



HudsonAlpha Institute for Biotechnology is a genomic science and applications nonprofit organization. It is a high-volume genomic data producer and a global scientific collaborator valued for genomic data analysis and interpretation to solve questions in cancer, undiagnosed childhood genetic disorders, neuropsychiatric disorders, immune-related diseases, agriculture and more. Its unique campus crosses the boundaries between scientists, educators, clinicians and commercial business to spark innovation and growth.

RESEARCH

at HudsonAlpha Institute for Biotechnology



HudsonAlpha scientists are adding to the world's body of genetic knowledge about the basis of life, health, disease and bio-diversity. Since 2008, over 150 million in grant dollars have been awarded to help fuel genomic research.

◆ Significant Research Publications

Researchers at the Institute have been published in more than 650 scientific publications since the beginning of HudsonAlpha in 2008 to help secure a global leadership position in genomic research.

◆ Global Footprint of Research Partnerships

HudsonAlpha partners with other research institutes and life sciences companies around the globe in making genomic discoveries.

"It really shows how industry, nonprofits and academic laboratories can all work together for the betterment of humankind."

— Richard Myers, Ph.D.
president and science director for
HudsonAlpha Institute for Biotechnology



Current Research Focus Areas:

Neurological and Psychiatric

Neurological and psychiatric disorders, including Alzheimer disease, Parkinson disease, ALS, Huntington disease, bipolar disorder, schizophrenia and epilepsy



Pediatrics

Undiagnosed childhood genetic disorders



Cancer

Multiple forms of cancer, including breast, ovarian, prostate, kidney, colon and pancreatic cancer



Basic Research

A healthy research enterprise requires basic research



Computational Biology and Bioinformatics

Deep computational statistics, analysis and interpretation of vast amounts of genomic data



Immunogenomics

Application of genomic technology to understand the immune system's role in health and disease



Agriculture

Agriscience and bioenergy helps create a healthier and more sustainable world



Genomic Medicine

Employs the use of whole genome sequencing data to identify the genetic variants causing disease



SEQUENCING

at HudsonAlpha Institute for Biotechnology



The Genomic Services Lab is the DNA sequencing hub for HudsonAlpha's research activities. The lab has supported more than 3,200 projects and has sequenced more than 130,000 samples in collaboration with colleagues from HudsonAlpha and hundreds of laboratories worldwide. Data produced in the GSL has revealed the genetic causes of many inherited diseases and is contributing to the understanding of complex disorders such as autism, ALS, bipolar disorder, schizophrenia, heart disease, diabetes and other diseases.

HudsonAlpha currently processes more than 300 terabytes of raw DNA sequence data each month in the Genomic Services Lab. Data that passes through our pipelines require a constant commitment to better hardware and software and highly trained computational biologists to interpret massive amounts of data into real world solutions.

➔ For more information, visit gsl.hudsonalpha.org



SEQUENCING THE HUMAN GENOME WAS THE INITIAL OBSTACLE TO TRANSLATING GENOMIC UNDERSTANDING INTO APPLICATIONS THAT IMPROVE HUMAN HEALTH AND WELL-BEING. WITH ULTRA HIGH-THROUGHPUT DNA SEQUENCING TECHNOLOGY, SEQUENCING IS NO LONGER A BARRIER.



THE GENOME SEQUENCING CENTER APPLIES ITS GENOMIC APPROACHES TO SOLVE CURRENT, REAL-WORLD PROBLEMS FACING AGRICULTURE TODAY.

