

## mission statement

Our mission is to use biotechnology to improve human health, stimulate economic development and inspire Alabama's youth to seek careers in science.

## goals and objectives

Establish a biotechnology campus that will be a synergistic cluster of researchers and entrepreneurs

- Develop high-throughput research tools that focus on why disease occurs and to rapidly apply this knowledge to help patients
- Connect Alabama's strength in basic and clinical research with the Institute's high-throughput approach and its entrepreneurial spirit
- Facilitate the sharing of intellectual and physical resources

Nurture and grow Alabama biotechnology firms

- Establish a critical mass of biotechnology-focused companies on a single campus
- Stimulate economic development by assisting Alabama biotech companies to rapidly commercialize discoveries that could accelerate research or improve human health
- Provide assistance with intellectual property transfer, protection and licensing

Educate the students, teachers and citizens of Alabama about the opportunities afforded by biotechnology

- Inform Alabama's educators to the potential of biotechnology to provide the challenging and rewarding job opportunities required for our best and brightest to remain in Alabama
- Assist teachers with biotechnology training, curricula and teaching materials
- Inspire Alabama students through summer biotech camps and distance learning programs

We believe a self-governed institute, affiliated with major research institutions, will provide the energy, inspiration and creative atmosphere to accomplish these goals and objectives.

## principals & anonymous donors

### Alpha Foundation

The Alpha Foundation is a Huntsville, Alabama-based, nonprofit corporation committed to improving the human condition through grants to educational, scientific and other charitable organizations. A major emphasis of the foundation is providing support to organizations dedicated to the use of biotechnology to aid in the discovery and cure of diseases. The Alpha Foundation has been instrumental in the establishment of the Hudson-Alpha Institute because of a shared vision for biotechnology.

### James R. Hudson, Jr.

Jim Hudson and his wife Susie are co-founders of CityScapes LLC, where Mr. Hudson serves as vice president. The Huntsville-based company focuses on downtown revitalization projects, particularly those appealing strongly to young professionals. In 1987, after receiving his master's degree in biology from the University of Alabama in Huntsville (UAH), Hudson founded Research Genetics and served as chief executive until 2000 when the company merged with Invitrogen (IVGN) in a deal valued at \$138 million. Prior to the merger, Research Genetics had become the world's leader in genetic linkage products and an integral partner in the Human Genome Project coordinated by the U.S. Department of Energy and the National Institutes of Health. Under Hudson, Research Genetics employed more than 200 people and realized annual sales in excess of \$26 million. Hudson has advised and incubated multiple companies in industries ranging from internet services to genetics research. Prior to attending UAH, Hudson was a partner with his father James R. Hudson and his brother Gary in Hudson Metals, a gray iron and aluminum foundry located in Huntsville.

### Anonymous Donors

The vision of this Institute being established and funded, a biotech campus being created and the location being selected after an extensive site selection process, shall always be credited to the Institute's anonymous donors. While the donors have requested anonymity, it is important to recognize they are using their personal wealth to assist in matching the sense of urgency for research with a patient's sense of urgency for a cure, to educate and inspire the young people of our state in the field of biotechnology and to create and attract jobs to Alabama. The Institute is extremely grateful and yet humbled by the magnitude of these gifts. The Institute pledges its efforts toward being a good, committed steward of these gifts, as well as the vision and direction that has been ingrained in the very spirit of the Institute.

## board of directors

**J. Milton Harris** is the general manager of Nektar Therapeutics in Huntsville. Nektar Therapeutics provides a portfolio of leading drug delivery solutions that enable the development of high-value pharmaceutical products. Harris is a leader in the field of polyethylene glycol (PEG) chemistry and founder of Shearwater Corporation. Prior to the acquisition of Shearwater by Nektar Therapeutics, Harris was chairman and chief executive officer of the company. Before founding Shearwater, he was Distinguished Professor of Chemistry at the UAH where he also conducted basic chemistry research. He received his B.S. degree in chemistry from Auburn University, and a Ph.D. in organic chemistry from the University of Texas in Austin. He has also conducted post-doctoral research at Princeton University. Harris has published more than 160 journal articles, several books, and holds 17 patents on PEG technology. He is also a foreign member of the Royal Swedish Academy of Engineering and Science.

