



## Prof. Günter Blobel

Professor, Nobel laureate in Physiology or Medicine, 1999



### **Most important awards, prizes and academies**

*Academies:* National Academy of Sciences (1983); Leopoldina (1983); Honorary Member of the Japanese Biochemical Society (1983); American Academy of Arts and Sciences (1984); Associate Member of the European Molecular Biology Organization (1986); Honorary Member of the German Society of Cell Biology (1988); American Philosophical Society (1989); Institute of Medicine (2000); Orden Pour le Mérite (2001); Pontifical Academy of Sciences (2001). *Awards:* US Steel Award in Molecular Biology (1978); The Gairdner Foundation Award (1982); The Warburg Medal of the German Biochemical Society (1983); The Richard Lounsbery Award (1983); The V.D. Mattia Award (1986); The Wilson Medal of the American Society for Cell Biology (with D.D. Sabatini) (1986); The Louisa Gross Horwitz Prize (1987); The Waterford Bio-Medical Science Award (1989); The Max-Planck Forschungspreis (1992); Albert Lasker Basic Medical Research Award (1993); Ciba Drew Award in Biomedical Research (with J. Schlessinger and A. Levine) (1995); King Faisal International Prize for Science (with J. Rothman and H. Pelham) (1996); Mayor's Award for Excellence in Science and Technology (with R. Axel) (1997); Nobel Prize in Physiology or Medicine (1999); Ellis Island Medal of Hon. (2000). *Honours:* President of the American Society for Cell Biology (1990); Grosse Bundesverdienstkreuz mit Stern (2000); Honorary Senator, Technical Institute of Dresden (2000). *Honorary degrees:* Doctor of Medicine, the Mt. Sinai Medical Center, New York City, USA (1994); Doctor of Medicine, Yeshiva University,

New York City, USA (2000); Doctor of Philosophy, Technische Universität Bergakademie, Freiberg, Germany (2001); Doctor of Science, Gustavus Adolphus College, Saint Peter, MN, USA (2001); Doctor of Philosophy, Johann Wolfgang Goethe University, Frankfurt, Germany (2002); Doctor of Medical Sciences, Charles University, Prague, Czech Republic (2003); Doctor of Philosophy, The Babes-Bolyai University, Cluj-Napoca, Romania (2003).

### Summary of scientific research

Prof. Blobel obtained his medical degree from the University of Tübingen in 1960. He moved to the United States in 1963, gained a Ph.D. degree at the University of Wisconsin in 1967 and subsequently spent two years at the laboratory of George Palade (Pontifical Academician, Nobel Prize in Medicine 1974) at the Rockefeller University in New York. Professor Blobel has since remained at the Rockefeller University, rising to Assistant Professor in 1969, Associate Professor in 1973, Professor in 1976, and John D. Rockefeller Jr Professor in 1992. Since 1986 he has been an Investigator of the Howard Hughes Institute. Professor Blobel is a distinguished cell biologist, known worldwide for having elucidated the mechanisms whereby newly formed proteins are transferred from their site of synthesis in the cytosol to their final location inside or outside the cell. His contributions have been recognised by a large number of awards, the latest one being the Nobel Prize in Physiology or Medicine 1999. In recent years, Professor Blobel has created a foundation, the Friends of Dresden, Inc. which has already raised several million dollars for the reconstruction of the monuments of the city destroyed by Allied bombing during the Second World War, in particular the Frauenkirche and the Synagogue. Professor Blobel donated most of his Nobel Prize money to this foundation.

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### Main publications

Blobel, G. and Dobberstein, B., Transfer of proteins across membranes. I. Presence of proteolytically processed and unprocessed nascent immunoglobulin light chains on membrane-bound ribosomes of murine myeloma, *J. Cell Biol.*, 67, pp. 835-51 (1975); Blobel, G. and Dobberstein, B., Transfer of proteins across membranes. II. Reconstitution of functional rough microsomes from heterologous components, *J. Cell Biol.*, 67, pp. 852-62 (1975); Lingappa, V.R., Katz, F.N., Lodish, H.F. and Blobel, G., A Signal Sequence for the insertion of a transmembrane glycoprotein: Similarities to the signals of secretory proteins in primary structure and function, *J. Biol. Chem.*, 253, pp. 8667-70 (1978); Blobel, G., Intracellular protein topogenesis, *Proc. Natl. Acad. Sci. USA*, 77, pp. 1496-1500 (1980); Walter, P. and Blobel, G., Signal recognition particle contains a 7S RNA essential for protein translocation across the endoplasmic reticulum, *Nature*, 299, pp. 691-8 (1982); Gilmore, R., Blobel, G. and Walter, P., Protein translocation across the endoplasmic reticulum. I. Detection in the microsomal membrane of a receptor for the signal recognition particle, *J. Cell Biol.*, 95, pp. 463-9 (1982); Gilmore, R., Walter, P. and Blobel, G., Protein translocation across the endoplasmic reticulum. II. Isolation and characterization of the signal recognition particle receptor, *J. Cell Biol.*, 95, pp. 470-7 (1982); Simon, S.M. and Blobel, G., A protein-conducting channel in the endoplasmic reticulum, *Cell*, 65, pp. 371-80 (1991); Moore,

M.S. and Blobel, G., The GTP-binding protein Ran/TC4 is required for protein import into the nucleus, *Nature*, 365, pp. 661-3 (1993); Chook, Y.M. and Blobel, G., Structure of the karyopherin  $\beta$ 2-ran GppNHp nuclear transport complex, *Nature*, 399, pp. 230-7 (1999); Beckmann, R., Spahn, C.M.T., Eswar, N., Helmers, J., Penczek, P.A., Sali, A., Frank, J. and Blobel, G., Architecture of the protein-conducting channel associated with the translating 80S ribosome, *Cell*, 107, pp. 361-72 (2001).