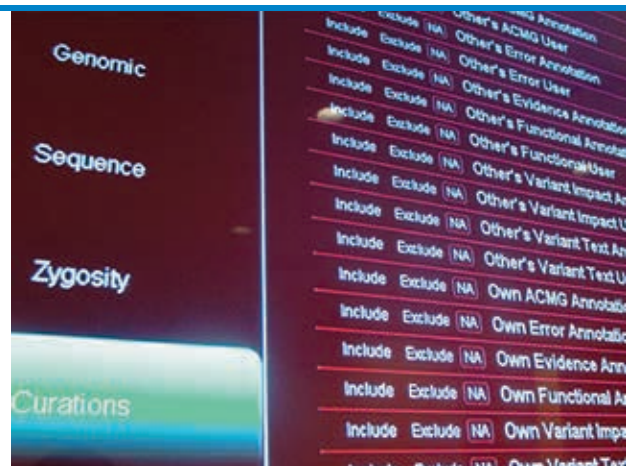
The HudsonAlpha Genome Sequencing Center is one of the few centers in the world performing original sequencing of plants and animals. The center specializes in applying genomic techniques to understand how plants function in response to environmental changes. In the cases of crop species such as sorghum, soybean, peach, citrus and millet, these genomic references form the basis for genomics-enabled crop breeding to increase yields and reduce pesticide and water use.

The U.S. Department of Energy Joint Genome Institute funds research in the field of bioenergy. Sequence data produced at HudsonAlpha is being applied to the problem of reducing U.S. dependency on imported oil by improving biomass yield and the efficiencies of processes used to convert plant materials into liquid fuels.

➔ For more information, visit hagsc.org

The HudsonAlpha Clinical Services Lab provides clinical genomic sequencing to labs, healthcare institutions and physicians to improve health through diagnostics and precision medicine. The CSL provides high quality, state-of-the-art whole genome sequencing on the Hi Seq X Ten Illumina® platform. The CSL is CAP accredited and CLIA licensed. HudsonAlpha's CSL provides all whole genome sequencing services for the NIH's Undiagnosed Diseases Network, of which HudsonAlpha is a sequencing core.

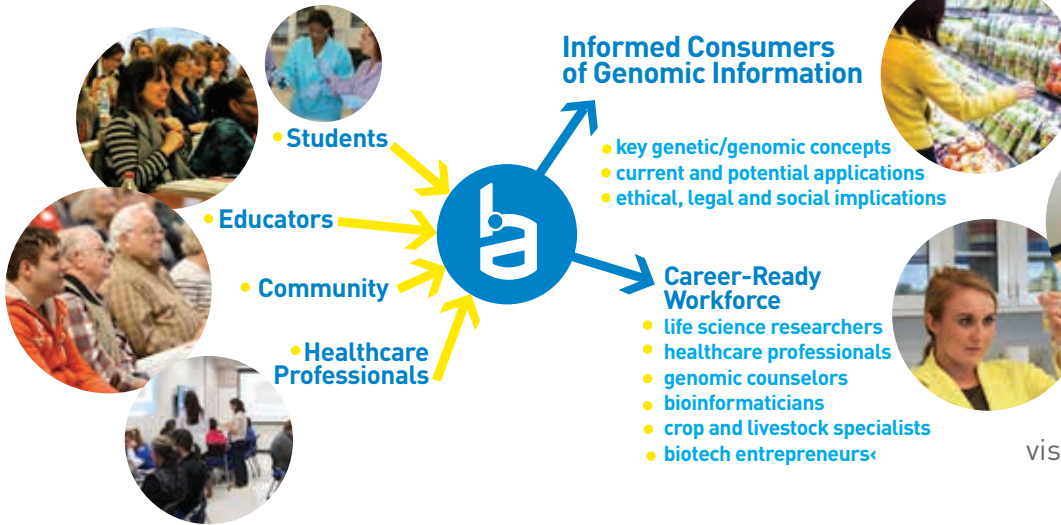
➔ For more information, visit clinicalab.org



EDUCATION

at HudsonAlpha Institute for Biotechnology

HudsonAlpha's Educational Outreach team inspires the next generation of researchers, while building a more genomics-literate community. The Institute's educators are preparing future scientists through hands-on classroom modules, in-depth school and summer camp experiences, and digital learning opportunities. Additionally, the team builds awareness through community outreach classes and events.



1,037,472

INDIVIDUALS REACHED IN 2015-2016

2 MILLION

iCELL® DOWNLOADS

230

BIOTRAIN® INTERNS

450

ALABAMA EDUCATORS WHO RECEIVE ONGOING PROFESSIONAL DEVELOPMENT

Sign up for newsletters at hudsonalpha.org/learners-newsletter.

