

6 Precision Medicine Companies Making Their Mark in 2020

Chris Anderson, Editor in Chief

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As the field of precision medicine matures, it requires evermore technological improvements across a broader base of disciplines. Our list of half-a-dozen companies that are providing innovative solutions is no exception. From new applications of NGS and non-invasive testing, to leveraging technology to handle disparate datasets and solve genetic counseling bottlenecks, our list of companies to watch have all found, or developed, technology solutions that have allowed them to become innovators in their niche.



LIFEOMIC


Headquarters: Indianapolis. **Year Founded:** June 2016 **Company Founders:**

Don Brown, M.D., CEO, David Fuller, VP of business development, Jeff Swartz, COO.

Employees: 91. **Major Investors:** Don Brown, M.D.

LifeOmic Precision Health Cloud (PHC) is a secure cloud platform that integrates and indexes disparate data sources including genomic, clinical, wearables, imaging, and population data. The company leverages the cloud in myriad ways: to help individuals manage their health; for HIPAA and HITRUST compliance services; for web and app communication channels to connect directly with consumers; and as a robust content distribution platform for consumer engagement.

"It's shocking how antiquated the infrastructure is in healthcare and how the industry is limited by how they can handle big data. Precision medicine requires the aggregation of huge data sets and the ability to ask


complex questions of that data," said Don Brown, M.D., founder and CEO. "We address this problem by a first-of-its-kind cloud-based platform that can combine data for millions of patients from electronic medical records, genetic tests, diagnostic images, and even mobile fitness trackers. Machine learning allows LifeOmic customers such as providers and researchers to identify new biomarkers, analyze trends and even predict health problems before they are clinically diagnosed. Our population health and personal wellness mobile app LIFE Extend, combines telemetry data from fitness trackers and other mobile devices with their medical records, genetic tests, and other health information." 



Headquarters: South San Francisco. **Year Founded:** June 2016. **Company Founders:** Lisa Alderson, CEO; Randy Scott, Ph.D., chairman; Robert C. Green, M.D., MPH, chairman, Scientific Advisory Board. **Employees:** 65. **Major Investors:** Illumina Ventures, Kaiser Permanente Ventures, Canaan Partners, Echo Health Ventures, Perceptive Advisors, LRVHealth, HealthInvest Equity Partners, Avestria Ventures, Revelation Partners, Casdin Capital, Dreamers Fund, Flywheel Ventures, and Manatt Venture Fund.

Genome Medical boasts a growing network of genetic specialists that provide on-demand, virtual care nationwide in the U.S., in six major clinical areas: cancer, cardiovascular disease, reproductive health, pediatric genetics, pharmacogenomics, and proactive health management. The company's proprietary Genome Care Delivery technology platform delivers education, engagement and provider-to-provider e-consults, as well as genetic wellness assessments and screening for population health management. The company's mission is to make genomic medicine more affordable


and accessible by providing the most up-to-date research and data-driven expertise.

"Genomic-based medicine will be a cornerstone of how we deliver clinical care in the future to protect and advance human health. Approximately 17% of the world's population carries disease-related genetic mutations for which there are treatment or preventive options," said Lisa Alderson, co-founder and CEO. "We are working with health systems and providers to support the rapid rise in demand for telehealth solutions given the global pandemic." 



Headquarters: Redwood City, CA. **Year Founded:** 2014. **Company Founders:** Mickey Kertesz, Ph.D., CEO; Tim Blauwkamp, Ph.D., CSO. **Employees:** 50. **Major Investors:** SoftBank Vision Fund 2, General Catalyst, HBM Healthcare Investments, Khosla Ventures, and LightSpeed Venture Partners.

Karius diagnoses infectious diseases by identifying the precise pathogens infecting patients via a non-invasive blood test based on next-generation sequencing of microbial cell-free DNA. The Karius Test identifies and quantifies more than 1,000 clinically relevant pathogens including bacteria, DNA viruses, fungi, and parasites. It enables clinicians to more accurately diagnose infections, offers a higher diagnostic yield, and a faster time-to-diagnosis than conventional tests, with the potential to eliminate invasive diagnostic procedures.

