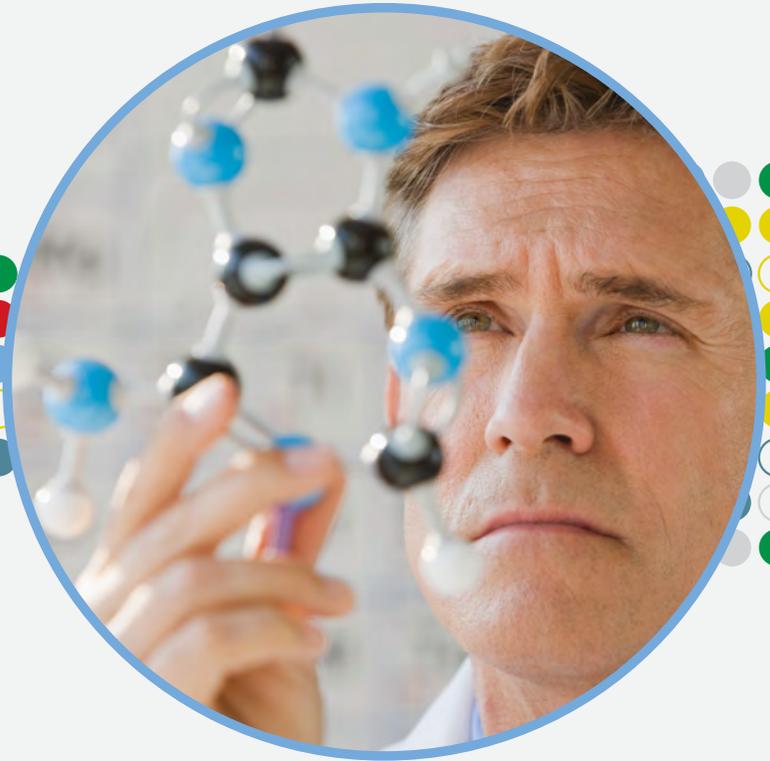




Strand
Life Sciences



Pioneering
Clinical Omics



Strand Life Sciences

Strand Life Sciences (Strand) is a technology innovation company that has pioneered the practice of Scientific Intelligence in health sciences. Leveraging its unmatched interdisciplinary scientific expertise with its decision enabling technologies, Strand empowers biomedical and research scientists gain deep insights from raw data. Strand offers products and services in the areas of omics-based technologies, drug discovery, predictive systems modeling and knowledge management.

CUSTOMERS include :

Eli Lilly | Johnson & Johnson | Pfizer | Abbott | Novartis
Agilent | Procter & Gamble | Monsanto | Gilead Sciences

Strand is the *R&D partner for Agilent's GeneSpring®* suite of products.

Scientific Intelligence

Scientific Intelligence is the application of business intelligence, visualization, scientific context and predictive modeling. Industries where complexity and size of data/information pose significant bottlenecks in the R&D process, Strand's SI helps to effectively mine large amounts of scientific data, from varied sources, and convert it to usable knowledge, insight and decisions.

Strand's Scientific Intelligence solutions empower global pharma, biotech, healthcare and environmental organizations to make effective and informed decisions faster based on solid data and analysis.

Technologies

Strand's Scientific Intelligence technologies for research biology and drug discovery available for consulting, licensing and custom development are:

- Computer-Aided Drug Design
- Data Mining and Visualization
- Disease Knowledgebases
- Next-Gen Sequencing
- QSAR Predictive Modeling
- Scientific Data Integration
- Systems and Disease Modeling
- Toxicity prediction
- Text Mining and Intelligence
- Clinical Genomics

Several of Strand's products are built on the award-winning platform, AVADIS®. AVADIS® is Strand's proprietary data access, visualization, analysis and Scientific Intelligence technology platform. It combines high-end visualization including dynamically linked views and rich interactivity with powerful analysis tools, statistical tests, and machine learning based predictive modeling.

All of the above has gone into the development of Strand's products and solutions for chemistry and biology.