**James R. Hudson, Jr.**, is co-founder of CityScapes, an organization focused on downtown redevelopment projects in Huntsville. In 1987, Hudson founded Research Genetics and acted as its chief executive until 2000 when the company merged with Invitrogen – a deal valued at \$138 million. Prior to the merger, Research Genetics had become the world's leader in genetic linkage products and an integral partner in the Human Genome Project – the international, collaborative research program completed in 2003 that sought the complete mapping and understanding of all the genes of human beings. Under Hudson, Research Genetics employed more than 200 people and realized annual sales in excess of \$26 million. Hudson has advised and incubated multiple companies in industries ranging from internet services to genetics research.

**Lonnie S. McMillian** is co-founder of ADTRAN. He served on ADTRAN's board of directors from 1986 to December 2005. From 1986 until his retirement in 2001, McMillian also served ADTRAN in a variety of executive management capacities including vice president of engineering and senior vice president.

**Roy J. Nichols** serves on a number of corporate boards, government advisory committees, and non-profit boards. Corporate boards include: ADTRAN, Torch Concepts, Blue Creek Investment, Applied Genomics and Belzon. He serves on the Independent Scientific and Engineering advisory committee for the nation's Missile Defense Agency as well as other U.S. Department of Defense and local initiatives. He also is committed to the boards of numerous charitable and non-profit organizations: Randolph School, Alabama Space Science Exhibit Commission – U.S. Space and Rocket Center, University of Alabama in Huntsville (UAH) Foundation, Second Mile Ministry, and Alabama Policy Institute. Nichols was a co-founder of Nichols Research Corporation in 1976 and remained actively involved in its growth and leadership until its merger with Computer Sciences Corporation in 1999. During that time he served as vice chairman, president, and chief technical officer. Under his leadership Nichols Research grew to include 40 locations throughout the U.S., with approximately 2,900 employees, and revenues in excess of \$400 million.

**Eugene Sapp** is retired chairman and chief executive officer of SCI Systems, Inc., and co-chairman of Sanmina-SCI (the result of a merger of the two companies). Sanmina-SCI designs, manufactures, distributes and services electronic products and systems for telecommunications, multimedia, medical, industrial, aerospace and defense markets. From the time Sapp became president of SCI in 1981 to the merger of Sanmina-SCI in 2001, annual revenues grew from \$59 million to almost \$10 billion. He currently serves on the board of directors for Sanmina-SCI. The Sapps also support efforts of Huntsville, Alabama's Downtown Rescue Mission: The Sapp Shelter for homeless women and children was opened in December of 2001 to provide food, clothing, shelter and education to women and children in need.

**Mark C. Smith** is co-founder of ADTRAN and serves as the company's chairman and chief executive officer. The high-speed telecommunications solutions company employs over 1,700 and provides digital transmission equipment, network routing and internet security products. Smith, who has been awarded two patents, has been named to the State of Alabama Engineering Hall of Fame and is the first recipient of the Alabama Information Technology Association's Lifetime Achievement Award.

**John R. Wynn** is a shareholder in the law firm of Lanier Ford Shaver & Payne. His practice is concentrated in corporate and business matters. He is a member of the business and tax sections of the American Bar Association and serves on the board of trustees of the American Federal Tax Institute. Wynn served on the board of Nichols Research Corporation from 1985 to 1999, until its merger with Computer Sciences Corporation. Wynn currently serves as a director of Dynetics, Camber Corporation, Big Springs, and Compass Bank of Huntsville. He is a director of the Alpha Foundation, a trustee of the Jane K. Lowe Charitable Foundation, a director of the UAH Foundation and a director of the Valley Foundation.

