no equity or debt proceeds raised during the year ended December 31, 2022.

Recent Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2016-13, Financial Instruments-Credit Losses: Measurement of Credit Losses on Financial Instruments. ASU 2016-13 requires measurement and recognition of expected credit losses for financial assets. In April 2019, the FASB issued clarification to ASU 2016-13 within ASU 2019-04, Codification Improvements to Topic 326, Financial Instruments-Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments, or ASU 2016-13. The guidance is effective for fiscal years beginning after December 15, 2022. The Company is currently assessing the potential impact of adopting ASU 2016-13 on its financial statements and financial statement disclosures.

In February 2016, the FASB issued ASU No. 2016-02, Leases ("ASU 2016-02") which establishes new accounting and disclosure requirements for leases. ASU No. 2016-02 requires recognition in the statement of operations of a single lease cost, calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. ASU 2016-02 requires classification of all cash payments within operating activities in the statement of cash flows. Disclosures are required to provide the amount, timing and uncertainty of cash flows arising from leases. We will adopt the provisions of ASU 2016-02 in the quarter beginning January 1, 2022, using the modified retrospective approach and will record right of use assets and lease liabilities on its consolidated balance sheet for the leases with terms in excess of one year. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. At the date of adoption on January 1, 2022, this guidance had no impact to our consolidated financial statements.

We do not believe that any other recently issued but not yet effective accounting pronouncements are expected to have a material effect on our consolidated financial statements.

Critical Accounting Policies and Estimates

Stock-based Compensation

Our share-based compensation program grant awards include stock options and restricted stock awards to employees, directors and consultants. The fair value of stock option grants is estimated as of the date of the grant using the Black-Scholes option pricing model. The fair value of restricted stock awards is based on the fair value of our common stock on the date of the grant. The fair value of the stock-based awards is then expensed over the requisite service period, generally the vesting period, for each award.

Our expected stock price volatility assumption is based on the volatility of comparable public companies. The expected term of a stock option granted to employees and directors (including non-employee directors) is based on the average of the contractual term (generally 10 years) and the vesting period. For non-employee options, the expected term is the contractual term. The risk-free interest rate is based on the yield of U.S. Treasury securities consistent with the life of the option. No dividend yield was assumed as we do not pay dividends on our common stock. We recognize forfeitures related to stock-based awards as they occur.

We have periodically granted stock options and restricted stock awards to consultants for services, pursuant to our stock plans at the fair market value on the respective dates of grant. Should we terminate any of our consulting agreements, the unvested options underlying the agreements would be cancelled. For awards granted to consultants and non-employees, compensation expense is recognized over the vesting period of the awards, which is generally the period services are rendered by such consultants and non-employees.

We granted stock options to purchase an aggregate of 1,085,000 and 100,000 shares of common stock in the years ended December 31, 2022 and 2021, respectively.

Revenue Recognition

Our revenue is generated primarily from the sale of products and gene sequencing services. Product revenue primarily consists of sales of genetic sequencing equipment and sequencing reagent kits.

We recognize revenue in accordance with Accounting Standards Codification ("ASC") Topic 606, Revenue from Contracts with Customers ("ASC 606"). Under ASC 606, we recognize revenue when control of our products and services is transferred to our customers in an amount that reflects the consideration we expect to receive from our customers in exchange for those products and services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, we follow the five-step process. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when (or as) the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. We only apply the five-step process to contracts when it is probable that we will collect consideration we expect to be entitled to in exchange for the goods or services we transfer to the customer.

We evaluate contingent payments to estimate the amount which is not probable of a material reversal to include in the transaction price using the most likely amount method. Future payments that are not within our control and are not considered probable of being achieved until the contingencies are resolved.

Revenue from product sales, including customized sequencing instruments and sequencing reagent kits and off-the-shelf consumables, is recognized generally upon delivery, which is when control of the product is deemed to be transferred.

Revenue from gene sequencing services, using the tSMS platform, is recognized generally as the services are provided to the customer. The components of the sequencing process, including reagent kits and off-the-shelf consumables, sample loader and sequencer, are not distinct within the context of the genetic sequencing service contract. This is because in a gene sequencing service contract the reagent kits and other components, such as off-the-shelf consumables, used in the sequencing process become required inputs to achieve the specified gene sequencing analysis, and the components in the sequencing process are sequential in nature and highly interrelated as they work together to generate sample-specific data.

As our standard payment terms are less than one year, we have elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component.

We have elected to exclude sales tax from revenue. We generally have no obligations for returns, refunds and other similar obligations and do not provide separate equipment warranties. We recognized $0 and $16,484 in revenue from gene sequencing services for the years ended December 31, 2022 and 2021, respectively. We recognized $1,177 and $31,537 in revenue from product sales for the years ended December 31, 2022 and 2021, respectively.

Grant Revenue

Our grant revenues are derived from research programs by various departments of the National Institute of Health (“NIH”).

Grants awarded to us for research and development by government entities are outside the scope of the contracts with customers and contributions guidance. This is because these granting entities are not considered to be customers and are not receiving reciprocal value for their grant support provided to us. These grants provide us with payments for certain types of expenditures in return for research and development activities over a contractually defined period.

We recognize NIH grant revenue as reimbursable grant costs that are incurred up to pre-approved award limits within the budget period. The costs associated with these reimbursements are reflected as a component of research and development expense in the accompanying consolidated statements of operations and comprehensive loss. In the years ended December 31, 2022, and 2021, we recognized grant revenue of $77,482 and $161,974, respectively.

Investments in marketable securities

We account for our investments in debt securities in accordance with Accounting Standards Codification (“ASC”) 320, *Investments — Debt Securities* (“ASC 320”). Debt securities, which are comprised of investments in U.S. Treasury Securities, are measured at fair value, based on quoted market prices. As we have classified our investments in debt securities as available-for-sale, we recognize all unrealized gains and losses in other comprehensive income, net of tax, and recognize all realized gains and losses in our consolidated statement of operations and comprehensive loss.

We account for our investments in equity securities in accordance with ASC 321, *Investments — Equity Securities* ("ASC 321"). Equity securities, which are comprised of investments in mutual funds shares, are measured at fair value, based on quoted market prices, with all gains and losses reported in our consolidated statement of operations and comprehensive loss.

We may sell our debt or equity securities in response to changes in interest rates, risk/reward characteristics, liquidity needs or other factors.

JOBS Act

Section 107 of the JOBS Act provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an emerging growth company can delay the adoption of new or revised accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

For as long as we remain an emerging growth company under the recently-enacted JOBS Act, we will, among other things:

- be permitted to have only two years of audited financial statements and only two years of related selected financial data and management's discussion and analysis of financial condition and results of operations disclosure;
- be entitled to rely on an exemption from compliance with the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act;
- be entitled to reduced disclosure obligations about executive compensation arrangements in our periodic reports, registration statements and proxy statements; and
- be exempt from the requirements to seek non-binding advisory votes on executive compensation or golden parachute arrangements.

We currently intend to take advantage of some or all of the reduced regulatory and reporting requirements that will be available to us so long as we qualify as an "emerging growth company." Among other things, this means that our independent registered public accounting firm will not be required to provide an attestation report on the effectiveness of our internal control over financial reporting so long as we qualify as an emerging growth company, which may increase the risk that weaknesses or deficiencies in our internal control over financial reporting go undetected.

Likewise, so long as we qualify as an emerging growth company, we may elect not to provide certain information, including certain financial information and certain information regarding compensation of our executive officers, that we would otherwise have been required to provide in filings we make with the SEC, which may make it more difficult for investors and securities analysts to evaluate our company. As a result, investor confidence in our company and the market price of our common stock may be materially and adversely affected.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As a Smaller Reporting Company as defined by Rule 12b-2 of the Exchange Act and in Item 10(f)(1) of Regulation S-K, we are electing scaled disclosure reporting obligations and therefore are not required to provide the information requested by this Item 7A.

ITEM 8. FINANCIAL STATEMENTS.

Our Consolidated Financial Statements are on pages F-1 through F-21

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

Evaluation of disclosure controls and procedures

Our Chief Executive Officer (who is our principal executive officer) and Chief Financial Officer (who is our principal financial officer), conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act") as of December 31, 2022. As of December 31, 2022, based upon the evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective. Disclosure controls and procedures designed to reasonably ensure that information required to be disclosed in our reports filed under the Exchange Act, such as this report, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Management's Report on Internal Controls Over Financial Reporting

As required by SEC rules and regulations implementing Section 404 of the Sarbanes-Oxley Act, our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external reporting purposes in accordance with GAAP. Our internal control over financial reporting includes those policies and procedures that:

(1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of our company,

(2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors, and

(3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect errors or misstatements in our financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree or compliance with the policies or procedures may deteriorate. Management assessed the effectiveness of our internal control over financial reporting at December 31, 2022. In making these assessments, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control — Integrated Framework (2013). Based on our assessments and those criteria, management determined that our internal controls over financial reporting were effective as of December 31, 2022.

This Report does not include an attestation report of our independent registered public accounting firm due to our status as an emerging growth company and a smaller reporting company.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the year ended December 31, 2022, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION.

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

Executive Officers and Directors

The following table provides information regarding our key employees and directors:

Name	Age	Position(s)
Executive Officers		
Daniel Jones	42	President, Chief Executive Officer and Chairman
Frances Scally	55	Chief Financial Officer and Secretary
Non-Employee Directors		
Patrice M. Milos, Ph.D.	64	Director
Douglas Miscoll	62	Director
David Pfeffer	63	Director

Executive Officers

Daniel Jones is our Chief Executive Officer and Chairman of the Board. He has been our co-founder, President, and a member of our board of directors since our inception. He has served as Chief Executive Officer since May 2018 and was elected Chairman of the Board in March 2021. Prior to becoming our CEO, he was President from inception to May 2018. Mr. Jones has over 15 years of biotechnology industry experience, including 12 plus years in single molecule sequencing research. Prior to founding our company, Mr. Jones held various positions at Helicos Biosciences, a publicly-traded biotechnology tools company. During his career at Helicos Biosciences, his responsibilities included applications development, instrument prototyping and validation, customer support and bioinformatics analysis, as well as sales and operations. In 2008, Mr. Jones ran the first ever direct RNA sequencing experiments while at Helicos. From December 2003 to March 2007, Mr. Jones worked at U.S. Genomics in the Methods Development group and on development of its Trilogy 2020 Single Molecule Analyzer and Direct miRNA assays. From December 2002 to December 2003, Mr. Jones worked at EXACT Sciences on its ColoGuard assay, a non-invasive, now FDA-approved molecular diagnostic for colorectal cancer. Mr. Jones has authored or co-authored four publications and is named on multiple patents or patent applications. He holds a B.S. degree from Trinity College and has studied biotechnology and bioinformatics at Brandeis University and the University of Massachusetts.

We believe Mr. Jones' experience in the pharmaceutical industry as well as his extensive understanding of our business, operations and strategy qualifies him to serve on our board of directors.

Frances Scally has served as our Chief Financial Officer and Secretary since August 2022. Ms. Scally has over 30 years' experience in strategic accounting and financial leadership, including serving as chief financial officer, chief accounting officer and in other senior financial executive roles at both domestic and multi-national public and private companies. Since October 2021, Ms. Scally has been a Managing Director at DLA LLC, an Advisory firm, in which capacity she provides accounting advisory services. Prior to joining DLA LLC, Ms. Scally was the Chief Accounting Officer and Acting Chief Financial Officer of Aceto Holdings, L.P. from April 2019 to April 2020, as well as the Chief Accounting Officer of Aceto Corporation from March 2007 to April 2019. Aceto Corporation is an international company engaged in the development, marketing, sale and distribution of human health products, pharmaceutical ingredients and performance chemicals. Prior to joining Aceto, Ms. Scally was the Director of Financial Reporting and Compliance at Veeco Instruments Inc., a manufacturer of semiconductor process equipment, from 1998-2007. From 1989-1998, Ms. Scally was employed by Ernst & Young LLP. Ms. Scally received a bachelor's degree in accounting from LIU Post and is a Certified Public Accountant. She is a member of New York State Society of CPAs and American Institute of Certified Public Accountants. Ms. Scally also is a Trustee and a member of the Finance Committee for St. Edward the Confessor Church and School.

Ms. Scally's services as our Chief Financial Officer are being secured pursuant to the terms of our Master Services Agreement with DLA LLC, where Ms. Scally is an employee.

Non-Employee Directors

Patrice M. Milos, Ph.D. has served as a member of our board of directors since August 2021. Since September 2020, Dr. Milos has been Vice President, Scientific Operations of Proof Diagnostics, Inc., a company that is developing a low-cost, rapid diagnostic, point-of-care testing platform for the detection of COVID-19. From October 2016 to September 2020, Dr. Milos was a co-founder, President and Chief Executive Officer of Medley-Genomics Inc., a company focused on using advanced data analytics to support better diagnosis and treatment of complex diseases. From May 2013 to January 2016, Dr. Milos was President and Chief Executive Officer of Claritas Genomics Inc., a subsidiary of Boston Children's Hospital that provided commercial next-generation pediatric molecular diagnostic testing. Additional experience included executive roles at Helicos BioSciences and Pfizer, Inc. Dr. Milos is also a member of the board of directors of 54Gene Inc., a U.S. and Nigeria-based startup that collects African genetic code for use in health research and drug development, Slater Technology Fund, a seed-stage venture investor in early-stage technology ventures, ProThera Biologics, a life-sciences company developing a fundamentally new paradigm for treating severe inflammation and RI Bio, a bioscience, biotech, health and life sciences industry network group dedicated to galvanizing collaboration among industry participants. Dr. Milos has received numerous awards and honors within the life sciences industry and has authored or co-authored over 60 biotech or life sciences publications. She earned a B.A. in biology and chemistry from The College of Saint Rose, a M.S. and Ph.D. in plant molecular genetics and biology from Rensselaer Polytechnic Institute and has completed Post-Doctoral work at Harvard University and Brown University in plant and mouse molecular genetics.