Products

GeneSpring®



A cutting-edge analysis tool for gene expression, genotyping, exon and tiling microarrays. It has a database of over 1.5 million biological interactions extracted by the powerful Natural Language Processing (NLP)-based text mining engine developed by Strand. This product is developed on Strand's AVADIS® platform, and is marketed worldwide by Agilent Technologies.

Strand NGS



An analysis tool for data generated by cutting-edge Next Generation Sequencing(NGS) instruments. Strand NGS enables read alignment and analysis of RNA-Seq, DNA-Seq, small RNA, Methyl-Seq and CHIP-Seq data, as well as biological interpretation through GO, GSEA, and Pathway Analysis.

Strand Center



The Strand Center for Genomics and Personalized Medicine translates research in human genetics and offers advanced genomics-based diagnostics with a vision of enabling physicians to better understand diseases at a molecular level and personalize patient treatment for improved health outcomes.

Virtual Liver



Strand's Virtual Liver model combines in silico with in vitro insights to predict drug-induced liver injury (DILI). This novel predictive modeling approach provides an effective tool for pharmaceutical companies to assess target liabilities, chemical hazards & risks, solve compound design issues, and generate testable impact hypotheses.

Value Propositions

History of excellence

Strand is a world leader in health science research informatics, offering best-of-breed, innovative, and cost-effective technologies and solutions to companies across the globe.

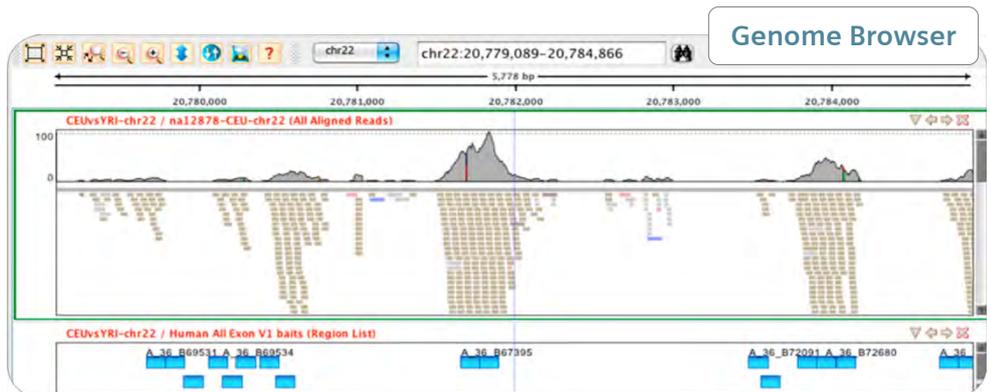
Globally, seven of the top ten pharmaceutical companies, three of the top six biotechnology companies and numerous academic research institutions are a part of Strand's customer profile.

Domain expertise and superior technology

Strand's talent encompasses industrial and academic experts in computational chemistry, systems biology, cheminformatics, bioinformatics, and software engineering. Strand's core technologies have undergone over 400 person years of development by incorporating user-driven improvements, resulting in high-functioning and industrially acclaimed performance.

Strand NGS

Strand NGS is an integrated platform that provides analysis, management and visualization tools for next-generation sequencing data. It supports workflows for alignment, RNA-Seq, small RNA-Seq, DNA-Seq, Methyl-Seq and ChIP-Seq experiments. It includes an embedded feature-rich Genome Browser and provides custom visualizations to support the interpretation of analysis results. Various quality control features ensure that any poor quality data is kept out of downstream analysis. Biological interpretation and discovery tools such as Gene Ontology enrichment, GSEA, NLP derived interaction network analysis, and significant pathways analysis enable taking the analysis all the way from reads to the end goal of the experiment.