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## scientific advisory board

The governance of the HAIB is carried out through the actions of two boards, the Board of Directors and the Scientific Advisory Board. The authority for maintaining the Institute's founding purpose and the determinations of all other scientific matters are vested in the HAIB Scientific Advisory Board. A world-class research institute must have a world-class scientific advisory board. Four uniquely-skilled and internationally-known investigators have agreed to serve in this capacity.

### Geoffrey Duyk, M.D., Ph.D.

Partner

Texas Pacific Group Ventures, Fort Worth, Texas

Dr. Duyk received his doctoral degrees from Case Western Reserve University and completed his medical and fellowship training at the University of California, San Francisco (UCSF). While at UCSF, Duyk was a fellow of the Lucille P. Markey Foundation and was also awarded a post-doctoral fellowship from the Howard Hughes Medical Institute.

Prior to joining Texas Pacific Group Ventures in 2004, Duyk served on the board of directors and was president of research and development at Exelixis where he led a 550+ person group focused on the discovery and development of small molecule therapeutics. Prior to Exelixis, he was one of the founding scientific staff at Millennium Pharmaceuticals. As vice president of genomics at Millennium, Duyk was responsible for building and leading the informatics, automation, DNA sequencing and genotyping groups as well as the mouse and human genetics group. Prior to his tenure at Millennium, Duyk was an assistant professor at Harvard Medical School (HMS) in the department of genetics and assistant investigator of the Howard Hughes Medical Institute (HHMI). While at HMS, he was a co-principal investigator in the National Institutes of Health (NIH)-funded Cooperative Human Linkage Center. Duyk is a member of numerous NIH panels and oversight committees focused on the planning and execution of the human genome project.

### Thomas J. Hudson, M.D., Ph.D.

Director, McGill University & Genome Quebec Innovation Centre

Associate Professor, Department of Medicine and Human Genetics, McGill University

Associate Physician, Division of Clinical Immunology & Allergy, McGill University

Dr. Hudson received his bachelor's degree in health sciences from Chicoutimi College in Quebec, and his doctoral degrees from the University of Montreal and McGill University. He completed a clinical immunology residency at McGill and was a postdoctoral fellow under Dr. Danuta Radzioch and Emil Skamene, and later under Dr. David Housman at the Massachusetts Institute of Technology (MIT) Center for Cancer Research. Hudson led the effort at the Whitehead Institute/MIT Center for Genome Research to generate dense physical and gene maps of the human and mouse genomes. This work was critical to the successful, early completion of the Human Genome Project. Hudson is also a leader in the development and applications of robotic systems and DNA chip-based methodologies for genome research.

He is founder and director of the McGill University & Genome Quebec Innovation Centre. This center is a member of the International Haplotype Map Consortium. Hudson's interests in human genetic diseases focus on the dissection of complex genetic diseases. Ongoing disease projects in his laboratory include the search for genes predisposing to lupus, inflammatory bowel disease, coronary artery disease, asthma and diabetes. The laboratory is also using the DNA-chip technology in order to characterize breast and ovarian cancer.

Hudson is editor-in-chief of the journal Human Genetics. He teaches in the department of medicine and human genetics at McGill University and practices medicine at the McGill University Health Centre – Montreal General Hospital. He has received numerous awards, including but not limited to the André-Dupont 2002 Young Investigator Award given by Quebec's Clinical Research Club, an Investigator Award from the Canadian Institutes of Health Research, a Burroughs-Wellcome Clinician-Scientist Award, the 2002 Prix de la Santé from the Armand-Frappier Foundation, the 2001 Young Scientist Award by the Genetics Society of Canada, the 2000 Scientist of the Year by Radio-Canada and the 1999 Canada Top 40 Under 40.

## Richard Myers, Ph.D.

Director of the Stanford Human Genome Center  
Professor and Chairman, Department of Genetics, Stanford University School of Medicine

Dr. Richard Myers received his doctorate degree in biochemistry from the University of California at Berkeley with Robert Tjian and performed postdoctoral work at Harvard University with Tom Maniatis. He served on the faculty at the University of California at San Francisco and moved to Stanford University School of Medicine in 1993, where he is the Stanford W. Ascherman Professor and chairman of the department of genetics and director of the Stanford Human Genome Center. Myers' laboratory uses classical and molecular genetics, genomics, cell biological and computational methods to understand the roles that genes play in a wide range of human traits, including diseases, behaviors and other phenotypes.