We believe Dr. Milos' management experience and her extensive background and experience in molecular genetics and biology qualifies her to serve on our board of directors.

Douglas Miscoll has served as a member of our board of directors since October 2015. Mr. Miscoll founded Ravello Precision Partners in 2015, which operated as a hedge fund focused on genomic biology companies. Mr. Miscoll founded Ravello Partners LLC in 2010, which manages discretionary portfolios for families and small institutions and is active in the biotechnology sector. From 1999 until 2009, Mr. Miscoll was a Managing Director at Newlight Management, where he was responsible for managing all aspects of two private equity funds and a hedgefund focused on technology, media and communications companies. He originated and directed the firm's public market investment activities. Previously, from 1994 to 1995, he was a Managing Director of Northgate Ventures, a venture capital fund focused on early stage technology companies. Mr. Miscoll was a founding member of the management team that created K-III Communications, a leveraged build-up in the publishing and information services industries sponsored by Kohlberg Kravis Roberts & Co. Mr. Miscoll received an M.B.A. from Georgetown University, a Graduate Certificate from Templeton College, Oxford University, and a B.A. from Santa Clara University.

We believe Mr. Miscoll's executive management experience qualifies him to serve on our board of directors.

David Pfeffer has served as a member of our board of directors since September 2018 and is currently our Audit Committee Chairman. Mr. Pfeffer has over 30 years of experience in diverse roles in financial services; leading companies, developing and executing strategy, building businesses up from the ground floor and driving innovation to grow in today's ultra-competitive and dynamic global economy. Mr. Pfeffer is currently CEO of Brick Citi Capital, LLC, an investment services and business advisory firm founded in 2019. Previously, he was Executive Vice President and Chief Financial Officer of Oppenheimer Funds, a global asset manager, from 2004 to 2019. He was a Management Director on the Oppenheimer Funds, Inc. board and President of Oppenheimer Funds Harbourview Asset Management. From 2009 to 2019, Mr. Pfeffer served as an Independent Director at ICI Mutual Insurance Co., including a role as Audit Committee Chairman. From 2000 to 2004, Mr. Pfeffer worked as Institutional Chief Financial Officer and Director at Citigroup Asset Management. Mr. Pfeffer was at J.P. Morgan from 1984 to 2000, where he gained significant international experience serving as Chief Financial Officer and Director of JPM Brazil for five years in São Paulo and supported JPM's international businesses during his 16 year tenure there. Mr. Pfeffer worked as a public accountant at Ernst & Whinney from 1981 to 1984. Mr. Pfeffer is a Certified Public Accountant, a Chartered Global Management Accountant and has his FINRA Series 99 Operations Professional license. He graduated Cum Laude from the University of Delaware with a B.S. in Accounting.

We believe Mr. Pfeffer's experience in corporate governance and capital markets qualifies him to serve on our board of directors.

Family Relationships

There are no family relationships between or among any of our directors or executive officers. There are no family relationships among our officers and directors and those of our subsidiaries and affiliated companies.

Board Composition and Classified Board Structure

In accordance with the terms of our restated certificate of incorporation and amended and restated bylaws, our Board is currently divided into three classes with staggered, three-year terms. At each annual meeting of stockholders, the successor to each director whose term then expires will be elected to serve from the time of election and qualification until the third annual meeting of stockholders following election or such director's death, resignation or removal, whichever is earliest to occur. The current class structure is as follows: Class I (consisting of Mr. Jones and Dr. Milos), whose term currently expires at the 2025 Annual Meeting of Stockholders; Class II (consisting of Mr. Miscoll), whose term will expire at the 2023 Annual Meeting of Stockholders; and Class III (consisting of Mr. Pfeffer), whose term will expire at the 2024 Annual Meeting of Stockholders.

The primary responsibilities of our board of directors are to provide oversight, strategic guidance, counseling and direction to our management. Our board of directors meets on a regular basis. Upon completion of this offering, our bylaws will be amended and restated to provide that the authorized number of directors may be changed only by resolution of the board of directors. We have no formal policy regarding board diversity. Our priority in selection of board members is identification of members who will further the interests of our stockholders through his or her established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business and understanding of the competitive landscape.

Director Independence

The Nasdaq Marketplace Rules require a majority of a listed company's board of directors to be comprised of independent directors within one year of listing. In addition, the Nasdaq Marketplace Rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent and that audit committee members also satisfy independence criteria set forth in Rule 10A-3 under the Exchange Act.

Under Rule 5605(a)(2) of the Nasdaq Marketplace Rules, a director will only qualify as an "independent director" if, in the opinion of our board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3 of the Exchange Act, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee, accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or otherwise be an affiliated person of the listed company or any of its subsidiaries.

Our board of directors has reviewed the composition of our board of directors and its committees and the independence of each director. Based upon information requested from and provided by each director concerning his or her background, employment and affiliations, including family relationships, our board of directors has determined that each of Patrice Milos, Doug Miscoll and David Pfeffer is an "independent director" as defined under Rule 5605(a)(2) of the Nasdaq Marketplace Rules. Our board of directors also determined that the directors who serve on our audit committee, our compensation committee and our nominating and corporate governance committee satisfy the independence standards for such committees established by the SEC and the Nasdaq Marketplace Rules, as applicable. In making such determinations, our board of directors considered the relationships that each such non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining independence, including the beneficial ownership of our capital stock by each non-employee director.

Board Diversity

In August 2021, the SEC approved a Nasdaq Stock Market proposal to adopt new listing rules relating to board diversity and disclosure. As approved by the SEC, the new Nasdaq listing rules require all Nasdaq listed companies to disclose consistent, transparent diversity statistics regarding their boards of directors. The Board Diversity Matrix below presents the Board's diversity statistics in the format prescribed by the Nasdaq rules.

Board Diversity Matrix (As of March 7, 2023)

Total Number of Directors	**4**			
	Female	**Male**	**Non-Binary**	**Did Not Disclose Gender**
Part I: Gender Identity				
Directors	1	2		1
Part II: Demographic Background				
African American or Black				
Alaskan Native or Native American				
Asian				
Hispanic or Latin				
Native Hawaiian or Pacific Islander				
White	1	2		
Two or More Races or Ethnicities				
LGBTQ+				
Did Not Disclose Demographic Background				1

Board Meetings and Committees

During the year ended December 31, 2022, our board of directors held ten meetings (including regularly scheduled and special meetings), and no director attended fewer than 75% of the total number of meetings of the board of directors and the committees of which he or she was a member. In addition, during the year ended December 31, 2022, our board of directors acted by unanimous written consent on two occasions.

Although we do not have a formal policy regarding attendance by members of our board of directors at annual meetings of stockholders, we encourage, but do not require, directors to attend.

Our board of directors has established three standing committees — audit, compensation, and nominating and corporate governance — each of which operates under a charter approved by our board of directors. Copies of each committee's charter has been posted on the Investor Relations section of our website, which is located at *www.seqll.com*. Each committee has the composition and responsibilities described below. Our board of directors may from time to time establish other committees.

Audit Committee

Our audit committee consists of David Pfeffer, who is the chair of the committee, Douglas Miscoll and Patrice Milos. Our board of directors has determined that each of the members of our audit committee satisfies the Nasdaq Marketplace Rules and SEC independence requirements. The functions of this committee include, among other things:

- evaluating the performance, independence and qualifications of our independent auditors and determining whether to retain our existing independent auditors or engage new independent auditors;
- reviewing and approving the engagement of our independent auditors to perform audit services and any permissible non-audit services;
- reviewing our annual and quarterly financial statements and reports, including the disclosures contained under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations," and discussing the statements and reports with our independent auditors and management;
- reviewing with our independent auditors and management significant issues that arise regarding accounting principles and financial statement presentation and matters concerning the scope, adequacy and effectiveness of our financial controls;
- reviewing our major financial risk exposures, including the guidelines and policies to govern the process by which risk assessment and risk management is implemented; and
- reviewing and evaluating on an annual basis the performance of the audit committee, including compliance of the audit committee with its charter.

Our board of directors has determined that David Pfeffer qualifies as an "audit committee financial expert" within the meaning of applicable SEC regulations and meets the financial sophistication requirements of the Nasdaq Marketplace Rules. In making this determination, our board of directors has considered Mr. Pfeffer's extensive financial experience and business background. Both our independent registered public accounting firm and management periodically meets privately with our audit committee.

The audit committee had ten meetings in 2022. The audit committee operates under a written charter that was adopted by our board of directors and satisfies the applicable rules of the SEC and the listing standards of the NASDAQ Stock Market. A copy of the audit committee charter is available on our website at *www.seqll. com*.

Compensation Committee

Our compensation committee consists of Douglas Miscoll, who is the chair of the committee, and David Pfeffer and Patrice Milos. Our Board has determined that each of the members of our compensation committee satisfies the Nasdaq Marketplace Rules independence requirements. The functions of this committee include, among other things:

- reviewing, modifying and approving (or if it deems appropriate, making recommendations to the full board of directors regarding) our overall compensation strategy and policies;
- reviewing and approving the compensation, the performance goals and objectives relevant to the compensation, and other terms of employment of our executive officers;
- reviewing and approving (or if it deems appropriate, making recommendations to the full board of directors regarding) the equity incentive plans, compensation plans and similar programs advisable for us, as well as modifying, amending or terminating existing plans and programs;
- reviewing and approving the terms of any employment agreements, severance arrangements, change in control protections and any other compensatory arrangements for our executive officers;
- reviewing with management and approving our disclosures under the caption "Compensation Discussion and Analysis" in our periodic reports or proxy statements to be filed with the SEC; and
- preparing the report that the SEC requires in our annual proxy statement.

None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee of another entity that had one or more of its executive officers serving as a member of our board of directors or compensation committee. None of the members of our compensation committee has been at any time one of our officers or employees.

Our compensation committee had two meetings in 2022. The compensation committee operates under a written charter that was adopted by our board of directors and satisfies the applicable rules of the SEC and the listing standards of the NASDAQ Stock Market. A copy of the compensation committee charter is available on our website at *www.seqll.com*.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee consists of Douglas Miscoll, who is the chair of the committee, and Patrice Milos and David Pfeffer. Our board of directors has determined that each of the members of this committee satisfies the Nasdaq Marketplace Rules independence requirements. The functions of this committee include, among other things:

- identifying, reviewing and evaluating candidates to serve on our board of directors consistent with criteria approved by our board of directors;
- evaluating director performance on our board of directors and applicable committees of our board of directors and determining whether continued service on our board of directors is appropriate;
- evaluating, nominating and recommending individuals for membership on our board of directors; and
- evaluating nominations by stockholders of candidates for election to our board of directors.

During 2022, our nominating and corporate governance committee met one time . The nominating and corporate governance committee operates under a written charter that was adopted by our board of directors and satisfies the applicable rules of the SEC and the listing standards of the NASDAQ Stock Market. A copy of the nominating and corporate governance committee charter is available on our website at *www.seqll.com*.

Scientific Advisors

Our executive team is supported by our Scientific Advisors. The Scientific Advisors provide scientific advice regarding our tSMS technology to our executive team. Each our Scientific Advisors was selected based on experience with our tSMS technology and familiarity with our tSMS sequencers. The Scientific Advisors are not required to provide any particular services to us and are not currently compensated, except for periodic awards of stock options.

Efrat Shema, Ph.D. — Principal Investigator and Assistant Professor at the Weizmann Institute of Science. Dr. Shema completed her M.Sc. and Ph.D. at the Weizmann Institute in 2007 and 2012 in molecular cell biology, after earning her B.Sc. in life sciences at the Hebrew University in Jerusalem in 2005. She moved to Boston in 2012 as a Fulbright Scholar, conducting post-doctoral work under Dr. Bradley Bernstein at Massachusetts General Hospital, Harvard Medical School, and the Broad Institute of MIT and Harvard. During her Ph.D. studies at the Weizmann Institute, Dr. Shema received a prestigious Adams Fellowship from the Israel Academy of Sciences and Humanities, as well as the Otto Schwartz Prize for Excellence and a UNESCO-L'OREAL national award for young women in life sciences. Dr. Shema collaborates with us to study epigenetic events that contribute to cellular differentiation, early development and cancer using innovative single-molecule technologies.

