

USING GENOMIC AND COMPUTATIONAL SCIENCES TO BUILD A BETTER WORLD

Whether implementing personalized medicine, protecting the environment or feeding and fueling a world of nine billion people in the 21st century, advanced computational genomics provides a critical foundation for connecting specialized information with “big data” sets to solve urgent societal problems. Biology has become quantitative, systems oriented and predictive.

Solving Problems in Agriculture and Human Health

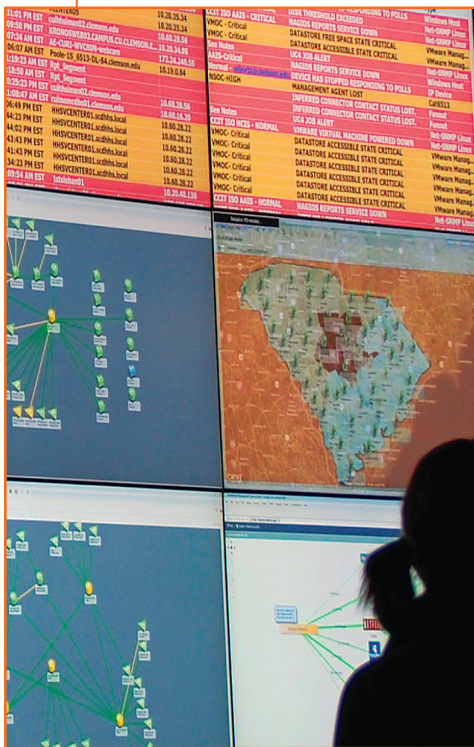
Individual and population differences in traits of plants, microbes, animals, disease vectors and people plus their associated genetic bases are targets for improvement in agriculture and human health. Because of revolutions in DNA sequencing, technology, analysis and cost, it is now easy and economical to generate millions of genetic data points per individual, family, population and species. Our new challenges are to link this information with other data sets and to produce useful strategies and therapies to improve the human condition.

The Need

Within Clemson University, significant opportunities exist to integrate current strengths in genetics, genomics, bioinformatics, biological statistics, computational biology and information technology. Our investments and access to computing power and our current research capacity to apply this power to biologically based evidence has laid the groundwork for the Institute of Translational Genomics.

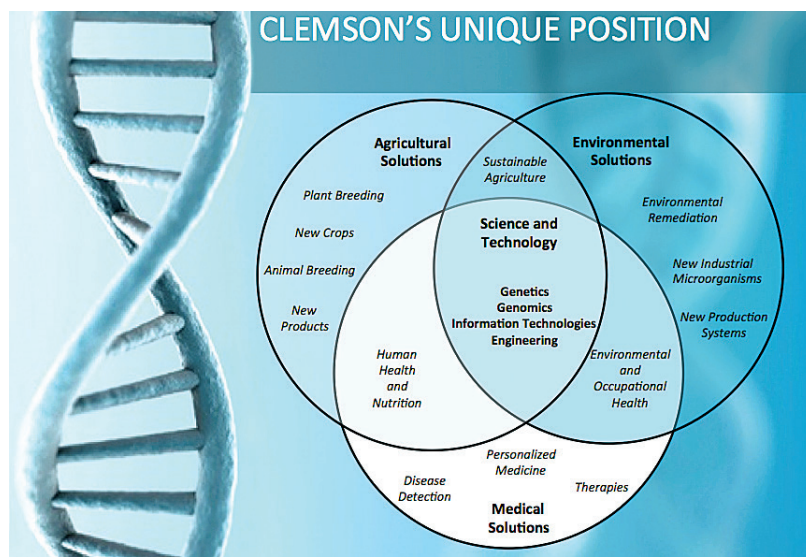
The Institute of Translational Genomics is being established to take advantage of Clemson University’s unique position to serve state, national and global communities through developing and enabling cutting-edge strategies and technologies in computational genomics (discovery and diagnostics) and bioinformatics to address critical problems in the continuum linking agriculture, human health, and the environment.

With its emphasis on hands on, problem-oriented training, education and problem solving under the guidance of expert campus leaders, the



Institute of Translational Genomics will channel its intellectual and technological resources to build a lasting network of investigators, students and external collaborators.

Complementary to this core group of investigators, the Institute of Translational Genomics ultimately will engage researchers focusing on the broader aspects of breeding and commodity- and species-based science, genetics and computational sciences. Investigators at Clemson and around the state will be engaged for specific initiatives and opportunities.



The Impact

Clemson possesses a critical mass of investigators, staff and students to advance the goals of the Institute of Translational Genomics. Interdisciplinary strengths exist in fundamental life and computational sciences. If organized, targeted and supported, we expect growth and advances in economic development in South Carolina through new and strengthened industries as well as building our national position and reputation as a graduate and undergraduate research powerhouse.

An Invitation to Invest

The Institute of Translational Genomics is a think tank charged with solving critical problems in agriculture and human health while training and mentoring the current and future generation of scientists.

To assure the success of these activities, we ask you to consider support of:

- Funding for undergraduate scholarships (5 per year x 4 years x \$20,000 per year)
- Undergraduate training and problem-solving operations (\$3,000 per year)
- Funding for graduate fellowships (5 per year x 4 years x \$25,000 per year)
- Graduate training and problem-solving operations (\$20,000 per year)

Your investment will provide the Clemson University Institute of Translational Genomics opportunities to lead, excel and expand to make a difference for our students, our University, our state and the world.