Myers directs a number of teaching activities for the local schools, from primary through junior college levels, as well as for a number of lay groups. Activities include lectures, organized tours of the genome center, laboratory exercises and curriculum development. He is particularly interested in increasing and nurturing diversity in the scientific community and is active in several programs involving under-represented groups at the undergraduate and graduate school levels.

He currently serves on a number of advisory panels and editorial boards, including the Advisory Council, the Haplotype Map Advisory Committee and the Review Group for Large-scale DNA Sequencing Centers of the National Human Genome Research Institute, as well as the Biology and Biotechnology Program Advisory Committee for the U.S. Department of Energy. He is an editor of *Genome Research* and reviews manuscripts for a variety of other journals.

## Val C. Sheffield M.D., Ph.D.

Investigator, Howard Hughes Medical Institute  
Professor, Department of Pediatrics, University of Iowa  
Director, Division of Medical Genetics, University of Iowa  
Director, Interdepartmental Research Program in Human Molecular Genetics, University of Iowa

Dr. Sheffield received his bachelor's degree in zoology from Brigham Young University and his doctoral degrees from the University of Chicago. Sheffield completed a pediatric residency, a medical genetics fellowship, and postdoctoral work at the University of California, San Francisco.

Sheffield is interested in identifying genes and disease mechanisms involved in Mendelian (single gene) and complex human genetic disorders, including hereditary blindness, deafness, autism, obesity, and cardiovascular disorders. The identification of genes, sequence variations, and mechanisms involved in complex human disorders holds great promise for improving health care, but also presents a difficult challenge to the scientific community. To better understand the genetics of complex human disorders, Sheffield's laboratory has studied isolated human populations and Mendelian disorders that share a phenotypic component with common complex disorders. He has used isolated human populations to map more than 35 disorders and has employed positional cloning methods to identify 15 disease-causing genes. This work has provided insight into the types of genes, mutational events and gene product interactions likely to contribute to common complex disorders. Recent progress in the laboratory has resulted in the identification of genes involved in a heterogeneous autosomal recessive disorder known as Bardet-Biedl Syndrome (BBS). Most recently, Sheffield's lab identified defects in a single gene that underlies a hereditary form of age-related macular degeneration, the leading cause of irreversible vision loss in the developed world.

## HAIB investigator

The Hudson-Alpha Institute for Biotechnology will appoint a limited number of investigators, currently working throughout the United States and Canada, whose research focus aligns with overall Institute goals. The HAIB is pleased to welcome Dr. Tom Hodge as the first HAIB Investigator. Dr. Hodge is a HudsonAlpha Investigator and a senior research scientist in the University of Georgia College of Veterinary Medicine Department of Infectious Diseases. Prior to this appointment, he was the director of the Immunogenetics Laboratory in the HIV Immunology and Diagnostics Branch of the National Center of HIV, AIDS, STD and TB Prevention at the Centers for Disease Control (CDC). He is a graduate of Emory University and East Tennessee State University College of Medicine. Before moving to the CDC, Dr. Hodge was an assistant professor at the University of Alabama, Birmingham, in the microbiology department. He is the author/co-author of several research and review publications concerning host genes and autoimmune and infectious diseases. More recently, his research has focused on identifying host genes associated with viral pathogenesis.

## educational outreach

The Institute's educational outreach programs will engage secondary students in dynamic biotechnology activities and study to encourage interest in biotechnology careers. Educators have a profound impact on creating future generations of informed citizens; therefore professional development programs for this critical audience is an integral part of outreach activities.

Through innovative instruction the Institute will enrich lives, increase academic performance in the classroom and inspire students to seek biotechnology careers.

### high school performance accelerator

The High School Performance Accelerator will begin with on-site training in molecular biology for students and educators. In its first two years, the newly-built Columbia High School in Huntsville will serve as the test bed for Accelerator curriculum. Experienced scientists in immersive laboratory environments will introduce students to molecular biology techniques, including polymerase chain reaction (PCR), DNA isolation, sequence analysis and protein extraction.