Claes Wahlestedt, M.D., Ph.D. — Director, Center for Therapeutic Innovation, Leonard M. Miller Professor and Associate Dean for therapeutic innovation at the University of Miami. From 2005 to 2011, he was a professor and director of neuroscience at The Scripps Research Institute. The author of over 300 papers in scientific journals, with over 43,000 citations, Dr. Wahlestedt has a long-standing interest in genomics and epigenetics and has pioneered various translational efforts in these fields. At Scripps in 2008, he co-founded CuRNA (now part of Opko Health), a spin-off company based on his patent for targeting regulatory noncoding RNAs to up-regulate therapeutic proteins. In 2011, he co-founded Epigenetix Inc., a University of Miami spin-off focusing on small molecule drugs for a variety of drug targets in cancer and neuroscience. Dr. Wahlestedt advises us on applications development and scientific strategy.

Philipp Kapranov, Ph.D. — Professor and Director, Institute of Genomics at HuaQiao University, Xiamen, China. Dr. Kapranov's primary research interest includes systems biology and genomics in the context of gene expression and discovery of new RNA species (both protein-coding and non-coding) and their functions, especially in the context of human disease particularly cancer. Dr. Kapranov received his B.Sc. in microbial biotechnology, from Kiev Institute of Food Industry, Ukraine, and his Ph.D. in genetics from Michigan State University. Previously, he was a Senior Scientist at Affymetrix where his research first demonstrated an order of magnitude increase in transcriptional activity on human chromosomes 21 and 22 over that accounted for by previously characterized and predicted exons. Dr. Kapranov is a long-time collaborator of ours who purchased and deployed the first HeliScope in China, which his lab uses for researching non-coding RNA and basic science.

Code of Business Conduct and Ethics

Our board of directors has adopted a written code of conduct that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A current copy of the code and all disclosures that are required by law or Nasdaq Marketplace Rules concerning any amendments to, or waivers from, any provision of the code is posted on our website, which is located at *www.seqll.com*.

Board Leadership Structure

Our board of directors is free to select the Chairman of the board of directors and a Chief Executive Officer in a manner that it considers to be in the best interests of our company at the time of selection. Currently, Daniel Jones serves as our Chief Executive Officer and Chairman of the board of directors. We currently believe that this leadership structure is in our best interests. As Chairman of the Board, Mr. Jones' key responsibilities include facilitating communication between our board of directors and management, assessing management's performance, managing board members, preparation of the agenda for each board meeting, acting as chair of board meetings and meetings of our company's stockholders and managing relations with stockholders, other stakeholders and the public.

We will take steps to ensure that adequate structures and processes are in place to permit our board of directors to function independently of management. The directors will be able to request at any time a meeting restricted to independent directors for the purposes of discussing matters independently of management and are encouraged to do so should they feel that such a meeting is required.

Our board of directors, as a whole and also at the committee level, plays an active role overseeing the overall management of our risks. Our Audit Committee reviews risks related to financial and operational items with our management and our independent registered public accounting firm. Our board of directors is in regular contact with our Chief Executive Officer and Chief Financial Officer, who report directly to our board of directors and who supervise day-to-day risk management.

Role of Board in Risk Oversight Process

We face a number of risks, including those described herein under the caption "Risk Factors." Our board of directors believes that risk management is an important part of establishing, updating and executing on our business strategy. Our board of directors has oversight responsibility relating to risks that could affect our corporate strategy, business objectives, compliance, operations, and the financial condition and performance. Our board of directors focuses its oversight on the most significant risks facing us and, on our processes, to identify, prioritize, assess, manage and mitigate those risks. Our board of directors receives regular reports from members of our senior management on areas of material risk to us, including strategic, operational, financial, legal and regulatory risks. While our board of directors has an oversight role, management is principally tasked with direct responsibility for management and assessment of risks and the implementation of processes and controls to mitigate their effects on us.

ITEM 11. EXECUTIVE COMPENSATION.

The following table sets forth total compensation paid to our named executive officers for the years ended December 31, 2022 and 2021 . Individuals we refer to as our "named executive officers" include our Chief Executive Officers and our Chief Financial Officer whose salary and bonus for services rendered in all capacities exceeded $100,000 during the fiscal year ended December 31, 2022. Currently, we do not have employment agreements with any of our executive officers, although we may enter into employment agreements with our officers in the future.

Name and Principal Position	Year	Salary	Bonus	Option Awards[1]	Non-Equity Incentive Plan Compensation	Nonqualified Deferred Compensation Earnings	All Other Compensation	Total
Daniel Jones	2022	$ 225,000	$ 50,000(4)	$ 178,179				$ 453,179
Chief Executive Officer	2021	106,667	150,000(2)	—	—	—	—	256,667
John W. Kennedy[3]	2022	115,000	—	133,634	—	—	—	248,634
Chief Financial Officer	2021	67,275	100,000	114,530	—	—	—	281,805
Frances Scally[5]	2022	78,250	—	—	—	—	—	78,250

(1) The amounts reported in the "Option Awards" column reflect the aggregate fair value of stock-based compensation awarded during the year computed in accordance with the provisions of the Financial Accounting Standard Board Accounting Standards Codification Topic 718, or ASC 718. See Note 2 to our consolidated financial statements for the year ended December 31, 2022 included in this report regarding assumptions underlying the valuation of equity awards. These amounts reflect the accounting cost for these stock options and do not reflect the actual economic value that may be realized by the named executive officer upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.

(2) Of this bonus, $75,000 was deferred to, and paid in, 2022.

(3) Mr. Kennedy resigned his position as our Chief Financial Officer on August 9, 2022.

(4) The $50,000 bonus was paid in 2023.

(5) Ms. Scally was appointed our Chief Financial Officer on August 8, 2022. Ms. Scally is a consultant to our company and all compensation for her services is paid to DLA, LLC, a financial consulting firm with which Ms. Scally is employed.

Equity Compensation Plan Information

The following table provides information as of December 31, 2022, regarding our compensation plans under which equity securities are authorized for issuance:

Plan category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
2014 Equity Incentive Plan – Equity compensation plan approved by security holders	2,003,919	$ 1.88	1,496,081
Equity compensation plans not approved by security holders	--	--	—
Total	2,003,919	$ 1.88	1,496,081

SeqLL Inc. 2014 Equity Incentive Plan

Our board of directors and our stockholders originally approved our 2014 Equity Incentive Plan, or the 2014 Plan, in April 2014. Our 2014 Plan allows for the grant of equity-based awards to our and our affiliates' officers, employees, directors and key persons. On March 18, 2021, our board of directors and stockholders approved an amendment and restatement of our 2014 Plan to increase the number of shares of common stock available for equity awards under the 2014 plan to 3.5 million shares. The description below is of our 2014 Plan as amended and restated, except as otherwise noted.

Purpose. The purpose of our 2014 Plan, as amended and restated, is to encourage and enable our and our affiliates' officers, employees, directors and other key persons (including consultants and prospective employees) upon whose judgment, initiative and efforts we largely depend for the successful conduct of our business to acquire a proprietary interest in our company.

Eligibility. Participants in our 2014 Plan may include full or part-time officers, employees, directors and key persons (including advisors and consultants) of our company or our affiliates who are selected to receive awards from time to time by the administrator in its sole discretion.

Administration. Our 2014 Plan is administered by our compensation committee, or, if at any time our compensation committee is not in existence, our board of directors. In addition, to the extent applicable law permits, our board of directors may delegate any of its authority under our 2014 Plan to another committee or one or more officers, and our compensation committee may delegate any of its authority hereunder to a sub-committee or to one or more officers, except that no such delegation is permitted with respect to awards made to individuals who are subject to Section 16 of the Exchange Act unless the delegation is to another committee consisting entirely of "nonemployee directors" within the meaning of Rule 16b-3 of the Exchange Act. Subject to the provisions of our 2014 Plan, the administrator has the power to administer the plan, including but not limited to, the power to select the eligible officers, employees, directors, and key employees to whom awards are granted; to determine the number of shares to be covered by each award; to determine the terms and conditions of any award and to amend any outstanding award.

Authorized Shares. As of December 31, 2022, a total of 3,500,000 shares of our common stock were authorized for issuance under our 2014 Plan, and at such date, stock grants of an aggregate of 2,003,919 shares had been made under the 2014 Plan, and 1,496,081 shares authorized under the 2014 Plan remained available for award purposes. All of the authorized shares may be issued pursuant to incentive stock options. The shares available for issuance may be authorized but unissued shares or shares reacquired by us and held in its treasury. The share reserve under our 2014 Plan is depleted by the maximum number of shares, if any, that may be issuable under an award as determined at the time of grant. However, awards that may only be settled in cash (determined at the time of grant) do not deplete the share reserve.

If (1) an award lapses, expires, terminates or is cancelled without the issuance of shares, (2) it is determined during or at the conclusion of the term of an award that all or some portion of the shares with respect to which the award was granted will not be issuable on the basis that the conditions for such issuance will not be satisfied, (3) shares are forfeited under an award, (4) shares are issued under any award and we subsequently reacquire them pursuant to rights reserved upon the issuance, (5) an award or a portion thereof is settled in cash, or shares are withheld by us in payment of the exercise price or withholding taxes of an award, then such shares will be recredited to the reserve and may again be used for new awards. However, shares recredited to reserve pursuant to clause (4) in the preceding sentence may not be issued pursuant to incentive stock options.

Adjustments to Shares. If, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in our capital stock, the outstanding shares are increased or decreased or are exchanged for a different number or kind of shares or other securities of our company, or additional shares or new or different shares or other securities of our company or other non-cash assets are distributed with respect to such shares or other securities, or, if, as a result of any merger, consolidation or sale of all or substantially all of our assets, the outstanding shares are converted into or exchanged for a different number or kind of securities of our company or any successor entity (or a parent or subsidiary thereof), the administrator will make an appropriate or proportionate adjustment in (1) the maximum number of shares reserved for issuance under our 2014 Plan; (2) the number and kind of shares or other securities subject to any then outstanding awards under our 2014 Plan; and (3) the exercise price for each share subject to any then outstanding stock options. The administrator also may adjust the number of shares subject to outstanding awards and the exercise price and the terms of outstanding awards to take into consideration material changes in accounting practices or principles, extraordinary dividends, acquisitions or dispositions of stock or property or any other event if it is determined by the administrator that such adjustment is appropriate to avoid distortion in the operation of our 2014 Plan, subject to the limitations described in our 2014 Plan.

Effect of a Sale Event. Unless otherwise provided in an award or other agreement, upon a "sale event," if the successor or surviving corporation (or parent thereof) so agrees, then, without the consent of any holder of an award (or other person with rights in an award), some or all outstanding awards may be assumed, or replaced with the same type of award with similar terms and conditions, subject to adjustments described in our 2014 Plan, by the successor or surviving corporation (or parent thereof) in the sale event. A "sale event" is generally defined for this purpose as (1) any person becoming the beneficial owner of 50% or more of the combined voting power of our then-outstanding securities (subject to exceptions and other limitations scribed in our 2014 Plan), (2) our stockholders approving a plan of complete liquidation or dissolution of our company, (3) the consummation of (a) an agreement for the sale or disposition of all or substantially all of our assets (other than to certain excluded persons), (b) a merger, consolidation or reorganization of our company with or involving any other corporation (subject to specified exceptions), or (4) a change in the majority of our board of directors that is not approved by a supermajority of the existing board. More detailed descriptions and additional information on limitations relating to each of these sale events are in our 2014 Plan.

If, after a sale event in which the awards are assumed or replaced, the award holder experiences a termination event as a result of a termination of service without cause, due to death or disability, or as a result of a resignation for good reason, in each case within 24 months after a sale event, then the award holder's awards will be vested in full or deemed earned in full (assuming target performance, if applicable).

To the extent the awards are not assumed or replaced in the sale event, then, (1) each option will become immediately and fully vested and, unless the administrator determines otherwise, will be canceled on the sale event in exchange for a cash payment equal to the excess of the price paid in the sale event over the exercise price of the option, and all options with an exercise price lower than the price paid in the sale event will be canceled for no consideration, (2) restricted stock and restricted stock units (not subject to performance goals) will be vested in full and settled, along with any accompanying dividend equivalent units, and (3) all awards subject to performance goals with outstanding performance periods will be canceled in exchange for a cash payment equal to the amount that would have been due under the award if performance had been satisfied at the better of target or the performance trend through the sale event.

Solely with respect to awards granted on and after the completion of this offering, and except as otherwise expressly provided in any agreement with an award holder, if the receipt of any payment by an award holder under the circumstances described above would result in the payment by the award holder of any excise tax provided for in Section 280G and Section 4999 of the Code, then the amount of such payment shall be reduced to the extent required to prevent the imposition of such excise tax.

Limit on Director Awards. The maximum value of awards granted during a single fiscal year to any non-employee director, taken together with any cash fees paid during the fiscal year to the non-employee director in respect of the director's service as a member of our board of directors during such year (including service as a member or chair of any committees of the board), shall not exceed $800,000 in total value for the first year of service and $400,000 for future years of service (calculating the value of any such awards based on the grant date fair value of such awards for financial reporting purposes).

Types of Awards. Awards under our 2014 Plan may consist of incentive stock options, non-qualified stock options, restricted stock awards, unrestricted stock awards, restricted stock units, or any combination of those awards. Some provisions of our 2014 Plan relating to these award types are summarized below.

