



# FREQUENTLY ASKED QUESTIONS

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## Q: WHAT IS HUMAN LONGEVITY INC.?

**A:** Human Longevity, Inc. (HLI) is the genomic-based, health intelligence company empowering proactive healthcare and enabling a life better lived. HLI combines the largest database of genomic and phenotypic data with machine learning to drive discoveries and revolutionize the practice of medicine. HLI's business areas include the HLI Health Nucleus, a genomic powered clinical research center which uses whole genome sequence analysis, advanced clinical imaging and innovative machine learning, along with curated personal health information, to deliver the most complete picture of individual health; HLIQ Whole Genome and HLIQ Oncology.

## Q: EXPLAIN YOUR BUSINESS MODEL.

**A:** HLI is building a strong portfolio of products and services across multiple markets and application areas. Our customers include: pharmaceutical and biotechnology companies, large academic centers, hospitals, insurers, physicians and patients.

### Our core areas of business include:

**Health Nucleus:** The Health Nucleus is a first-of-its-kind clinical research center that integrates a patient's health profile with recent advancements in

DNA sequencing and digital imaging to deliver personal insights and advanced computational tools, including machine learning, to uncover patterns in health. The first Health Nucleus opened in 2015 in San Diego, CA.

**HLIQ Oncology:** Our program provides oncologists with in-depth analysis to guide decisions about personalized cancer therapy based on comprehensive genomic profiling, and a cutting edge path to informed personalized therapy. HLIQ Oncology offers three products:

- **HLIQ Cancer Exome:** This test provides exome sequencing of the patient's germline and tumor DNA plus mutational burden of the tumor to guide treatment options, including if a patient is a candidate for immunotherapy.
- **HLIQ Inherited Cancer Risk Analysis:** For family members who want to understand if they may be predisposed to a higher risk of developing cancer, physicians can order this test which examines 144 genes associated with a spectrum of cancers, including common and rare cancer types.
- **HLIQ Comprehensive Cancer Analysis:** Our Comprehensive Cancer research program combines the power of genomics and computing advances that we use



in our Cancer Exome testing but includes more in-depth sequencing coverage and analysis on the full genome of both the patient and the tumor. We do Whole Genome sequencing of the germline DNA, tumor DNA, somatic exome, deep sequencing of cancer genes and RNA sequencing to help guide decisions toward cancer management.

**Health Insights:** Our HLIQ Whole Genome product includes whole genome sequencing and analysis providing an integrated assessment of health status and potential risks for individuals. Our work supports both predictive, preventive and personalized care, including cancer analysis, Integrated Health analysis, Rare, undiagnosed diseases.

**Health Intelligence:** Including our HLI Database and HLI Search data analysis services – HLI is building the world’s largest database of clinical, biological and behavioral information, including comprehensive genome and phenotype content curated with our proprietary computational tools by the leading experts in the field. HLI is making data from over 10,000 genomes available to researchers through our Open Search tool, generating more insight into individual genomes through their comparison with many. Our team is sequencing complete genomes to 30x coverage and is on track to have a database of 1 million integrated health records by 2020.

**Raw Data:** Yielding Information Generation and Discovery – HLI has one of the largest human genome sequencing centers, enabling all HLI product offerings and allowing

the company to sequence samples from collaborators across multiple industries. We are focused on high-quality samples with genomic and phenotypic data. Our discovery team generates insights that can streamline drug development, enable discovery of biomarker and companion diagnostics and rescue / repurpose drugs from failed clinical trials through whole genome and whole exome sequencing for pharmaceutical partners.

**Q: WHAT ARE THE COMPANY’S REVENUE STRATEGIES AND POTENTIAL?**

**A:** The market for healthy human longevity is enormous. Globally, total healthcare expenses run over \$7 trillion, with nearly half of these funds being spent in the senior (65+) years of a person’s life to help keep them alive longer.

Revenue streams include products for well adults and cancer patients and their families such as sequencing services, genome analysis and services provided through HLI Health Nucleus, and personalized vaccines and therapies. HLI also offers information generation and discovery of novel diagnostics and therapeutics developed internally or through partnered programs; and database licensing to pharmaceutical, biotechnology, insurance companies, hospitals and academic organizations.

**Q: IS THE COMPANY FOCUSED ON PARTICULAR DISEASE AREAS?**

**A:** Obviously the key to longevity is remaining healthy and staving off diseases such as cancer and heart disease. At HLI, we are focusing on comprehensively understanding human health and disease through complete



biological analysis of individuals. We have collaborations looking at specific disease cohorts such as Alzheimer's and diabetes, and we have programs in cancer and are working toward cancer vaccine development.