Product Highlights

Alignment

- Alignment for small RNA, DNA-Seq, ChIP-Seq, and bacterial RNA-Seq data

RNA-Seq Analysis

- Quantification & Differential Expression
- Novel Gene and Gene Fusion Detection
- Novel Splice Junction Detection

ChIP-Seq Analysis

- Peak Detection (PICS, MACS)
- Motif Detection (GADEM)

DNA-Seq Analysis

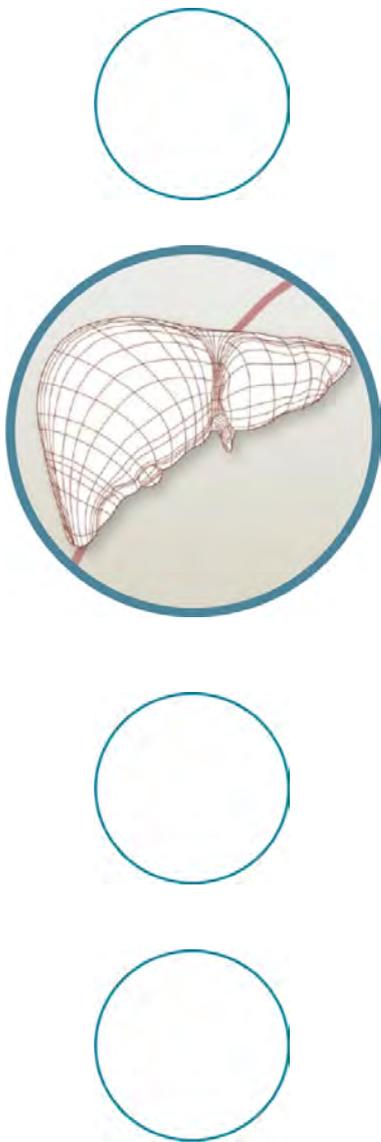
- SNP Detection and Effect Analysis
- Structural Variant Detection
- Copy Number Analysis

Small RNA Analysis

- Quantification & Normalization
- Differential expression
- miRNA Target Analysis

Methyl-Seq

- Detection of Methylated cytosines
- Detection of DMCs and DMRs



Virtual Liver

Strand's novel predictive modeling approach for assessing drug-induced liver toxicity provides an effective solution for pharmaceutical companies to evaluate a new compound's effect on the liver in the pre-clinical stage of drug discovery. At the heart of Strand's Virtual Liver lies a mathematical model of normal liver physiology. When coupled with targeted assays, it provides mechanistic insights into how a drug molecule impacts the liver. Based on the set of pathways captured with the platform, the model has the ability to predict toxicity of three major sources of drug induced liver disease (DILD): Hepatocellular Injury, Drug-induced Cholestasis, and Steatosis. Thus the platform predicts the incidence of more than 75% of DILD.

Key Advantages of the Strand Approach

- **Scientifically advanced hepatotoxicity prediction**
- **Combines *in silico* and wet lab techniques**
- **Handles toxicogenomic data**
- **Flexible business model**

Product Highlights

Strand's approach of modeling normal liver function, or homeostasis, enables researchers to understand the evolution of DILD, answering questions such as:

**What are the impacted pathways?
How does this impact translate into biological changes over a short as well as long periods of time?**

This knowledge allows researchers to identify early markers that very specifically signal the impending approach of a specific form of toxicity.

Strand's Virtual Liver is capable of predicting the impact of both small molecule and biological agents, unlike pure toxicogenomic approaches.

How is the platform used?

Pharmaceutical companies provide the compounds to Strand's laboratory, which are tested at various concentrations and time points to record short and long term effects to observe how the compound interacts with hepatocyte biology and the long term changes in the biological process to resist the effect of the drug.

The **Virtual Liver** model simulates the impact of these changes and provides an estimate of the *in vivo* impact of the compound on the organism in terms of its potential to cause DILD. The report provides a detailed mechanistic rationale for the predicted impact and allows researchers to understand the key biological interactions involved.