Stock Options. A stock option is an award entitling the recipient to acquire shares, at such exercise price as determined by the administrator (which may not be lower than the fair market value of the underlying shares on the date of grant) and subject to such restrictions and conditions as the administrator may determine at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. Stock options granted under our 2014 Plan may be either non-qualified stock options or incentive stock options. Incentive stock options may be granted only to our employees or employees of our subsidiaries, and must certain requirements specified in our 2014 Plan and the Code. Stock options will become exercisable at such time or times as determined by the administrator at or after the grant date and set forth in the stock option agreement. The administrator may at any time accelerate the exercisability of all or any portion of any stock option.

Restricted Stock. A restricted stock award is a grant (or sale, at such purchase price as determined by the administrator) of shares that are subject to such restrictions and conditions as the administrator may determine at the time of grant. Conditions may be based on continuing employment (or other service relationship) or achievement of pre-established performance goals and objectives. The terms and conditions of each such agreement shall be determined by the administrator.

Unrestricted Stock. The administrator may grant (or sell at par value or such higher purchase price determined by the administrator) unrestricted shares, in respect of past services, in exchange for cancellation of a compensation right, as a bonus, or any other valid consideration, or in lieu of any cash compensation due to such individual.

Restricted Stock Units and Dividend Equivalent Units. The administrator may grant restricted stock units representing the right to receive a future payment of cash, the amount of which is determined by reference to our shares, shares or a combination of cash and shares. The administrator will determine all terms and conditions of an award of restricted stock units, including but not limited to the number granted, in what form they will be settled, whether performance goals must be achieved for the restricted stock units to be earned, the length of any vesting or performance period and the date of payment, and whether the grant will include dividend equivalent units. The administrator will determine all terms and conditions of an award of dividend equivalent units, including whether payment will be made in cash or shares. However, no dividend equivalent units may be paid with respect to restricted stock units that are not earned or that do not become vested.

Termination of Employment or Service. Except as otherwise provided in any award agreement or an award holder's employment offer letter, severance letter or services agreement, or as determined by administrator at the time of the award holder's termination of employment or service:

- If the termination is for cause, the award holder will forfeit all outstanding awards immediately upon termination and will not be permitted to exercise any stock options following termination.

- If the termination is due to the award holder's death or disability (when the award holder could not have been terminated for cause), the award holder will forfeit the unvested portion of any award, and any vested stock options will remain exercisable until the earlier of the original stock option expiration date or 12 months from the date of termination.

- If the termination was for any reason other than cause, death or disability (when the award holder could not have been terminated for cause), the award holder will forfeit the unvested portion of any award, and any vested stock options will remain exercisable until the earlier of the original stock option expiration date or three months from the date of termination.

Term of Plan and Plan Amendments. Our 2014 Plan will continue until all shares reserved for issuance under our 2014 Plan have been issued, or, if earlier, until such time as the administrator terminates our 2014 Plan as described below. No incentive stock options may be granted after the ten (10) year anniversary of the date of stockholder approval of the amendment and restatement of our 2014 Plan unless the stockholders have approved an extension.

Our board of directors may, at any time, amend, terminate or discontinue our 2014 Plan, except that our stockholders must approve any amendment to the extent approval is required by Section 16 of the Exchange Act, the Code, the listing requirements of any principal securities exchange or market on which our shares are then traded or any other applicable law. In addition, stockholders must approve any amendment to our 2014 Plan that would materially increase the number of shares reserved (except as permitted by the adjustment provisions of our 2014 Plan) or that would diminish the protections afforded by the anti-repricing provisions of our 2014 Plan.

Any termination of our 2014 Plan will not affect the authority of our board of directors and the administrator to administer outstanding awards or affect the rights of award holders with respect to awards previously granted to them.

Award Amendments, Cancellation and Disgorgement. Subject to the anti-repricing and other requirements of our 2014 Plan, the administrator may modify, amend or cancel any award. However, except as otherwise provided in our 2014 Plan or an award agreement, the consent of the award holder is required to any amendment that materially diminishes the holder's rights under the award. Our 2014 Plan includes exceptions to the consent requirement for actions necessary to comply with applicable law or the listing requirements of securities exchanges, to preserve favorable accounting or tax treatment of any award for our company or to the extent the administrator determines that an action does not materially and adversely affect the value of the award or is in the best interest of the affected award holder or any other person who has an interest in the award.

The administrator has full power and authority to terminate or cause an award holder to forfeit an award, and require an award holder to disgorge to us, any gains attributable to the award, if the award holder engages in any action constituting, as determined by the administrator in its discretion, cause for termination, or a breach of any award agreement or any other agreement between the award holder and us or one of our affiliates concerning noncompetition, non-solicitation, confidentiality, trade secrets, intellectual property, non-disparagement or similar obligations. In addition, any awards granted pursuant to our 2014 Plan, and any shares issued or cash paid pursuant to an award, will be subject to any recoupment or claw-back policy that is adopted by us from time to time, or any recoupment or similar requirement otherwise made applicable to us by law, regulation or listing standards.

Repricing and Backdating Prohibited. Notwithstanding anything in our 2014 Plan to the contrary, and except for the adjustments provided for in our 2014 Plan, neither the administrator nor any other person may (1) amend the terms of outstanding stock options to reduce the exercise or grant price of such outstanding stock options; (2) cancel outstanding stock options in exchange for stock options with an exercise or grant price that is less than the exercise or grant price of the original stock options; or (3) cancel outstanding stock options with an exercise or grant price above the current fair market value of a share in exchange for cash or other securities. In addition, the administrator may not make a grant of a stock option with a grant date that is effective prior to the date the administrator takes action to approve the award.

Incentive Plan Awards

The following table sets forth information relating to stock option grants made to our named executive officers during the fiscal year ended December 31, 2022.

	Date of Option Grant	# of Options	Fair Value ($)[1]
Daniel Jones	January 13, 2022	200,000	$ 178,179
John W. Kennedy	January 13, 2022	150,000	133,634

(1) Reflects the aggregate fair value computed in accordance with the provisions of the Financial Accounting Standard Board Accounting Standards Codification Topic 718, or ASC 718. See Note 2 to our consolidated financial statements for the year ended December 31, 2022 included in this report regarding assumptions underlying the valuation of equity awards. These amounts reflect the accounting cost for these stock options and do not reflect the actual economic value that may be realized by the named executive officer upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth outstanding equity awards to our named executive officers as of December 31, 2022.

	Option Awards				Stock Awards	
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable[1]	Option Exercise Price	Option Expiration Date	Number of Shares or Units of Stock that have not Vested	Market Value of Shares or Units of Stock that have not Vested
Daniel Jones	178,378	—	$ 2.46	9/5/2028	—	$ —
Daniel Jones	200,000	200,000	1.73	1/13/2032	—	—
John W. Kennedy	135,136	—	2.46	9/5/2028	—	—
John W. Kennedy	100,000	—	2.52	12/6/2031	—	—
John W. Kennedy	150,000	150,000	1.73	1/13/2032	—	—

Director Compensation

General. The following discussion describes the significant elements of the expected compensation program for members of our board of directors and its committees. The compensation of our directors is designed to attract and retain committed and qualified directors and to align their compensation with the long-term interests of our shareholders. Directors who are also executive officers (each, an "Excluded Director") will not be entitled to receive any compensation for his or her service as a director, committee member or Chair of our board of directors or of any committee of our board of directors.

Director Compensation Arrangements. Our non-employee director compensation program is designed to attract and retain qualified individuals to serve on our board of directors. Our board of directors, on the recommendation of our compensation committee, will be responsible for reviewing and approving any changes to the directors' compensation arrangements. In consideration for serving on our board of directors, each director (other than Excluded Directors) will be paid an annual retainer. All directors will be reimbursed for their reasonable out-of-pocket expenses incurred while serving as directors.

Our board of directors has approved the following compensation program for the non-employee members of our board of directors.

Cash Compensation. Under such program, we will pay each non-employee director a cash fee, payable quarterly, of $4,167 per month for service on our board of directors.

Equity Awards. Each non-employee director will receive a one-time initial stock option award for 16,216 shares of our common stock, which options shall vest in arrears in two equal tranches on the first and second anniversaries of service on our Board. Each non-employee director shall also be eligible to receive grants of stock options, each in an amount designated by the Compensation Committee of our board of directors, from any equity compensation plan approved by the Compensation Committee of our Board.

In addition to such compensation, we will reimburse each non-employee director for all pre-approved expenses within 30 days of receiving satisfactory written documentation setting out the expense actually incurred by such director. These include reasonable transportation and lodging costs incurred for attendance at any meeting of our board of directors.

The following table sets forth the director compensation we accrued in the year ended December 31, 2022 (excluding compensation to our executive officers set forth in the summary compensation table above).

Name	Fees Earned or Paid in Cash	Option Awards (2)	Total ($)
Douglas Miscoll	$ 50,000	$ 66,441	$ 116,441
David Pfeffer	60,000(1)	66,441	126,441
Patrice M. Milos, Ph.D.	50,000	66,441	116,441
	—	—	—
Total:	$ 160,000	$ 199,323	$ 359,323

(1) Of the amount reported in the "Fees or Paid in Cash" column, $10,000 was deferred to and paid in 2023.

(2) Reflects the aggregate fair value computed in accordance with the provisions of the Financial Accounting Standard Board Accounting Standards Codification Topic 718, or ASC 718. See Note 2 to our consolidated financial statements for the year ended December 31, 2022 included in this report regarding assumptions underlying the valuation of equity awards. These amounts reflect the accounting cost for these stock options and do not reflect the actual economic value that may be realized by the named director upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.

The following table sets forth certain information regarding the beneficial ownership of our common stock as of March 1, 2023 by:

- each person known by us to be a beneficial owner of more than 5% of our outstanding common stock;
- each of our directors;
- each of our named executive officers; and
- all directors and executive officers as a group.

The amounts and percentages of common stock beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has a right to acquire beneficial ownership within 60 days after March 1, 2023. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed a beneficial owner of securities as to which he has no economic interest. Except as indicated by footnote, to our knowledge, the persons named in the table below have sole voting and investment power with respect to all shares of common stock shown as beneficially owned by them. The applicable percentage ownership prior to this offering is based on 13,886,379 shares of common stock outstanding as of March 1, 2023.

Unless otherwise noted below, the address of the persons listed on the table is c/o SeqLL Inc., 3 Federal Street, Billerica, Massachusetts 01821.

Name and Address of Beneficial Owner	Number of Shares	Percentage
Executive Officers and Directors		
Daniel Jones[(1)]	2,633,243	18.6%
John W. Kennedy[(2)]	282,010	2.0
Frances Scally	-	-
Dr. Patrice M. Milos[(3)]	62,027	*
Douglas Miscoll[(4)]	138,174	1.0
David Pfeffer[(5)]	61,216	*
All directors and executive officers as a group (6 persons)	3,176,670	21.8
5% Stockholders		
William C. St. Laurent[(6)]	3,981,206	27.6
St. Laurent Investments, LLC[(7)]	2,054,403	14.3
Wendy St. Laurent[(8)]	744,243	5.4

* Represents beneficial ownership of less than 1%.

(1) Includes (i) 2,392,365 shares of common stock and (ii) 240,878 shares of common stock issuable upon the exercise of currently exercisable stock options.

(2) Represents shares of common stock issuable upon the exercise of currently exercisable stock options.

(3) Includes (i) 10,000 shares of common stock and (ii) 52,027 shares of common stock issuable upon the exercise of currently exercisable stock options.

(4) Includes (i) 54,729 shares of common stock and (ii) 83,445 shares of common stock issuable upon the exercise of currently exercisable stock options.

(5) Includes (i) 20,000 shares of common stock and (ii) 41,216 shares of common stock issuable upon the exercise of currently exercisable stock options.

(6) Includes (i) 16,216 shares of common stock issuable upon the exercise of currently exercisable stock options and (ii) 744,243 shares of common stock held by Mr. St. Laurent's spouse, (iii) 2,054,403 shares of common stock beneficially owned by St. Laurent Investments LLC, (iv) 583,172 shares of common stock beneficially owned by the Georges C. St. Laurent III Descendants' Trust and (v) 583,172 shares of common stock beneficially owned by the William C. St Laurent Descendant's Trust. The address of Mr. St. Laurent is 120 NE 136 Avenue, Vancouver, WA 98684.

(7) Includes (i) 1,530,583 shares of common stock, and (ii) 523,820 shares of common stock issuable upon the exercise of currently exercisable warrants. William C. St. Laurent is the managing member of St. Laurent Investments, LLC and, as a result, may be deemed to have voting and investment power with respect to the shares held by St. Laurent Investments, LLC. The address of St. Laurent Investments, LLC is 120 NE 136 Avenue, Vancouver, WA 98684.

(8) The address of Wendy St. Laurent is 120 NE 136 Avenue, Vancouver, WA 98684.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE.

Procedures for Approval of Related Party Transactions

A "related party transaction" is any actual or proposed transaction, arrangement or relationship or series of similar transactions, arrangements or relationships, including those involving indebtedness not in the ordinary course of business, to which we or our subsidiaries were or are a party, or in which we or our subsidiaries were or are a participant, in which the amount involved exceeded or exceeds the lesser of (i) $120,000 or (ii) one percent of the average of our total assets at year-end for the last two completed fiscal years and in which any related party had or will have a direct or indirect material interest. A "related party" includes:

- any person who is, or at any time during the applicable period was, one of our executive officers or one of our directors;
- any person who beneficially owns more than 5% of our common stock;
- any immediate family member of any of the foregoing; or
- any entity in which any of the foregoing is a partner or principal or in a similar position or in which such person has a 10% or greater beneficial ownership interest.