### high school science renewal sessions

For success across Alabama, the High School Performance Accelerator will depend on teachers who understand biotechnology. Consequently, the Institute will create and assemble training and teaching materials to facilitate implementation of biotechnology science and bioethics activities in high school curricula. Institute educators will lead interactive training sessions to provide high school teachers and administrators an understanding of the basic skills used in biotechnology. These sessions will be conducted both as true real-time distance learning classes as well as online courses available to all teachers.

### biotechnology summer camps for secondary science students

Students who participate in the HAIB Biotechnology Summer Camps will utilize the latest laboratory technologies as they explore real world problems. Institute affiliate companies will uniquely provide guest instructors, equipment and supplies. The extended experience will enable study and review of emerging fields such as RNAi (the down regulation of gene expression) and gene delivery (the transfer of engineered genetic constructs into cultured cells). The intensive Biotechnology Summer Camps will feature cutting-edge science and will be held in the Institute's research laboratories. Attendance will be limited and attendees will be chosen from the very best students nominated by their biology instructors.

### distance learning program

With the ability to connect with schools across the state through the internet, the Institute's recorded lectures and course materials will be readily accessible to students and educators. Guest lecturers and notable scientists from around the world will be an integral part of the program through both recorded and real-time distance education offerings. Real-time sessions, including question and answer segments, will be offered as the technology becomes available across the state under Governor Riley's initiative.

## associates

In addition to a world-class research institution, the HAIB will be an economic engine, creating quality jobs and opportunity by supporting the commercialization of research results through the establishment of a biotechnology campus that will be a synergistic cluster of researchers and entrepreneurs. To that end, eight established biotech companies, listed below, currently plan to locate all or part of their operations on the CRP Biotech Campus. Six of these will be in the Institute building, while the two, Operon Biotechnologies and Nektar Therapeutics, will be adjacent to the Institute.

**Applied Genomics, Inc.** has a distinctive business strategy to improve cancer diagnosis and treatment by developing antibody reagents useful for recognizing the diversity of cancer among patients.

**Expression Genetics, Inc. (EGEN)** is a privately-held, specialty biopharmaceutical company developing gene therapy products based on nonviral polymeric gene carrier systems. These products will overcome the safety concerns of viral vector systems. EGEN's gene-based products are now prepared to enter human clinical trials.

**Genaco Biomedical Products, Inc.** was established in 1996. Genaco's mission is to develop and market innovative, accurate, practical and top-quality molecular differential diagnostic (MDD) products.

**Nektar Therapeutics** is a pioneer and leader in advanced drug delivery technologies that enable highly differentiated products. Our goal is to help our pharmaceutical and biotechnology partners realize the full potential of their molecules by solving complex development challenges to create breakthrough therapeutics, extend product franchises, and fuel product pipelines.

**New Century Pharmaceuticals, Inc. (NCP)** is the world's leading source of expertise on the structure and function of Human Serum Albumin (HSA) – a protein which plays vital roles in the maintenance of osmotic blood pressure and blood pH as well as the transport, distribution and metabolism of a broad array of endogenous and exogenous ligands including many of the world's most important pharmaceuticals.

**Open Biosystems, Inc.** offers a complete set of resources enabling researchers to navigate through the pathway from gene transcription to protein translation. Open Biosystems strives to expand access to new technologies in order to meet these changing needs and offer products with no strings attached to encourage research for the betterment of humankind.

**Operon Biotechnologies** has served the oligonucleotide market since 1986 providing quality products, service and support to researchers across the pharmaceutical, biotechnology and academic sectors.

**SourceCF, Inc.** was formed in July 2001 as a specialty pharmaceutical and medical company serving patients and families affected by cystic fibrosis, the healthcare providers committed to treating the disease, and the research organizations developing new and innovative treatments. SourceCF represents a comprehensive suite of quality pharmaceutical and medical products.



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