SOUTHWESTERN NEWS

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UT SOUTHWESTERN WINS NATIONALLY COMPETITIVE $13.9 MILLION GRANT TO STUDY GENES RELATED TO HEART DISEASE

DALLAS – Nov. 3, 2000 – Individualized medical treatments for people diagnosed with heart disease may not be too far in the future with the expansion of genomic research at the University of Texas Southwestern Medical Center at Dallas. The expansion is being made possible by a $13.9 million federal grant.

Dr. Stephen Johnston, director of the Center for Biomedical Inventions, will lead the four-year project to advance genomic research related to heart disorders. This research could result in the identification of genes that contribute to heart disease and ultimately the development of individualized drug and gene therapies.

"The first goal is to identify mutations in genes that either correlate or contribute to heart disease," said Johnston. "Ultimately, this should allow screening of individuals with potential clinical problems so that preventative measures can be taken. Identification of these genes would be the basis for development of approaches to correcting the cellular defect and potentially developing new drug or gene therapies for heart disease."

UT Southwestern and 10 other medical institutions were chosen to establish 11 Programs for Genomic Applications (PGAs). The National Heart, Lung and Blood Institute (NHLBI) is financing the programs, which will fund 35 projects involving 35 universities.

The purpose of the PGAs is to identify the human genes relevant to heart, lung, blood and sleep functions. The majority of the initial sequencing of the human genome was completed this year.

"The PGA initiative is one of the NHLBI's most ambitious, wide-ranging efforts to date," said NHLBI Director Dr. Claude Lenfant. "Our challenge is to clearly identify the subsets of genes linked to heart, lung, blood and sleep function, then to build upon this knowledge to develop better methods for prevention, diagnosis and therapy."

Johnston and his colleagues, Drs. Helen Hobbs, director of the Eugene McDermott

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Center for Human Growth and Development; Jonathan Cohen, associate professor of internal medicine; Harold "Skip" Garner, professor of biochemistry and internal medicine; and R. Sanders Williams, chief of cardiology, will direct the projects.

The projects will seek to identify the genes and mutations that cause heart disease and, in the process, create reagents -- substances added to other substances to participate in chemical reactions. These reagents will be provided to the research community to facilitate the effective use of the genome information.

"Knowing the sequence for all genes is just the starting point for this study," said Williams, director of the Donald W. Reynolds Cardiovascular Clinical Research Center and the Frank M. Ryburn Jr. Cardiac Center. "Each of us has millions of differences in our sequences. We now have to make sense of what the variations mean relative to gene risk and how we treat certain diseases."

Specific goals of the study include:

- Linking genes to biological function on a genomic scale;
- Providing free and immediate access to all information and reagents to the research community, thus allowing other scientists to develop separate relevant studies cost effectively;
- And providing short-term advanced training and educational programs about data and related technologies for other researchers.

The grant, Johnston said, will complement the Reynolds Center's Dallas Heart Disease Prevention Project – a countywide study that bridges basic cardiovascular research and patient care. In 1999 UT Southwestern won a nationally competitive $24 million grant from the Donald W. Reynolds Foundation to develop new strategies to combat heart disease.

"The Reynolds Foundation provides a large amount of funding to assemble and clinically characterize a unique population for investigating heart disease. However, it does not provide funds to enable the mutations in the population to be investigated. The PGA grant will allow us

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to relate phenotypes (a group's characteristics) with genotypes (a species' characteristics), which is absolutely critical for realizing the full potential of the Reynolds Foundation work, " Johnston said.

Researchers also will work in collaboration with Sequenom Inc., a post-genomics company that seeks to translate information generated from the map of the human genome into practical applications. The firm recently teamed with UT Southwestern to study associations between single nucleotide polymorphisms (SNPs) and cardiovascular disease.

Sequenom also is providing additional funding to support this effort.

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