#### Q: DOES THE COMPANY HAVE ANY COMMERCIAL DEALS?

A: Since our inception in 2014 we have announced deals with major pharmaceutical, biotech and insurance companies as well as academic centers. Some of the highlights include:

- Massachusetts Mutual Life Insurance Co. (MassMutual) and HLI entered into a three-year agreement to offer HLI's whole genome sequencing product, HLIQ Whole Genome, to all qualified MassMutual clients and employees in the United States. The agreement should help enable HLI's goal of providing up to 200,000 HLIQ Whole Genome reports.
- AstraZeneca and HLI announced a 10-year deal to sequence and analyze up to 500,000 patient samples from AstraZeneca's clinical trials. Insights from the data collection will be added to HLI's database, building upon what is already the most comprehensive database of its kind. AstraZeneca will in turn have access to the complete data and analysis.
- Genentech, a member of the Roche Group, and HLI signed a multi-year agreement for whole genome sequencing of tens of thousands of de-identified samples. HLI, using proprietary tools and unique expertise, will sequence genomes to 30x coverage and analyze the data.

#### Q: WILL YOU BE COLLABORATING WITH ACADEMIC MEDICAL CENTERS?

A: Yes. HLI has collaborated with large academic medical centers and multiple investigators on different research and clinical projects in areas ranging from cardiovascular, oncology, Alzheimer's disease, autism, and pediatric rare disorders. The company is interested in working with groups who have access to large sample cohorts with rich phenotype data that could benefit from next generation sequencing and HLI's state-of-the-art analytics and interpretation tools.

Specific existing collaborations include several University of California campuses (UCSF, UCLA, UCSD, UCSB), ex-US institutions (University of Southampton in the UK, University of Sao Paulo in Brazil, King's College London) and hospital systems such as Cleveland Clinic and Tel-Aviv Sourasky Medical Center.

#### Q: HOW DOES HLI PROTECT MY HEALTH INFORMATION?

A: HLI is committed to protecting the privacy of its clients and to safeguarding identifiable health information. HLI has adopted a Privacy and Security Compliance Program to assure its compliance with Federal regulations and state law governing patient privacy and health information security. Below are examples, not a complete list, of measures in place:

- Data confidentiality is protected by limiting the security access to only those company users authorized to view and/or work the data.
- All HLI workforce members are trained to protect the privacy and



security of PHI and to follow the Program policies and procedures whenever they use, disclose, maintain, transmit, or access PHI.

- HLI promotes a culture of privacy and security awareness and ensures that clients are afforded specific rights and protections related to their medical information.
- HLI regularly schedules risk assessments of the vulnerabilities and threats to client information and implements reasonable and appropriate safeguards to mitigate such risks.
- HLI evaluates the effectiveness of the Program on an ongoing basis leveraging security best practice frameworks and works to modify policies and procedures from time to time in light of technological, environmental, operational, and regulatory changes.

#### Q: WHAT DOES HLI DO WITH GENOME DATA?

**A:** We believe that comprehensive data will lead to deeper knowledge about individuals – where more can be learned about one through their comparison with many. That information is then scoured to remove identifiable labels and is added into the pool of information from which we believe novel insights will be gleaned. This de-identified data from our customers is incorporated into the HLI database which – through aggregation of other de-identified data from other studies and collaborations – forms the most comprehensive database of whole genome, phenotype and clinical data. This database is designed to better inform healthcare and generate discovery, as its study generates health

intelligence. The growth of this database enables customers as discoveries are made with greater information.

#### Q: WHO ARE YOUR INVESTORS?

**A:** Our investors represent a diverse group of individuals and companies who share our common goal and passion of changing healthcare, tackling the diseases of aging and extending the healthy human lifespan.

Specific investors include Celgene, Illumina, GE Ventures, along with a diverse geographic pool of investors based in the United Kingdom, Malaysia, Mexico, Australia, Kuwait, Hong Kong, and China, in addition to the US.

#### Q: WHO IS ON YOUR BOARD OF DIRECTORS?

**Brett Blundy:** Chairman and Founder of BB Retail Capital (BBRC)

**Alan Colowick:** Executive Vice-President, Celgene

**Peter H. Diamandis, MD:** Co-Founder

**Robert Duggan:** Venture Capitalist and Former CEO, Pharmacyclics

**Robert (Bob) Hariri, MD, PhD:** Co-Founder, President, Human Longevity Cellular Therapeutics

**Wei-wu He:** CEO, OriGene Technologies

**KT Lim:** Chairman and Chief Executive of Genting Berhad

**Maky Zanganeh, DDS, MBA:** Founder/President and CEO of Maky Zanganeh Associates



**Q: WHO ARE THE PEOPLE ON YOUR EXECUTIVE MANAGEMENT TEAM?**

**David S. Karow, MD, PhD:**

Interim Chief Executive Officer

**Scott Sorensen:** Chief Technology Officer and Interim Chief Operating Officer

**Travis Lacey:** Chief Corporate Development Officer

**Pamila Brar, MD:** Chief Medical Officer, Health Nucleus

**Danya Norton:** Head of Human Resources

**Jill Westman Mullen:** Head of Investor Relations

**Q: WHO IS ON YOUR ADVISORY BOARD?**

**A:** HLI's advisors include experts from a variety of disciplines, including science, medicine, academia and business. Please see [www.humanlongevity.com/about/advisory-board/](http://www.humanlongevity.com/about/advisory-board/) for more information.