SOUTHWESTERN NEWS

Media Contact: Susan Morrison
214-648-3404
susan.morrison@utsouthwestern.edu

MOLECULAR GENETICIST BECOMES 14TH UT SOUTHWESTERN FACULTY MEMBER OF NATIONAL ACADEMY OF SCIENCES

DALLAS – April 29, 2003 – Dr. Masashi Yanagisawa, recruited from a Japanese university in 1991 by two of UT Southwestern Medical Center's four Nobel laureates, today was elected to the National Academy of Sciences (NAS) – one of the highest honors attainable by an American scientist.

A professor of molecular genetics who discovered a protein that plays a key role in high blood pressure, stroke and heart failure, he is the 14th member of the UT Southwestern faculty elected to membership in the NAS. There are now 18 medical science members of the prestigious organization in Texas institutions. More than 75 percent of those are at UT Southwestern.

Dr. Yanagisawa was recruited and mentored by Drs. Michael Brown and Joseph Goldstein, who shared the Nobel Prize in 1985.

"Dr. Yanagisawa's election to the NAS is a tremendous achievement that demonstrates how excellence has fostered excellence at UT Southwestern," said Dr. Kern Wildenthal, president of UT Southwestern. "Our philosophy is to identify the very best people in biomedical science, work to bring them here and provide an atmosphere of unimpeded opportunity to explore fresh ideas in the belief that their successes will attract other rising stars in biomedical science.

"Dr. Yanagisawa has proven himself to be a world-class scientist, and this latest achievement further proves that our Nobel laureates and other outstanding faculty members are magnets for talent," he continued. "His latest honor will enhance the medical center's reputation as a leader in research and in the development of researchers."

Dr. Yanagisawa said he is "very humbled to be elected" to the NAS.

"It's encouraging for me and for other researchers at UT Southwestern who see that these achievements are possible," he said. "The opportunity to work with Dr. Brown and Dr. Goldstein

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and other brilliant scientists drew me to Dallas. Once I discovered UT Southwestern, I immediately realized that it is a world-class research and medical center. But it also has maintained the spirit of a small school, in a very good sense. There is a close, collegial atmosphere here that encourages excellence in research and allows scientists to pursue unique projects."

Since the late 1980s, Dr. Yanagisawa, an investigator in the Howard Hughes Medical Institute at UT Southwestern, has been garnering attention within the scientific community. A study published in *Nature* in 1988 outlined his discovery of endothelins, hormones secreted by cells in the inner lining of blood vessels that help control cardiovascular function and play a part in high blood pressure, stroke and heart failure. Research published in *Cell* in 1994 outlined the unexpected developmental role endothelins and their receptors play. This research has led to the development of pharmaceuticals that block the hormones' action and treat congestive heart failure, pulmonary hypertension and other vascular disorders.

He later led a team of researchers that discovered two hormones, orexin-A and orexin-B, that are important in the regulation of appetite and sleep. Further study of these hormones in humans could lead to the development of drugs to increase or decrease appetite in people suffering from obesity, anorexia or diabetes. In the midst of this research, the team also found that mice lacking the hormone orexin developed narcolepsy, a sleep disorder.

Dr. Yanagisawa's current research focuses on "orphan" G-protein receptors – those whose function is unknown.

"Many receptor genes have been discovered by the Human Genome Project. The largest number are olfactory receptors, but there are probably 400 to 500 designed to sense other internal signals," he said. "More than half of these are 'orphan' receptors, which means they don't have a ligand identified."

A ligand is a signaling molecule that binds to a receptor, designating that receptor's function. When bound to ligands, the receptors trigger a G-protein, which then turns on or turns off genes. For example, the orexin ligands and their receptor genes regulate feeding behavior and wakefulness.

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In 2002, Dr. Yanagisawa received a five-year, $15 million grant from Japan Science and Technology Corp. to expand his research on receptor genes and the roles they play in the body. Japan Science and Technology is governed by the Japanese Prime Minister's office. It promotes philosophies applicable to technology and science, including biology, physics, chemistry and electronics. Research is being done both on the UT Southwestern campus and in a lab in Tokyo.

Dr. Yanagisawa holds the Patrick E. Haggerty Distinguished Chair in Basic Biomedical Science at UT Southwestern. Born in Tokyo, Dr. Yanagisawa received his medical degree in 1985 and his doctorate degree in 1988 from the University of Tsukuba near Tokyo. He was an assistant professor of pharmacology at the University of Tsukuba's Institute of Basic Medical Sciences from 1989 to 1991, then held the same position during 1991 at Kyoto University in Kyoto, Japan. He came to UT Southwestern as an associate professor of molecular genetics in 1991 and was named a professor in 1996. In 2001 he became a United States citizen.

He has received the J.J. Abel Award from the American Society of Pharmacology and Experimental Therapeutics, the Novartis Award from the American Heart Association, the Kilby Award from the Kilby Awards Foundation, the Amgen Award from the American Society of Biochemistry and Molecular Biology, and the Special Recognition Award from The Sleep Research Society.

Seventy-two new members and 18 foreign associates were elected today in recognition of their distinguished and continuing achievements in original research in all fields of science. The election was held during the business session of the 140th annual meeting of the Academy in Washington, D.C. Fourteen of the 72 are at medical schools. Dr. Stephen J. Elledge, professor of biochemistry and molecular genetics and a Howard Hughes Medical Institute investigator at Baylor College of Medicine in Houston, is the only other person elected today from the state.

The NAS is a private, nonprofit society of distinguished scholars engaged in scientific and engineering research. President Abraham Lincoln created the NAS in 1863 to act as an advisory board to the federal government on scientific and technical matters. Members are

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elected in recognition of their "distinguished and continuing achievements in original research."

Membership is composed of 1,922 active members and 341 foreign associates, of whom more than 170 have won Nobel Prizes. New members and foreign associates are elected each year at the academy's annual meeting.

Other UT Southwestern faculty members who are members of the NAS and the year they were appointed are:

Ronald W. Estabrook, Ph.D., 1979; Michael S. Brown, M.D., 1980; Joseph L. Goldstein, M.D., 1980; Jean D. Wilson, M.D., 1983; Jonathan W. Uhr, M.D., 1984; Alfred G. Gilman, M.D., Ph.D., 1985; Roger H. Unger, M.D., 1986; Steven L. McKnight, Ph.D., 1992; David L. Garbers, Ph.D., 1993; Ellen S. Vitetta, Ph.D., 1994; Johann Deisenhofer, Ph.D., 1997; Eric N. Olson, Ph.D., 2000; and Thomas Südhof, Ph.D., 2002.

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