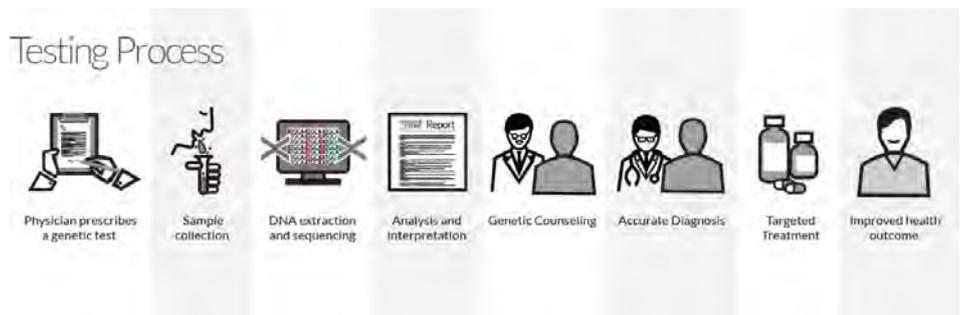
Strand Center

Distinguished geneticists, scientists and researchers working at the Strand Center recognize the vision of personalized medicine – bringing the latest technology and scientific information to physicians and patients for the very first time. Our efforts to transform this pioneering vision into a reality include:

- Development of our proprietary clinical genomics interpretation and reporting platform StrandOmics™ to simplify diagnostic odysseys at the scale that personalized medicine requires
- Continual expansion of our diagnostic tests to cover more diseases and innovation to make these tests affordable
- Continual update of our knowledge base of genomic variants and their associated phenotypes to keep up with current findings in clinical publications
- Leveraging our decade long expertise in genomics, computational biology, and drug discovery research
- Collaboration with thought-leading academic and research organizations involved in genomics research

We are passionately committed in bringing individualized medicine to the world.

Strand Tests



The available suite of Strand® tests include:

- Strand® Somatic 48-gene Test
- Strand® Germline Cancer Test
- Strand® Cardio Genomic Test
- Strand® Rare Diseases Test
- Strand® Single Mutation Confirmation Test

...and future Strand® tests in the pipeline.

Ganit Labs

Ganit Labs is a not-for-profit, government-funded, public-private partnership initiative between the Institute of Bioinformatics and Applied Biotechnology (IBAB) and Strand. Ganit Labs uses second generation sequencing instruments, compute clusters, and human brains to sequence, analyze, and interpret genome data from a variety of organisms. Ganit Labs' goal is to solve fundamental scientific problems and understand the complexity of life by conducting experiments using genomics tools like next-generation sequencing (NGS), DNA microarray, and real-time PCR. Find out more at: www.ganitlabs.in



Mission & Services

Ganit Lab's mission

Conduct R&D and provide core-lab services in functional genomics and NGS.

Engage in training & entrepreneurship activities in the above fields.

Collaborate with industry in creating affordable and innovative scientific solutions.

Ganit Lab's services

Next-generation sequencing

Whole genome and targeted re-sequencing, de novo sequencing, mRNA-Seq, small RNA-Seq, Methyl-Seq and ChIP-Seq.

Perform data QC and comprehensive primary and secondary data analysis.

Microarray

Standard gene-expression, genotyping, and methylation experiments using the Illumina HiScan instrument.

Capillary sequencing

de novo sequencing and re-sequencing with the gold standard: Sanger capillary long-read sequencing.

Quantitative real-time expression and genotyping

Experiments using standard taqman or SYBR green chemistry in individual tube assays or array plates.

Interested? Contact Ganit Labs at corelab@ganitlabs.in

Awards & Achievements

- Ranked among the Top 20 Fastest Growing Technology companies in India - Deloitte Tech Fast 50 India 2009 Program
- Scientific Computing's Bioinformatics Readers' Choice award-for GeneSpring® MS
- World Economic Forum "Technology Pioneer 2007"
- Annual global sales of over 2000 licenses of Strand product-line
- DBT/BIRAC Innovator Award 2012 in the Healthcare Sector
- "Entrepreneur of the year Award 2007" - INDIA Bio Spectrum Awards
- NASSCOM "IT Innovator 2006"
- Red Herring "Global 100 Company 2010"
- Frost & Sullivan "Excellence in Technology Award 2005" for AVADIS®
- Bangalore India Bio 2011 Bio-Excellence Award winner (Bioinformatics & Systems Biology)
- Bioinformatics Company of the Year 2013 Award - BioSpectrum Awards Nite 2013



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