"For decades, diagnostic testing for infections had seen little innovation when compared to other medical innovations. We founded Karius to help make sure that no patient dies of a treatable infection because they couldn't receive a diagnosis," said Mickey Kertesz, co-founder and CEO. "Our test detect over 1,000 potential pathogens at once with a simple blood draw, helping doctors quickly identify their patients' infections and target treatments without the need for invasive procedures. The Karius Test is the only blood test in the United States that uses microbial cell-free DNA for infectious-disease detection." 





Headquarters: Helsinki, Finland. **Year Founded:** June 2009. **Company Founders:** Nils Effertz, CEO. Company was a spin-off from the Finnish Institute of Molecular Medicine (FIMM). **Employees:** 20. **Major Investors:** Innovestor Ventures, Voima Ventures, Lifeline Ventures

MediSapiens provides industry players in pharma, genomics, and healthcare with novel IT solutions to make sense out of the rapidly growing volume of biomedical data. The company's technology suite tackles the challenges of data quality, data management of large data cohorts, and multi-omics analytics, allowing all the data sources to be combined and used together, to efficiently unlock valuable insights.

"MediSapiens' technology to gather, manage, and apply bio-

medical data from different sources is a unique value proposition for those working in healthcare, biobanks, and pharma," said Hans Garritzen, sales director. "The growing adaptation of genomics requires that that data needs to be effectively combined with clinical data for the best possible insights which is what MediSapiens provides with our technology suite. We are carefully situated in between the data providers and data users, understanding both sides of the biomedical data story."



Headquarters: Minneapolis. **Year Founded:** 2013. **Company Founders:** John L. Black, III, M.D.; Leiwei Wang, M.D., Ph.D.; Richard Weinshilboum, M.D. **Employees:** 34. **Major Investors:** Anonymous Minnesota-based private investor, Mayo Clinic.

OneOme offers healthcare organizations, providers, and payers pharmacogenomic testing and services, featuring the HIPAA-compliant RightMed Solution—a suite of products and services to help users create value-driven, patient-centric pharmacogenomics programs. The company's RightMed Test, analyzes 27 genes from each patient to offer credible, scientific evidence that can help determine how the patient may respond to the many available medications used to treat psychiatric conditions, cancer, pain, and more. This polypharmacy approach to pharmacogenomics sets OneOme apart and brings value by matching health systems' diverse specialty needs while also empowering clinicians to pre-

scribe with more confidence.

"OneOme stands apart in the increasingly crowded precision medicine field of pharmacogenomics by providing tailored, end-to-end solutions that minimize the need for healthcare organizations and payers to contract multiple partners for their PGx programs," said Patrick McIntyre, CEO. "By employing a polypharmacy approach, rather than providing limited gene coverage for a single disease state, we achieve broad clinical utility while maintaining rigorous standards for scientific and clinical evidence. At the population health level, we strive to help curtail the increasing costs plans and their members face as a result of non-optimized medications."



Headquarters: Menlo Park, CA. **Year Founded:** 2017. **Company Founders:** Oguzhan Atay, Ph.D.; David Tsao, Ph.D. **Employees:** 35. **Major Investors:** Y Combinator, Hummingbird Ventures, Neotribe Ventures, Civilization Ventures.

BillionToOne is a precision diagnostics company. Its core technology is a patent-pending QCT molecular counter platform, which the company says is the only technology platform that can accurately count DNA molecules to the single-count level. The company's first product, UNITY, is a noninvasive prenatal screening that tests fetal cell-free DNA for cystic fibrosis and spinal muscular atrophy (SMA) through a single sample of the mother's blood. Leveraging its molecular counting platform, BillionToOne has also developed a highly accurate and cost-effective novel COVID-19 testing protocol using the Sanger sequencing platform. (see

story "Five COVID-19 Test Developers to Watch" p. 14)

"Our strength lies in our inter-disciplinary approach to problem solving," said Oguzhan Atay, Ph.D., co-founder and CEO. "Normally, genetics problems are solved by two entirely separated groups: assay chemistry and bioinformatics. We made breakthroughs because we were trained in integrated science and had deep expertise in both the wet chemistry side and the bioinformatics side. By applying the digital, quantitative approach to the biological problems, we were able to invent several ways to quantify the biology in 1,000x resolution."