In March 2021, our board of directors adopted a written related-party transactions policy. Pursuant to this policy, the Audit Committee of our board of directors will review all material facts of all related-party transactions and either approve or disapprove entry into the related-party transaction, subject to certain limited exceptions. In determining whether to approve or disapprove entry into a related-party transaction, our Audit Committee shall take into account, among other factors, the following: (i) whether the related-party transaction is on terms no less favorable to us than terms generally available from an unaffiliated third party under the same or similar circumstances; (ii) the extent of the related party's interest in the transaction; and (iii) whether the transaction would impair the independence of a non-employee director.

Related Party Transactions

At December 31, 2022, the Company had the following outstanding payables to affiliated parties for past services:

	December 31, 2022
Genomic Diagnostic Technologies	$ 925
St. Laurent Institute	232,418
St. Laurent Realty, Inc.	7,558
Total related party payables	$ 240,901

The above entities are affiliated with (1) William C. St. Laurent, a former member of the Company's board of directors, (2) relatives of Mr. St. Laurent or (3) entities controlled by the St. Laurent family, who are controlling shareholders of the Company. St. Laurent Realty, Inc. and Genomic Diagnostic Technologies assisted the Company by previously providing corporate accounting support; St. Laurent Institute, a non-for-profit company, provided bioinformatics specialist support for certain sequencing services.

From April 29, 2019 to April 29, 2020, we entered into a series of non-convertible promissory notes (the "Promissory Notes") with St. Laurent Investments LLC amounting to $1,375,000. The Promissory Notes had a one-year term with interest accruing at 10% per annum. In October 2021, we entered into an agreement with St. Laurent Investments LLC to reduce the interest on $1,375,000 principal amount of the Promissory Notes from 10% to 5% per year starting on October 1, 2021. In June 2022, we entered into an agreement with St. Laurent Investments LLC to extend the maturity date of the $1,375,000 Promissory Note to July 31, 2024.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

The following table sets forth the fees billed to us for professional services rendered by Wolf & Co. for the years ended December 31, 2022 and 2021:

Services	**2022**	**2021**
Audit fees	$ 147,800	$ 150,502
Audit-related fees	8,700	68,750
Total fees	$ 156,500	$ 219,252

(1) Audit Fees — Audit fees consist of fees billed for the audit of our annual financial statements and the review of the interim consolidated financial statements.

(2) Audit-Related Fees — These consisted principally of the aggregate fees related to audits that are not included Audit Fees.

Pre-Approval Policies and Procedures

The Audit Committee has the authority to appoint or replace our independent registered public accounting firm (subject, if applicable, to stockholder ratification). The Audit Committee is also responsible for the compensation and oversight of the work of the independent registered public accounting firm (including resolution of disagreements between management and the independent registered public accounting firm regarding financial reporting) for the purpose of preparing or issuing an audit report or related work. The independent registered public accounting firm was engaged by, and reports directly to, the Audit Committee.

The Audit Committee pre-approves all audit services and permitted non-audit services (including the fees and terms thereof) to be performed for us by our independent registered public accounting firm, subject to the de minimis exceptions for non-audit services described in Section 10A(i)(1)(B) of the Exchange Act and Rule 2-01(c)(7)(i)(C) of Regulation S-X, provided that all such excepted services are subsequently approved prior to the completion of the audit. We have complied with the procedures set forth above, and the Audit Committee has otherwise complied with the provisions of its charter.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

Exhibit Number	Description of Exhibits	Incorporation by Reference		
		Form	Filing Date	Exhibit Number
3.1	Amended and Restated Certificate of Incorporation	8-K	8/31/21	3.1
3.2	Amended and Restated Bylaws	8-K	8/31/21	3.2
4.1	Description of Securities	10-K	3/23/22	4.1
4.2	Specimen common stock certificate	S-1/A	5/22/19	4.1
4.3	Warrant Agency Agreement dated as of August 31, 2021 between SeqLL Inc. and VSTOCK Transfer LLC	8-K	8/31/21	10.1
4.4	Form of Common Stock Purchase Warrant	S-1/A	8/16/21	4.6
10.1#	Amended and Restated 2014 Equity Incentive Plan	S-1	3/31/21	10.1
10.2	License Agreement dated March 15, 2013 between SeqLL, LLC and Helicos Biosciences Corporation	S-1	4/23/19	10.2
10.3	Sub-License Agreement dated March 15, 2013 between SeqLL, LLC and Helicos Biosciences Corporation	S-1	4/23/19	10.3
10.13	Investor Rights Agreement dated as of September 30, 2018	S-1/A	5/28/21	10.13
22	Subsidiaries of the Registrant	10-K	3/23/22	22
23*	Consent of Wolf & Company, P.C.			
31.1*	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002			
31.2*	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002			
32.1*	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002			
32.2*	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002			
101.INS	Inline XBRL Instance Document.			
101.SCH	Inline XBRL Taxonomy Extension Schema Document.			
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.			
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.			
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.			
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.			
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).			

* Filed herewith.

\# Indicates a management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934 the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized, on the 16th day of March, 2023.

SEQLL INC.

By: /s/ Daniel Jones
Daniel Jones
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Daniel Jones Daniel Jones	Chief Executive Officer and Chairman *(Principal Executive Officer)*	March 16, 2023
/s/ Frances Scally Frances Scally	Chief Financial Officer and Secretary *(Principal Financial and Accounting Officer)*	March 16, 2023
/s/ Douglas Miscoll Douglas Miscoll	Director	March 16, 2023
/s/ David Pfeffer David Pfeffer	Director	March 16, 2023
/s/ Dr. Patrice Milos Dr. Patrice Milos	Director	March 16, 2023

SEQLL INC.
CONSOLIDATED FINANCIAL STATEMENTS

Index to Consolidated Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of SeqLL, Inc.:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of SeqLL, Inc. (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of operations and comprehensive loss, stockholders' equity (deficit) and cash flows for the years then ended, and the related notes to the consolidated financial statements and schedules (collectively, the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Wolf & Company, P.C.

We have served as the Company's auditor since 2018.

Boston, MA
March 16, 2023

SeqLL Inc.
Consolidated Balance Sheets

	December 31, 2022	December 31, 2021
Assets		
Current assets		
Cash and cash equivalents	$ 2,180,525	$ 4,015,128
Marketable securities	4,036,014	5,933,364
Accounts receivable, net of allowance for doubtful accounts of $6,016	21,214	30,714
Other receivables	60,000	34,965
Inventory	165,852	224,155
Prepaid expenses	171,859	186,056
Total current assets	6,635,464	10,424,382
Other assets		
Property and equipment, net	530,108	265,267
Operating lease right-of-use asset	1,129,715	-
Other assets	118,954	50,488
Total assets	$ 8,414,241	$ 10,740,137
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 622,436	$ 871,364
Accrued expenses	495,462	311,405
Non-convertible promissory notes - current	-	1,375,000
Current portion of operating lease liability	110,114	-
Total current liabilities	1,228,012	2,557,769
Non-current liabilities		
Operating lease liability, less current portion	1,444,343	-
Non-convertible promissory notes - long-term	1,375,000	-
Total non-current liabilities	2,819,343	-
Total liabilities	4,047,355	2,557,769
Commitments and contingencies (Note 14)		
Stockholders' equity		
Preferred stock, $0.00001 par value; 20,000,000 shares authorized; 0 shares issued and outstanding	-	-
Common stock, $0.00001 par value; 80,000,000 shares authorized; 11,886,379 shares issued and outstanding	119	119
Additional paid-in capital	22,853,000	22,596,100
Accumulated deficit	(18,508,684)	(14,413,851)
Accumulated other comprehensive income	22,451	-
Total stockholders' equity	4,366,886	8,182,368
Total liabilities and stockholders' equity	$ 8,414,241	$ 10,740,137

The accompanying notes are an integral part of these consolidated financial statements.

SeqLL Inc.
Consolidated Statements of Operations and Comprehensive Loss

	December 31,	
	2022	**2021**
Revenue		
Sales	$ 1,177	$ 48,021
Grant revenue	77,482	161,974
Total revenue	78,659	209,995
Cost of sales	690	57,690
Gross profit	77,969	152,305
Operating expenses		
Research and development	1,568,266	530,076
General and administrative	2,506,851	2,170,857
Total operating expenses	4,075,117	2,700,933
Operating loss	(3,997,148)	(2,548,628)
Other (income) and expenses		
Interest and dividend income	(44,879)	(36,463)
Other income	-	(190,193)
Unrealized (gain)/loss on marketable equity securities	(54,508)	43,078
Realized loss on marketable equity securities	106,324	-
Change in fair value of convertible notes	-	195,962
Loss on extinguishment of convertible notes	-	934,257
Interest expense	90,748.00	208,289
Net loss	(4,094,833)	(3,703,558)
Other comprehensive income		
Unrealized gain on marketable debt securities	22,451	-
Total comprehensive loss	$ (4,072,382)	$ (3,703,558)
Net loss per share - basic and diluted	$ (0.34)	$ (0.51)
Weighted average common shares - basic and diluted	11,886,379	7,216,001

The accompanying notes are an integral part of these consolidated financial statements.

SeqLL Inc.
Consolidated Statements of Changes in Stockholders' Equity (Deficit)
For the years ended December 31, 2022 and 2021

	Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2020	5,791,665	$ 58	4,864,862	$ 49	$ 6,856,020	$ -	$ (10,710,293)	$ (3,854,166)
Conversion of preferred stock into common stock	(5,791,665)	(58)	3,130,622	31	27	-	-	-
Stock-based compensation expense	-	-	-	-	333,978	-	-	333,978
Conversion of convertible notes into common stock	-	-	641,895	6	3,222,300	-	-	3,222,306
Issuance of Units in initial public offering, net of issuance costs of $1,555,976	-	-	3,060,000	31	11,453,614	-	-	11,453,645
Issuance of common stock to underwriters in initial public offering, net of issuance costs of $71,199	-	-	189,000	2	730,161	-	-	730,163
Net loss	-	-	-	-	-	-	(3,703,558)	(3,703,558)
Balance as of December 31, 2021	-	$ -	11,886,379	$ 119	$22,596,100	$ -	$ (14,413,851)	$ 8,182,368
Stock-based compensation expense	-	-	-	-	256,900	-	-	256,900
Other comprehensive income	-	-	-	-	-	22,451	-	22,451
Net loss	-	-	-	-	-	-	(4,094,833)	(4,094,833)
Balance as of December 31, 2022	-	$ -	11,886,379	$ 119	$22,853,000	$ 22,451	$ (18,508,684)	$ 4,366,886

The accompanying notes are an integral part of these consolidated financial statements.

SeqLL Inc.
Consolidated Statements of Cash Flows

	December 31,	
	2022	**2021**
Cash Flows from Operating Activities		
Net loss	$ (4,094,833)	$ (3,703,558)
Adjustment to reconcile net loss to net cash used in operating activities:		
Depreciation	87,937	86,444
Write-off of obsolete inventory	79,011	-
Unrealized (gain)/loss on marketable securities	(54,508)	43,078
Realized loss on marketable equity securities	106,324	-
Loss on extinguishment of notes	-	934,257
Stock-based compensation	256,900	333,978
Change in fair value of convertible notes	-	195,962
Non-cash lease expense	111,984	-
Changes in operating assets and liabilities:		
Accounts receivable, net	9,500	-
Other receivables	(25,035)	73,850
Prepaid expenses	14,197	(186,056)
Inventory	(20,708)	(21,144)
Other assets	(68,466)	(36,226)
Accounts payable	(248,928)	9,524
Accrued expenses	184,057	280,014
Net cash used in operating activities	(3,662,568)	(1,989,877)
Cash Flows from Investing Activities		
Purchases of lab equipment	(40,020)	(14,470)
Purchases of marketable equity securities	-	(5,976,442)
Purchases of marketable debt securities	(4,014,153)	-
Sales of marketable equity securities	5,882,138	-
Net cash provided by (used in) investing activities	1,827,965	(5,990,912)
Cash Flows from Financing Activities		
Proceeds from issuance of units and common stock warrants, gross	-	13,009,621
Payment for issuance costs of units and common stock warrants	-	(1,627,175)
Payment of non-convertible promissory notes	-	(270,000)
Proceeds from issuance of convertible notes	-	250,000
Proceeds from issuance of common stock to underwriters	-	801,362
Settlement of convertible notes	-	(141,891)
Proceeds from loan payable - related party	-	140,000
Payment of loan payable - related party	-	(166,000)
Net cash provided by financing activities	-	11,995,917
Net increase (decrease) in cash and cash equivalents	(1,834,603)	4,015,128
Cash and cash equivalents, beginning of period	4,015,128	-
Cash and cash equivalents, end of period	$ 2,180,525	$ 4,015,128
Supplemental disclosure of cash flow information and non-cash financing transactions		
Right-of-use asset acquired through operating lease	$ 1,257,495	$ -
Leasehold improvements financed through tenant improvement allowance	$ 312,758	$ -
Conversion of notes at initial public offering into common stock	$ -	$ 3,222,306
Conversion of preferred stock par value to common stock and additional paid-in capital	$ -	$ 58
Fair value of warrants of common stock issued to underwriters	$ -	$ 1,647,076

The accompanying notes are an integral part of these consolidated financial statements.

