

# SOUTHWESTERN NEWS

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## NEUROSCIENTIST BECOMES 13<sup>th</sup> UT SOUTHWESTERN FACULTY MEMBER OF NATIONAL ACADEMY OF SCIENCES

DALLAS – April 30, 2002 – Dr. Thomas Südhof, director of the Center for Basic Neuroscience at UT Southwestern Medical Center at Dallas, today was elected to the National Academy of Sciences (NAS) – one of the highest honors attainable by an American scientist.

Seventy-two new members were elected today in recognition of their distinguished and continuing achievements in original research. No other scientists from Texas were on the list.

Members of the NAS are elected from more than two dozen scientific disciplines ranging from astronomy to geology. A UT Southwestern faculty member was the first medical scientist elected from Texas in 1979. There are now 16 medical science members of the prestigious organization in Texas institutions, 13 of which are at UT Southwestern.

Südhof's work is internationally recognized for its research into the mechanism by which neurons communicate in the brain and into the pathogenesis of Alzheimer's disease. Last year Südhof made a breakthrough discovery about the role of a protein involved in the onset of Alzheimer's, a finding that may have a profound impact on how doctors treat the disease.

"Being elected to the NAS is second only to being awarded the Nobel Prize," said Dr. Kern Wildenthal, president of UT Southwestern. "We are proud to have scientists of this caliber here in Dallas."

Südhof, an investigator in the Howard Hughes Medical Institute at UT Southwestern said, "I am delighted by this appointment. I'm honored that the selection committee thinks so highly of my research initiatives."

Südhof, holder of the Gill Distinguished Chair in Neuroscience Research and the Loyd B. Sands Distinguished Chair in Neuroscience, studies nerve-cell interaction and neurotransmitter release, a process that initiates communication between one neuron to another in the brain. Through his research, he hopes to gain a better understanding of brain function under normal and pathologic conditions.

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“Many neuroscientists throughout the world are using the basic information discovered by Südhof to learn how the brain works in normal and disease states,” said Dr. Joseph Goldstein, chairman of molecular genetics and 1985 Nobel laureate.

Goldstein said Südhof’s election to the NAS recognized his pioneering work on synaptic vesicles, the organelles in the brain that transmit chemical information from one neuron to another.

“Südhof’s lab purified, molecularly cloned and characterized six of the 12 families of membrane proteins that make up the structure of a synaptic vesicle organelle,” Goldstein said. “One of these proteins, called synaptotagmin, is the major calcium sensor in the brain that is responsible for triggering the rapid release of neurotransmitters from synaptic vesicles.”

Südhof has also been cited for his discovery of the neurexin-neurologin system of neuron-specific membrane proteins. This highly diverse family of more than 500 members, each expressed in different cellular regions of the brain, plays a role in establishing specific contacts between different sets of neurons.

In 2001 Südhof and his collaborators discovered how a protein involved in the development of Alzheimer’s functions in healthy brains. The discovery that amyloid precursor protein (APP) promotes gene expression has caused researchers to reconsider how the mutated protein contributes to the death of brain cells. In Alzheimer’s sufferers, the mutated APP is known to produce amyloid plaques, or waxy plaque buildups, which harm brain cells. This groundbreaking finding put researchers one step closer to defining the pathogenesis of the disease.

Südhof received his medical degree from the Georgia Augusta University of Göttingen, Germany, in 1982. He did postdoctoral work at the Max Planck Institute for Biophysical Chemistry in Göttingen and with Nobel laureates Goldstein and Dr. Michael Brown at UT Southwestern. He joined the UT Southwestern faculty in 1986.

During the years of Südhof’s tenure at UT Southwestern, he has received substantial support from a number of private foundations, corporations and individuals, including the Cain

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Foundation, the Pauline Allen Gill Foundation, the Perot Foundation, the Sands Foundation and Rosewood Corp., Mr. and Mrs. F. William Barnett Jr., Mr. and Mrs. John P. Harbin, Mr. and Mrs. S.T. Harris, Mr. and Mrs. William S. Montgomery Jr., Mr. and Mrs. Howard Rachofsky, Mr. and Mrs. John W. Rhea Jr., Mr. and Mrs. C.J. Thomsen, Mr. and Mrs. William W. Winspear, Mr. and Mrs. Jos. Irion Worsham, and the Senator John T. Montford Fund, as well as the Howard Hughes Medical Institute, Southwestern Medical Foundation, an anonymous donor, and the National Institutes of Health.

In 1997, the NAS named Südhof co-recipient of its prestigious Award in Molecular Biology Supported by the Monsanto Company for his study of how information is relayed in the brain.

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

Membership is composed of 1,907 active members and 330 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; and Eric N. Olson, Ph.D., 2000.

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