NEWS RELEASE

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EVOLUTIONARY GENOMICS AWARDED $500,000 AIDS RESEARCH GRANT

Collaboration with University of Colorado School of Medicine Researchers

Aurora, Colo. (March 7, 2006) – The National Science Foundation (NSF) has awarded a $500,000 grant to Evolutionary Genomics (EG) to continue its work on developing a unique approach to treating AIDS, based on successful adaptations in chimpanzees that keep HIV-type viruses from causing disease. The grant will support work by EG scientists led by Dr. Walter Messier and will include collaboration with scientists at the University of Colorado School of Medicine led by Dr. Charles Dinarello. If successful, this work will lead to the development of more effective drugs to treat AIDS.

Chimpanzee genes are over 98% identical to human genes, and both humans and chimpanzees are generally afflicted similarly when infected by disease-causing viruses. One rare difference is that chimpanzees do not develop AIDS when infected with HIV-type viruses.

“Chimpanzees appear to have small changes in one or a few of their own proteins that stop HIV in a way that continues to work even as HIV mutates. Because human and chimpanzee genes are so similar, we can use the information about these successful chimpanzee changes to screen for small molecule drugs that will accomplish the same end in human AIDS patients.” said Walter Messier, Ph.D., the study’s Principal Investigator and Chief Technology Officer of Evolutionary Genomics.

EG scientists have identified several adapted chimpanzee proteins (more fully described in a scientific article published February of 2005 in the Journal of Theoretical Biology). With support from this NSF grant, EG scientists will continue to identify adapted chimpanzee genes. Dr. Dinarello at the School of Medicine will use a laboratory system he developed to challenge, with live HIV, cells bearing either the EG-identified adapted chimpanzee proteins or the human counterparts of these proteins to determine if the adapted chimpanzee proteins are better at protecting the cells from HIV attack.

“This unique situation allows us to exploit therapeutic targets that the chimps clearly have to their advantage when infected with HIV“ said Dr. Dinarello.

If these tests are successful, the next step will be for EG to work with a pharmaceutical company to develop more effective drugs for treating humans. Such drugs would mimic the same HIV resistance mechanism conferred by the chimpanzee adaptations. Typically, drugs to treat viral diseases target some component unique to the virus. In the case of HIV, several drugs have been developed that inhibit critical viral proteins. However, HIV is highly mutable, and in the continued presence of drugs that target the virus, resistant viruses thrive, and these drugs lose efficacy. A critical barrier to the development of more effective and cheaper AIDS treatments is the extreme mutability of HIV. In the wild, chimpanzees are found to carry HIV-type virus in their blood. Chimpanzees have harbored HIV-like viruses for one to two million years, yet HIV-carrying chimpanzees today do not succumb to AIDS. The continued exposure of chimpanzees in the wild to HIV-type viruses has selected for HIV resistance in today's chimpanzees. EG's technology is a very cost-effective approach to understand chimpanzee AIDS resistance and to utilize this understanding in developing drugs to treat human AIDS patients.

EG is located in the Fitzsimons Bioscience Park Center, in Aurora, outside of Denver, CO. The company's "Adapted Traits Platform" was developed by Dr. Walter Messier, a molecular evolutionist, and is a patented method of comparing genes of closely related species and identifying rare sequence patterns indicating adapted genes. EG applies the method in both human healthcare and agriculture. To tackle intractable human diseases for which there are solutions in chimpanzees or other closely related non-human primates, such as AIDS, hepatitis C, hormone-sensitive cancers, and sepsis, EG scientists analyze equivalent genes of humans and disease-resistant primates. To discover natural control points for yield in key agricultural crops, EG scientists analyze equivalent genes of domesticated crops and their wild ancestors.

Charles A. Dinarello is Professor of Medicine at the University of Colorado School of Medicine in Denver. Until 1996, he was Professor of Medicine and Pediatrics at Tufts University School of Medicine and a staff physician at the New England Medical Center Hospital in Boston. Dr. Dinarello received his medical degree from Yale University and his clinical training at the Massachusetts General Hospital. He was a senior investigator at the National Institutes of Health in Bethesda. Dr. Dinarello serves on the editorial board of several scientific journals and has published over 450 original research articles on cytokines, particularly interleukin-1. The Institute for Scientific Information lists him as the world's fourth most cited scientist for 20 years (1983-2003). Dr. Dinarello is a member of the United States National Academy of Sciences.

The National Science Foundation Small Business Innovative Research program is a congressionally mandated grant program that selects proposals demonstrating "unique, ingenious" approaches to problems with important commercial applicability. Successful completion of Phase I grants (which provide up to $100,000) makes a small business eligible to apply for a Phase II grant of up to $500,000. Evolutionary Genomics successfully completed a Phase I grant on this project in 2004.