Note 1 – Nature of Operations and Basis of Presentation

SeqLL Inc. was incorporated as a Delaware corporation on April 3, 2014. On April 8, 2014, SeqLL Inc. acquired a 100% ownership interest in SeqLL, LLC ("Subsidiary"), a domestic limited liability company formed on March 11, 2013 in the State of Massachusetts. SeqLL Inc. is a holding company of the Subsidiary (together the "Company" or "SeqLL") and is a life sciences company focused on the development and application of innovative genetic analysis technologies and the monetization of these technologies and related intellectual property. The Subsidiary owns technology to enable the analysis of large volumes of genetic material by directly sequencing single molecules of DNA or RNA. The Subsidiary's principal office is located in Billerica, Massachusetts.

Initial Public Offering

On August 31, 2021, the Company completed its initial public offering ("IPO") whereby it sold 3,060,000 units, each unit consisting of one share of the Company's common stock and a warrant to purchase one share of common stock at an exercise price of $4.25 per share (the "Warrants"), at a price to the public of $4.25 per unit. The gross proceeds from the IPO were approximately $13 million and were offset by $3.2 million in offering costs, of which $1.6 million was paid in cash and $1.6 million was issued in warrants to Maxim Group LLC ("Underwriter") (see Note 10). In connection with the IPO, all of the outstanding shares of the Company's convertible preferred stock automatically converted into 3,130,622 shares of common stock (see Note 9). Additionally, the outstanding convertible notes converted into 641,895 shares of common stock (see Note 8).

Pursuant to the Underwriting Agreement, the Company granted the Underwriter a 45-day option to purchase up to 459,000 additional shares of common stock, and/or 459,000 additional Warrants, to cover over-allotments in connection with the Offering. The Underwriter partially exercised this option and purchased 459,000 Warrants on August 31, 2021, at $0.01 per Warrant. On September 29, 2021, the Company issued 189,000 shares of common stock to the underwriters at a price of $4.24 per share from the exercise of the overallotment option, raising the net proceeds of approximately $730,000, net of offering costs.

On August 31, 2021, and September 29, 2021, the Company also issued to the Underwriter warrants to purchase up to a total of 162,450 shares of common stock at an exercise price of $4.675 per share ("Underwriter Warrants") (Note 10).

Notice from the Nasdaq Stock Market

On June 21, 2022, SeqLL received notice from The Nasdaq Stock Market ("Nasdaq") indicating that, because the closing bid price for its common stock has fallen below $1.00 per share for 30 consecutive business days, the Company no longer complies with the $1.00 minimum bid price requirement for continued listing. Initially, the Company had approximately 180 days to regain its compliance with the Nasdaq.

On December 20, 2022, the Company filed with, and received notice from, the Nasdaq that the Company is eligible for an additional 180 day period, in other words, until June 19, 2023, to regain its Nasdaq compliance.

The notification of noncompliance has no immediate effect on the listing or trading of the Company's common stock or its warrants to purchase common stock under the symbols "SQL" and "SQLLW," respectively. To regain compliance, the closing bid price of the Company's common stock must meet or exceed $1.00 per share for a minimum of 10 consecutive business days.

If the Company does not regain compliance by June 19, 2023, and it has been determined that the Company will not be able to cure the deficiency, Nasdaq will provide notice that the Company's common stock will be subject to delisting. The Company would have the right to appeal a determination to delist its common stock, and the common stock would remain listed on The Nasdaq Capital Market until the completion of the appeal process.

Risks and Uncertainties

The Company is subject to a number of risks similar to other companies in its industries, including rapid technological change, competition from larger pharmaceutical and biotechnology companies and dependence on key personnel.

Results of operations may be adversely affected by various factors that could cause economic uncertainty and volatility in the financial markets, many of which are beyond the Company's control. The Company's business could be impacted by, among other things, downturns in the financial markets or in economic conditions, inflation, increases in interest rates, the ongoing effects of the COVID-19 pandemic, including resurgences and the emergence of new variants, and geopolitical instability, such as the military conflict in the Ukraine. The Company cannot at this time fully predict the likelihood of one or more of the above events, their duration or magnitude or the extent to which they may negatively impact the Company's business.

Basis of Presentation

The accompanying consolidated financial statements include the accounts of SeqLL Inc. and its wholly-owned subsidiary, SeqLL, LLC. All intercompany accounts and transactions have been eliminated in consolidation.

Note 2 – Significant Accounting Policies

A summary of significant accounting policies followed by the Company in the preparation of the accompanying consolidated financial statements are as follows:

Use of Estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"), requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. Significant estimates include but are not limited to stock-based compensation expense, fair value of warrants and loss on extinguishment of notes. Actual results could differ from those estimates and changes in estimates may occur.

Cash and Cash Equivalents

The Company considers all highly liquid securities readily convertible to cash that mature within three months or less from the original date of purchase to be cash equivalents. Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents. Cash and cash equivalents are held by financial institutions and are federally insured up to certain limits. At times, the Company's cash and cash equivalents balance exceeds the federally insured limits. As of December 31, 2022, the Company has not experienced a loss on its accounts for which it exceeds federally insured deposit limits, and does not expect a loss to occur.

Accounts Receivable

In the normal course of business, the Company provides credit to its customers and performs credit evaluations of these customers. The Company periodically reviews accounts receivables for doubtful accounts on a customer-by-customer basis and established an allowance to reserve for balances that are deemed uncollectible. The allowance for doubtful accounts was $6,016 as of December 31, 2022, and 2021.

Investments in marketable securities

The Company accounts for its investments in debt securities in accordance with Accounting Standards Codification ("ASC") 320, *Investments — Debt Securities* ("ASC 320"). Debt securities, which are comprised of investments in U.S. Treasury Securities, are measured at fair value, based on quoted market prices. As the Company has classified its investments in debt securities as available-for-sale, the Company recognizes all unrealized gains and losses in other comprehensive income, net of tax, and recognizes all realized gains and losses in net income/loss within the Company's consolidated statement of operations and comprehensive loss.

The Company accounts for its investments in equity securities in accordance with ASC 321, *Investments — Equity Securities* ("ASC 321"). Equity securities, which are comprised of investments in mutual funds shares, are measured at fair value, based on quoted market prices, with all gains and losses reported in net income/loss within the Company's consolidated statement of operations and comprehensive loss.

The Company may sell its debt or equity securities in response to changes in interest rates, risk/reward characteristics, liquidity needs or other factors.

Inventory

Inventory consists of finished goods, work-in-process and raw materials and is valued at the lower of cost or net realizable value, determined by the first-in, first-out ("FIFO") method. As the Company manufactures the finished goods and work-in-process materials, overhead costs are included in inventory. The Company evaluates the carrying cost of finished goods, work-in-process and raw materials items. To the extent that such costs exceed future demand estimates and /or exhibit historical turnover at rates less than current inventory levels, the Company reduces the carrying value of the applicable inventories. Inventory consisted of the following:

	December 31, 2022	December 31, 2021
Raw materials	$ 114,175	$ 91,995
Work in process	51,677	132,160
Total inventory	$ 165,852	$ 224,155

In December of 2022, the Company performed a detailed evaluation of its inventory and determined $79,011 was obsolete. As such, the Company has written off this inventory as of December 31, 2022.

Property and Equipment

Property and equipment are recorded at cost and depreciated over the estimated useful lives of the related assets using the straight-line method. Lab and office equipment are depreciated over a five-year period. Leasehold improvements are depreciated over the shorter of the useful life and the term of the lease. When assets are retired or otherwise disposed of, the cost of these assets and related accumulated depreciation or amortization are eliminated from the balance sheet and any resulting gains or losses are included in the consolidated statement of operations and comprehensive loss in the period of disposals.

Long-lived Assets

The Company assesses, on an annual basis, the recoverability of the carrying amount of long-lived assets used in continuing operations. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future net cash flow expected to be generated by the asset. A loss is recognized when expected future cash flow (undiscounted and without interest) are less than the carrying amount of the asset. The impairment loss is determined as the difference by which the carrying amount of the asset exceeds its fair value. No impairments were recognized in the years ended December 31, 2022, and 2021.

Revenue Recognition

The Company's revenue is generated primarily from the sale of products and research services. Product revenue primarily consists of sales of genetic sequencing equipment and sequencing reagent kits. Research service revenue primarily consists of revenue generated from gene sequencing services and grants.

The Company recognizes revenue in accordance with Accounting Standards Codification ("ASC") Topic 606, Revenue from Contracts with Customers ("ASC 606"). Under ASC 606, the Company recognizes revenue when control of its products and services is transferred to its customers in an amount that reflects the consideration the Company expects to receive from its customers in exchange for those products and services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, the Company performs a five-step process. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when (or as) the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. The Company only applies the five-step process to contracts when it is probable that the entity will collect consideration it expects to be entitled to in exchange for the goods or services it transfers to the customer.

The Company evaluates contingent payments to estimate the amount which is not probable of a material reversal to include in the transaction price using the most likely amount method. Future payments that are not within the control of the Company, are not considered probable of being achieved until the contingencies are resolved.

Revenue from product sales, including customized sequencing instruments and sequencing reagent kits and off-the-shelf consumables, is recognized generally upon delivery, which is when control of the product is deemed to be transferred.

Revenue from gene sequencing services, using the tSMS platform, is recognized generally as the services are provided to the customer. The components of the sequencing process, including reagent kits and off-the-shelf consumables, sample loader and sequencer, are not distinct within the context of the gene sequencing service contract. This is because in a gene sequencing service contract the reagent kits and other components, such as off-the-shelf consumables, used in the sequencing process, become required inputs to achieve the specified gene sequencing analysis, and the components in the sequencing process are sequential in nature and highly interrelated as they work together to generate sample-specific data.

As the Company's standard payment terms are less than one year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component. The Company has elected to exclude sales tax from revenue. The Company generally has no obligations for returns, refunds and other similar obligations and does not provide separate equipment warranties.

The Company recognized $0 and $16,484 in revenue from gene sequencing services for the years ended December 31, 2022 and 2021, respectively. The Company recognized $1,177 and $31,537 in revenue from product sales for the years ended December 31, 2022 and 2021, respectively.

Grant Revenue

The Company's grant revenues are derived from research programs by various departments of the National Institute of Health ("NIH").

Grants awarded to SeqLL for research and development by government entities are outside the scope of the contracts with customers and contributions guidance. This is because these granting entities are not considered to be customers and are not receiving reciprocal value for their grant support provided to the Company. These grants provide the Company with payments for certain types of expenditures in return for research and development activities over a contractually defined period.

The Company recognizes NIH grant revenue as reimbursable grant costs that are incurred up to pre-approved award limits within the budget period. The costs associated with these reimbursements are reflected as a component of research and development expense in the accompanying consolidated statements of operations and comprehensive loss. In the years ended December 31, 2022, and 2021, the Company recognized grant revenue of $77,482 and $161,974, respectively.

Income Taxes

The Company utilizes the liability method of accounting for income taxes as required by ASC 740, *Income Taxes*. Under this method, deferred tax assets and liabilities are determined based on differences between financial reporting and the tax basis of assets and liabilities as well as net operating loss carryforwards and tax credits and are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that these assets may not be realized. Currently, there is no provision for income taxes, as the Company has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets.

The Company determines whether it is more likely than not that a tax position will be sustained upon examination. If it is not more likely than not that a position will be sustained, none of the benefit attributable to the position is recognized. The tax benefit to be recognized for any tax position that meets the more-likely-than-not recognition threshold is calculated as the largest amount that is more than 50% likely of being realized upon resolution of the contingency. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes.

The Company has no accruals for interest or penalties related to income tax matters. Tax years subsequent to 2019 remain open to examination by federal and state tax authorities.

Stock-based Compensation

The Company's share-based compensation program grants awards include stock options and restricted stock awards. The fair value of stock option grants is estimated as of the date of the grant using the Black-Scholes option pricing model. The fair value of restricted stock awards is based on the fair value of the Company's common stock on the date of the grant. The fair value of the stock-based awards are then expensed over the requisite service period, generally the vesting period, for each award.

The Company's expected stock price volatility assumption is based on the volatility of comparable public companies. The expected term of a stock option granted to employees and directors (including non-employee directors) is based on the average of the contractual term (generally 10 years) and the vesting period. For non-employee options, the expected term is the contractual term. The risk-free interest rate is based on the yield of U.S. Treasury securities consistent with the life of the option. No dividend yield was assumed as the Company does not pay dividends on its common stock. The Company recognizes forfeitures related to stock-based awards as they occur.

The Company has periodically granted stock options and restricted stock awards to consultants for services, pursuant to the Company's stock plans at the fair market value on the respective dates of grant. Should the Company terminate any of its consulting agreements, the unvested options underlying the agreements would be cancelled. For awards granted to consultants and non-employees, compensation expense is recognized over the vesting period of the awards, which is generally the period services are rendered by such consultants and non-employees.