➔ For more information,

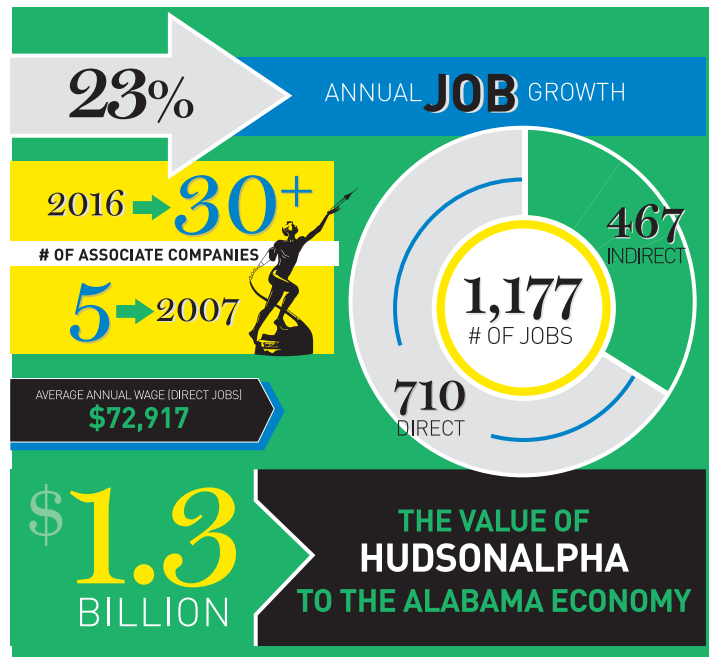
visit www.hudsonalpha.org/education

INNOVATION

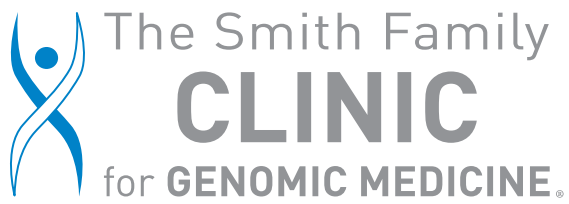
at HudsonAlpha Institute for Biotechnology

grow with us.

HudsonAlpha strengthens and diversifies Alabama's economy by attracting new and fostering success in existing life sciences companies. Its 152-acre biotech campus within Cummings Research Park supports three buildings, with a fourth in progress. More than 30 associate bioscience companies of all stages and sizes call the campus home. HudsonAlpha offers turnkey or build-to-suit office and laboratory space for lease in an energizing environment with superior shared amenities.



➔ To learn business advantages and locating your bioscience company to HudsonAlpha, visit www.hudsonalpha.org/innovate or sign up newsletters at hudsonalpha.org/business-newsletter.



The Smith Family Clinic for Genomic Medicine, LLC, was established to use whole genome sequencing to diagnose undiagnosed diseases. Patients are seen by a clinical geneticist who evaluates symptoms, and determines whether whole genome sequencing is an appropriate test. The data from the genomic sequence is then interpreted clinically to identify variants, or changes in the DNA, linked to the disease. By using the power of genomics, we can solve cases of undiagnosed diseases and provide answers to families and physicians.

➔ For more information, visit www.smithfamilyclinic.org



SCIENTIFIC CONFERENCES

HudsonAlpha hosts three conferences on campus:



Save the Date: June 5-7, 2017
www.CROPSConference.org



Save the Date: October 2-4, 2017
www.ImmunogenomicsConference.org



Save the Date: March 26-28, 2018
www.GenomicMedicineConference.org

SUPPORT



Without philanthropy, HudsonAlpha would not exist. From the original gifts that made HudsonAlpha possible to the extraordinary support from the State of Alabama and from our community, philanthropy has been vital to our existence. We are in awe of the Institute's progress in the last eight years. But we have the potential to do so much more. The problems we address are shared by all humanity. It is not an exaggeration to say that HudsonAlpha can create a better world. You can help insure our vitality, growth and success for years to come.

➔ For more information, contact the HudsonAlpha Foundation
foundation@hudsonalpha.org or call 256.327.9446

Sign up for the quarterly newsletter at hudsonalpha.org/engage-newsletter.

