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Q&A: Teaching is big part of center's mission

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Neil Lamb is director of education and outreach for the HudsonAlpha Institute for Biotechnology. A 1992 graduate of Auburn University, he holds a doctorate in human genetics from Emory University. His role includes helping students, educators and the community understand the science behind biotech and its role in our lives.

What are you doing as part of the education/outreach component of HudsonAlpha?

We are developing lab-based activities and lesson plans that can be used by middle and high school teachers across the state. We are driven by the desire to excite young people about the world of biotech and to connect research discoveries with everyday life.

There is a lot of excitement around HudsonAlpha and the world of biotech research today. Why?

Much of the energy can be traced to the Human Genome Project (the publicly funded international initiative to identify the sequence of the 3 billion "letters" in our DNA).

The technologies that enabled this large-scale project spawned a number of new applications leading to the sequencing of other organisms' genomes and a better understanding of the workings of our own.

As a result, we can quickly compare the genetic sequence among a large number of individuals with a specific disorder to identify key combinations of letters that influence disease risk.

What are we close to discovering?

It would be scientifically irresponsible to claim we are on the verge of treating or curing diseases with a genetic basis, but it is fair to say that progress has been made in identifying many of the risk factors that impact several common disorders such as diabetes, heart disease, Alzheimer's and various forms of cancer.

Our hope is that a greater understanding of how the disease occurs will lead to earlier detection methods, targeted treatments with greater effectiveness and, many years down the road, preventive measures.

What work is needed to make those discoveries?

The next level of research is aimed at understanding the pathways connecting genes and identifying the signals that control them.

Unraveling the mysteries of the genome will yield new products and techniques in fields far beyond medicine, impacting agriculture, energy, defense and the environment. For example, applying our knowledge of the genetic pathway involved in recognizing certain smells, researchers have crafted a yeast cell that can sense the presence of explosives in the surrounding environment.

By connecting this genetic "smell" pathway to another gene found in deep-sea jellyfish, the yeast glows fluorescent green when sprayed on the soil overtop of a land mine. This is a perfect example of the

interconnectedness of biotechnology.

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