The assumptions used in determining the fair value of share-based awards granted in 2022 and 2021 are as follows:

	2022	2021
Risk-free interest rate	1.64%	1.21%
Expected option life	6 – 6.1 years	5 years
Expected dividend yield	0%	0%
Expected stock price volatility	54%	52%

Research and Development Expenses

The Company expenses all research and development costs as incurred. Included in research and development costs are wages, stock-based compensation and benefits of employees and other operational costs related to the Company's research and development activities, including facility-related expenses and external costs of outside contractors engaged by the Company.

Segments

The Company operates in a single business segment that includes the design, development and manufacturing of genetic analysis technologies.

Leases

In the first quarter of 2022, the Company adopted Accounting Standards Update ("ASU") No. 2016-02, *Leases (Topic 842)* which had no impact on the Company's financial statements upon adoption. The Company assesses its contracts at inception to determine whether the contract contains a lease, including evaluation of whether the contract conveys the right to control an explicitly or implicitly identified asset for a period of time. The Company recognizes right-of-use assets and lease liabilities that represent the net present value of future operating lease payments utilizing a discount rate corresponding to the Company's incremental borrowing rate and amortizing over the remaining terms of the leases. The Company accounts for the leases of less than 12 months as short-term leases.

Net Loss per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding for the period, without consideration for potentially dilutive securities if their effect is antidilutive. Diluted net loss per share is computed by dividing the net loss by the weighted average number of shares of common stock and dilutive common stock equivalents outstanding for the period determined using the treasury stock and if-converted methods. Dilutive common stock equivalents are comprised of options outstanding under the Company's stock option plan and warrants. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding as inclusion of the potentially dilutive securities would be antidilutive.

The following potential shares of common stock were not considered in the computation of diluted net loss per share as their effect would have been antidilutive:

	December 31,	
	2022	**2021**
Stock options	2,003,919	918,915
Warrants for common stock	4,388,185	4,393,396

Recently Issued Accounting Standards

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-13, Financial Instruments-Credit Losses: Measurement of Credit Losses on Financial Instruments. ASU 2016-13 requires measurement and recognition of expected credit losses for financial assets. In April 2019, the FASB issued clarification to ASU 2016-13 within ASU 2019-04, Codification Improvements to Topic 326, Financial Instruments-Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments, or ASU 2016-13. The guidance is effective for fiscal years beginning after December 15, 2022. The Company has adopted ASU 2016-13 effective January 1, 2023, for which, there was an immaterial impact on the Company's financial statements and financial statement disclosures.

The Company does not believe that any other recently issued accounting pronouncements had or will have a material effect on its consolidated financial statements.

Note 3 – Property and Equipment, net

Property and equipment are recorded at historical cost and consist of the following:

	December 31, 2022	December 31, 2021
Lab equipment	$ 767,010	$ 740,963
Leasehold improvements	312,758	74,390
Office equipment	23,193	5,896
Other	-	3,325
	1,102,961	824,574
Less: accumulated depreciation	(572,853)	(559,307)
	$ 530,108	$ 265,267

Depreciation expense amounted to $87,937 and $86,444 for the years ended December 31, 2022, and 2021, respectively.

Note 4 – Accrued Expenses

Accrued expenses consist of the following:

	December 31, 2022	December 31, 2021
Accrued interest	306,821	216,073
Accrued bonuses	135,000	-
Other	53,641	95,332
	$ 495,462	$ 311,405

Note 5 – Fair Value Measurements

The accounting guidance defines fair value, establishes a consistent framework for measuring fair value and requires disclosure for each major asset and liability category measured at fair value on either a recurring or non-recurring basis. Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets.

Level 2: Inputs, other than the quoted prices in active markets that are observable either directly or indirectly.

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The following table summarizes fair value measurements by level on December 31, 2022 of the Company's assets measured at fair value on a recurring basis:

	Fair Value Measurements Using			
	Fair Value	Level 1	Level 2	Level 3
U.S. government and agency obligations	$ 4,036,014	$ 4,036,014	-	-

The following table summarizes fair value measurements by level on December 31, 2021 of the Company's assets measured at fair value on a recurring basis:

	Fair Value Measurements Using			
	Fair Value	Level 1	Level 2	Level 3
Cash and cash equivalents	$ 60,021	$ 60,021	$ -	$ -
Mutual funds	5,933,364	5,933,364	-	-
Total financial assets	$ 5,993,385	$ 5,993,385	$ -	$ -

The Company determines fair value for cash equivalents and marketable securities with Level 1 inputs through the reference to the quoted market prices.

The table below presents the 2021 changes in Level 3 liabilities measured at fair value on a recurring basis (See Note 8).

	Convertible Notes
Balance at December 31, 2020	$ -
Issuance of Amended Notes (Note 8)	3,168,236
Change in fair value of convertible notes	195,962
Fair value of convertible notes at IPO date	(3,364,198)
Balance at December 31, 2021	$ -

At the IPO date, the Amended Notes were converted into 641,895 shares of common stock (see Note 8). The interest expense of $89,239 for the period between the date of the Conversion Agreements related to the Amended Notes (see Note 8) and December 31, 2021, is included in the change in fair value of the Amended Notes.

There are no assets or liabilities measured at fair value on a non-recurring basis during the years ended December 31, 2022, and 2021.

The carrying values of financial instruments such as accounts receivable, net, other receivables, accounts payable, and accrued expenses approximated fair value as of December 31, 2022 and December 31, 2021 due to their short-term maturities. The carrying value of the Company's Non-Convertible Promissory Note approximated its fair value as of December 31, 2022 and December 31, 2021.

Note 6 – Stock Option Plan

The Company's 2014 Equity Incentive Plan (the "2014 Plan") permits the grant of options for its common stock and shares of common stock to its employees, board members and consultants for up to 3,500,000 shares.

As of December 31, 2022, there were 1,496,081 shares available for future issuance under the Plan. Generally, option awards are granted with an exercise price equal to the fair value of the Company's stock at the date of grant and vest over a period of four years. No option may have a term in excess of ten years from the option grant date. Share awards generally vest over a period of four years. Certain option and share awards provide for accelerated vesting if there is a change in control (as defined by the 2014 Plan). The weighted average grant date fair value of options granted in 2022 and 2021 were $0.89 and $1.15, respectively, per share.

The stock option activity for the year ended December 31, 2022 is as follows:

	Number of Options	Weighted-Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in Years)
Outstanding as of December 31, 2021	918,919	$ 2.09	5.79
Granted	1,085,000	$ 1.71	10.00
Outstanding of December 31, 2022	2,003,919	$ 1.88	7.09
Exercisable at December 31, 2022	919,764	$ 2.09	4.79

During the years ended December 31, 2022 and 2021, the Company recorded $256,900 and $333,978 of stock-based compensation associated with granted and vested stock options, respectively. As of December 31, 2022, there was $710,812 of unrecognized compensation expense related to unvested share-based compensation awards, which will be recognized over approximately 1.5 years.

Note 7 – Related Party Transactions

At December 31, 2022 and 2021, the Company had the following outstanding payables, which are included within the Company's accounts payable above, to affiliated parties for past services:

	December 31, 2022	December 31, 2021
Genomic Diagnostic Technologies	$ 925	$ 23,725
St. Laurent Institute	232,418	313,679
St. Laurent Realty, Inc.	7,558	27,913
Total related party payables	$ 240,901	$ 365,317

The above entities are affiliated with (1) William C. St. Laurent, a former member of the Company's board of directors, (2) relatives of Mr. St. Laurent or (3) entities controlled by the St. Laurent family, who are controlling shareholders of the Company. St. Laurent Realty, Inc. and Genomic Diagnostic Technologies assisted the Company by previously providing corporate accounting support; St. Laurent Institute, a non-for-profit company, provided bioinformatics specialist support for certain sequencing services.

During 2021, Daniel Jones, the Company's Chief Executive Officer, made non-interest-bearing demand loans to the Company in the amounts of $90,000 and $50,000. Both loans were repaid in full with proceeds from the IPO.

Note 8 – Notes Payable

The Company entered into a series of convertible promissory notes (the "Convertible Notes") through April 8, 2019, with certain preferred stockholders amounting to $905,000. The Convertible Notes had a one-year term and accrued interest at 10% per annum. The Convertible Notes were convertible at the lower of $3.10 per share or a 20% discount to the share price paid by the purchasers of equity securities in the Company's next Qualified Financing, as defined in the convertible note agreement.

From April 29, 2019, to April 29, 2020, the Company entered into a series of non-convertible promissory notes (the "Promissory Notes") with a certain preferred stockholder amounting to $1,375,000. The Promissory Notes had a one-year term with interest accruing at 10% per annum.

In November and December 2020, the Company issued senior secured convertible promissory notes to a third-party investor amounting to $200,000. These notes accrued interest at 10% per annum, were to be repaid at the earlier of December 31, 2022, or the Company's next qualified financing of a minimum of $7.5 million (as defined in the notes agreement) and were convertible at $3.75 per share.

On December 31, 2020, the Company issued a non-convertible promissory note to St. Laurent Investments LLC amounting to $426,020 due July 31, 2022, bearing 10% interest per annum in exchange for the accrued interest on all its notes of the Company outstanding through that date.

From January to March 2021, the Company issued senior secured convertible promissory notes to investors for total proceeds of $250,000. The Convertible Notes accrued interest at 10% per annum, matured at the earlier of December 31, 2022, or the Company's next qualified equity offering of a minimum of $7.5 million, and were convertible at $3.75 per share.

On February 3, 2021, the preferred stockholder and the holder of $2,910,710 in the Convertible Notes and Promissory Notes of the Company granted the Company an extension on all its notes of the Company to be repaid on or before July 31, 2022. This amendment was accounted for on a prospective basis under the troubled debt restructuring guidance.

In March 2021, the Company entered into a series of agreements with the noteholders to automatically convert $786,730 in outstanding Promissory Notes and $1,305,000 in Convertible Notes (together, "Amended Notes"), to common stock upon the closing of the IPO ("Conversion Agreements"), of which $1,552,683 was held by St. Laurent Investments, LLC and its affiliates. Under the terms of the conversion agreements, $826,020 and $1,265,710 in Amended Notes were to be converted at the closing of the IPO based on the $3.75 and $3.10 conversion prices, respectively. Since the automatic conversion could result in a material benefit to the noteholders, this amendment was deemed substantive and was accounted for as an extinguishment of debt. Accordingly, the Company recognized a loss on extinguishment of debt totaling $934,257 in the consolidated statement of operations and comprehensive loss for the three months ended March 2021, which represented the excess of the fair value of the Amended Notes totaling $3,118,235 over their carrying value of $2,183,978. The Company elected the option to account for the Amended Notes at fair value, with the changes in fair value recognized in the statement of operations and comprehensive loss. The fair value of the Amended Notes was estimated using probability weighted expected payouts under various settlement scenarios, discounted to their present value based on the estimated effective rate of return.

On April 29, 2021, the Company entered into an agreement with a noteholder to automatically convert an additional $50,000 in outstanding Amended Notes, including any accrued interest, to common stock upon the closing of the IPO at the conversion price of $3.75 per share.

At the IPO date, the Amended Notes automatically converted based on their original terms into 641,895 shares of common stock. The fair value of the Amended Notes of $3,364,198 immediately prior to the conversion, less a $141,884 cash payment related to the accrued interest, was reclassified into the additional paid in capital on the consolidated balance sheet. The fair value of the Amended Notes at the conversion date was estimated based on the fair value of the common stock issued upon the conversion.

The Company recognized $195,962 loss due to the change in fair value of the Amended Notes between the amendment date and their conversion at the IPO date.

In October 2021, the Company entered into an agreement with St. Laurent Investments LLC to reduce the interest on $1,375,000 principal amount of the Promissory Notes from 10% to 5% per year starting on October 1, 2021. The Company accounted for this transaction as a modification on a prospective basis.

In October 2021, the Company repaid $270,000 of the Promissory Notes to William C. St Laurent in cash.

In connection with all the Convertible Notes and Promissory Notes issued during 2021 and 2020, the Company issued warrants to noteholders to purchase the total of 66,665 and 53,333 shares of the Company's common stock, including 11,466 to the placement agent (see Note 10). The fair values of these warrants were immaterial at issuance.

In June 2022, the Company entered into an agreement with St. Laurent Investments LLC to extend the maturity date of the $1,375,000 Promissory Note to July 31, 2024. The Company accounted for this transaction as a modification on a prospective basis.

For the years ended December 31, 2022, and 2021, interest expense related to both convertible and non-convertible promissory notes was $90,748 and $208,289, respectively.

Note 9 – Preferred Stock

The Series A-1 Preferred Stock ("Series A-1") and Series A-2 Preferred Stock ("Series A-2") collectively the "Preferred Stock", could be converted at any time at the election of the holder into common stock at an initial conversion price determined by dividing the Series A-1 original issue price of $0.59, as amended, by the Series A-1 conversion price of $0.59; and the Series A-2 original issue price of $3.10, as amended, by the Series A-2 conversion price of $3.10; both were subject to adjustment for stock splits, stock combinations and the like, and to a weighted-average adjustment for future issuances of common stock, warrants or rights to purchase common stock or securities convertible into common stock for a consideration per share that is less than the then-applicable conversion price, subject to certain exceptions listed in the Charter.

The Preferred Stock was subject to automatic conversion upon (i) the closing of an initial public offering of the common stock at a price per share equal to at least $9.25 (as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalization or the like) in an underwritten public offering in which the Company raised gross proceeds of at least $10 million or (ii) the consent of holders of at least a majority of the then-outstanding shares of Preferred Stock voting together as a single class.

In connection with the IPO, all of the outstanding shares of the Company's convertible preferred stock automatically converted into 3,130,622 shares of common stock.

Note 10 – Common Stock Warrants

On March 16, 2021, the Company made a down payment to ShareIntel-Shareholder Intelligence Services, LLC for anticipated services connected to the Company's planned offering, which was in the form of issuing 9,865 warrants to purchase common stock at $4.10 per share, with an expiration date of June 30, 2024. The warrants are exercisable starting at their issuance dates.

On August 31, 2021, the Company sold an aggregate of 3,060,000 units at a price to the public of $4.25 per unit, each unit consisting of one share of the Company's common stock and a warrant to purchase one share of common stock at an exercise price of $4.25 per share. In addition, pursuant to the Underwriting Agreement, the Company granted the Underwriter a 45-day option to purchase up to 459,000 additional shares of common stock, and/or 459,000 additional warrants, to cover over-allotments in connection with the Offering. The Underwriter partially exercised this option and purchased 459,000 warrants on the closing date at $0.01 per Warrant, for the total proceeds of $4,590. These warrants are exercisable at any time from the issuance date at $4.25 for common stock shares and have a five-year term. The warrants may be exercised for cash or through cashless exercise.

The Company may redeem the outstanding warrants, in whole and not in part, at $0.001 per warrant if, after thirteen months from the issuance date, (i) the daily volume weighted average price of the Common Stock for each of 10 consecutive trading days (Measurement Period) exceeds $12.75 (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like after the issuance date), (ii) the average daily volume for such Measurement Period exceeds $1,000,000 per Trading Day and (iii) the holders of warrants are not in possession of any information that constitutes, or might constitute, material non-public information which was provided by the Company, any of its Subsidiaries, or any of their officers, directors, employees, agents or Affiliates.

Pursuant to the Underwriting Agreement, on August 31, 2021, and September 29, 2021, the Company also issued to the Underwriter warrants to purchase up to a total of 162,450 shares of common stock as a compensation for their services. These warrants are exercisable at any time from the issuance date at $4.675 per share of common stock and have a term of five years through August 26, 2026. The total fair value of the warrants granted to the Underwriter was $1,642,486 at the issuance date. The Company estimated the fair value of the warrants using the Black-Scholes option pricing model based on the following assumptions:

Risk-free interest rate	0.77% - 1.01%
Expected life	5 years
Dividend yield	0%
Volatility	67%

The following table summarizes information with regard to outstanding warrants to purchase common stock as of December 31, 2022:

Issuance Date	Number of Shares Issuable Upon Exercise of Outstanding Warrants	Exercise Price	Expiration Date
8/30/2018	3,088	$ 3.10	8/29/2023
9/30/2018	60,506	$ 3.10	9/29/2023
9/30/2018	486,486	$ 2.16	9/29/2023
10/17/2018	1,157	$ 3.10	10/16/2023
11/2/2018	964	$ 3.10	11/1/2023
11/9/2018	964	$ 3.10	11/8/2023
11/16/2018	964	$ 3.10	11/15/2023
11/29/2018	964	$ 3.10	11/28/2023
12/21/2018	964	$ 3.10	12/20/2023
12/27/2018	964	$ 3.10	12/26/2023
1/31/2019	1,930	$ 3.10	1/30/2024
2/7/2019	1,640	$ 3.10	2/6/2024
2/21/2019	1,640	$ 3.10	2/20/2024
3/20/2019	3,378	$ 3.10	3/18/2024
4/8/2019	1,930	$ 3.10	4/6/2024
11/19/2020	53,333	$ 4.10	6/30/2024
11/19/2020	8,533	$ 4.10	6/30/2024
1/8/2021	13,333	$ 4.10	6/30/2024
1/11/2021	26,666	$ 4.10	6/30/2024
2/13/2021	13,333	$ 4.10	6/30/2024
3/16/2021	10,665	$ 4.10	6/30/2024
3/16/2021	13,333	$ 4.10	6/30/2024
8/31/2021	3,519,000	$ 4.25	8/31/2026
8/31/2021	153,000	$ 4.675	8/26/2026
9/29/2021	9,450	$ 4.675	8/26/2026
	4,388,185		

During the year ended December 31, 2022, warrants to purchase 5,211 shares of common stock with an exercise price of $3.10 expired.

Note 11 – Marketable Securities

The cost and fair value of marketable securities, which are available-for-sale debt securities, were $4,013,563 and $4,036,014 as of December 31, 2022, respectively, resulting in a $22,451 unrealized gain included in the other comprehensive income for the year ended December 31, 2022. As of December 31, 2022, the contractual maturities for all available-for-sale debt securities were less than one year.

Additionally, the Company recognized a net realized loss of $51,816 on marketable equity securities for the year ended December 31, 2022.

The cost and fair value of marketable equity securities were $5,976,442 and $5,933,364 as of December 31, 2021, respectively, resulting in $43,078 unrealized loss included in the consolidated statement of operations and comprehensive loss for the year ended December 31, 2021.

The Company’s interest and dividend income amounted to $44,879 and $36,463 for the years ended December 31, 2022, and 2021, respectively.

The Company has not recognized any impairment in its financial statements related to its marketable securities.

Note 12 – Paycheck Protection Program

On May 5, 2021, and May 7, 2020, the Company applied for and received loans for $190,100 in each year in connection with the Paycheck Protection Program ("PPP") pursuant to the CARES Act that was signed into law on March 27, 2020.

The loans had terms of 5 years, were unsecured and were guaranteed by the Small Business Administration ("SBA"). The loans bore interest at one percent per annum. Loan payments were to be deferred for borrowers who apply for loan forgiveness until the SBA remits the borrower's loan forgiveness amount to the lender. If a borrower did not apply for loan forgiveness, payments were to be deferred 10 months after the end of the covered period for the borrower's loan forgiveness (between 8 and 24 weeks).

Some or all of the loans could be forgiven if at least 75% of the loans' proceeds were used by the Company to cover payroll costs, including benefits, and if the Company maintained its employment and compensation within certain parameters during the period following the loans' origination date and complied with other relevant conditions.

The Company elected to account for the PPP loans as an in-substance government grants by applying the guidance in International Accounting Standards 20 by analogy based on the assessment that it is probable that it will meet both (a) the eligibility criteria for a PPP loan, and (b) the loan forgiveness criteria for all or substantially all of the PPP loan. Under this guidance, the Company recorded the loans' proceeds in other income in the consolidated statement of operations and comprehensive loss for the years in which the Company received a PPP Loan.

As of December 31, 2022, both of the PPP Loans referenced above were forgiven.

Note 13 - Income Taxes

The Tax Cuts and Jobs Act (the "TCJA") resulted in significant changes to the treatment of research or experimental ("R&E") expenditures under Section 174. For tax years beginning after December 31, 2021, taxpayers are required to capitalize and amortize all R&E expenditures that are paid or incurred in connection with their trade or business which represent costs in the experimental or laboratory sense. Specifically, costs for U.S. based R&E activities must be amortized over five years and costs for foreign R&E activities must be amortized over 15 years; both using a midyear convention. The Company has implemented this standard on January 1, 2022, noting that the impact on the Company's consolidated financial statements was immaterial.

The Company is subject to United States federal and Massachusetts state income taxes at an approximate combined rate of 29% in 2022. During the years ended December 31, 2022 and 2021, there was no provision for income taxes as the Company incurred losses during both periods. The primary component of the Company's deferred tax assets are its net operating loss carryforwards. At December 31, 2022, the Company has a federal and state net, operating loss carryforward of approximately $17,368,019 and $17,090,960, respectively, which begins expiring in 2034.

The Company's 2018 and after federal net operating losses can be carried forward indefinitely.

The valuation allowance against deferred tax assets was approximately $5.5 million and $4.3 million as of December 31, 2022, and 2021, respectively. During the years ended December 31, 2022 and 2021, the valuation allowance increased by approximately $1.2 million in both years.

As of December 31, 2022, the Company did not maintain any foreign subsidiaries and did not have previously deferred foreign earnings subject to the transition tax.

The income tax benefit differs from the amount of income tax determined by applying the U.S. federal income tax rate to pretax income for the years ended December 31, 2022 and 2021 due to the following:

	2022	2021
Computed "expected" tax benefit	(21.0)%	(21.0)%
Increase (decrease) in income taxes resulting from:		
State taxes, net of federal benefit	(8.0)%	(8.0)%
Permanent differences	0%	0%
Increase in valuation reserve	29.0%	29.0%
	0%	0%

Note 14 – Commitments and Contingencies

Leases

The Company's office space lease in Woburn, Massachusetts (the "Woburn Lease") for the Company's corporate headquarters was on a month-to-month basis since November 2020 and was terminated in February 2022. The rent expense for this lease was $14,239 and $216,860 for the years ended December 31, 2022 and 2021, respectively.

On February 2, 2022, the Company entered into a lease agreement for approximately 15,638 square feet of its new corporate office space in Billerica, Massachusetts (the "Billerica Lease"). The Billerica Lease has a term of 92 months from its effective date and included access to certain additional office space until August 1, 2022. In addition, the Company is required to share in certain taxes and operating expenses of the Billerica Lease.

The Billerica Lease is classified as an operating lease. At the inception date of the Billerica Lease, the Company recorded a right-of-use asset of $1,481,646 in operating lease right-of-use asset, as well as a lease liability of $12,222 in current liabilities and $1,547,614 in long-term liabilities. The operating lease right-of use asset is less than that of the Company's lease liabilities as of the lease inception date. This is due to the fact that the Company as part of the Billerica Lease was allowed certain tenant improvement allowances, which amounted to $78,190 at lease inception. This lease liability represented the net present value of future lease payments for the lease utilizing a discount rate of 5.98%, which corresponded to the Company's incremental borrowing rate.

In August 2022, the Company received the tenant improvement allowance from the landlord, which totaled approximately $312,758. This allowance covered the leasehold improvements to the Billerica space and was accounted for as a reduction to the right-of-use asset. As of December 31, 2022, the remaining lease term was 6.8 years.

The Company recorded expense related to the Billerica Lease in the amount of $200,350 year ended December 31, 2022.

Variable lease expenses recorded by the Company were immaterial for the year ended December 31, 2022.

During the years ended December 31, 2022, the Company made cash payments of $88,366, for amounts included in the measurement of lease liabilities.

The following table reconciles the undiscounted lease liabilities to the total lease liabilities recognized on the consolidated balance sheet as of December 31, 2022:

2023	$ 197,305
2024	275,875
2025	284,151
2026	292,676
2027	301,456
Thereafter	548,576
Total undiscounted lease liabilities	$ 1,900,039
Less effects of discounting	(345,582)
Total lease liabilities	$ 1,554,457

Reported as of December 31, 2022:	
Current portion of operating lease liability	$ 110,114
Operating lease liability, less current portion	1,444,343
Total lease liabilities	$ 1,554,457

Note 15 – Subsequent Events

On February 13, 2023, the Company entered into a Securities Purchase Agreement (the "Purchase Agreement") with institutional investors (the "Purchasers") pursuant to which the Company agreed to sell to the Purchasers, in a registered direct offering, an aggregate of 2,000,000 shares of common stock, par value $0.00001 per share (the "Common Stock"), of the Company, at a purchase price of $0.90 per share of Common Stock (the "Offering"). On February 15, 2023, the Company closed the Offering, raising gross proceeds of $1,800,000 before deducting placement agent fees and other offering expenses payable by the Company. The Company intends to use the net proceeds of the offering for working capital and general corporate purposes.

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement on Form S-8 (No. 333-263670) and the Registration Statement on Form S-3 (No. 333-268319) of SeqLL Inc. of our report dated March 16, 2023, relating to the consolidated financial statements of SeqLL Inc., appearing in the Annual Report on Form 10-K for the year ended December 31, 2022.

/s/ Wolf & Company, P.C.

Wolf & Company, P.C.
Boston, Massachusetts
March 16, 2023

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, Daniel Jones, certify that:

1. I have reviewed this Annual Report on Form 10-K of SeqLL Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13-a13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures; and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 16, 2023

/s/ Daniel Jones
Daniel Jones
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, Frances Scally, certify that:

1. I have reviewed this Annual Report on Form 10-K of SeqLL Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13-a13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures; and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 16, 2023

/s/ Frances Scally
Frances Scally
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of SeqLL Inc. (the "Company") for the year ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Daniel Jones, Chairman and Chief Executive Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of, and for, the periods presented in the Report.

Dated: March 16, 2023

/s/ Daniel Jones
Daniel Jones
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of SeqLL Inc. (the "Company") for the year ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Frances Scally, Chief Financial Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of, and for, the periods presented in the Report.

Dated: March 16, 2023

/s/ Frances Scally
Frances Scally
Chief Financial Officer
(Principal Financial Officer)