

ACCEPTANCE SPEECH

By

JAMES E. ROTHMAN

Co-Winner of the 1996 King Faisal
International Prize for Science
(Biology)

Your Royal Highness Prince Sultan ibn Abdul Aziz

Your Royal Highnesses

Your Excellencies

Distinguished Guests

I am profoundly honoured to have been selected as one of this year's winners of The King Faisal International Prize for Science, and accept with gratitude and pleasure on this occasion.

As exhilarating as this prize is, it was a greater privilege to have been able to behold the captivating and awesome beauty of some of the inner workings of cells. In 1978, when I took up the challenge of understanding how transport vesicles bud and fuse, protein transport could only be studied in living cells. I will never forget the singular moment in 1979 when we first succeeded in reproducing transport in a cell-free test tube system. All at once it became clear that even the most complex events in cells, like protein transport, could occur outside cells and could therefore be understood in physical chemical terms, and that this mechanistic understanding would inevitably follow. This one defining event preordained my scientific life for the next 17 years, as bit by bit we have gradually succeeded in identifying the principal machinery responsible for transport and how this machinery works. And with this have come insights of a breadth that I would never have dreamed possible in 1979 concerning biological and medical processes as diverse as the secretion of hormones like insulin, growth-controlling substances important in cancer, communication between the cells in our brain by synaptic transmission, and the growth and propagation of the three-dimensional organization within cells themselves.

I owe a special thanks to Professor Lelio Orci of the University of Geneva, my long-time collaborator in the field of electron microscopy and a good friend.

Professor Orci is himself a previous recipient of The King Faisal International Prize for Medicine for his own work in diabetes. Many fine graduate students and post-doctoral fellows have contributed in critical ways to our studies and likewise deserve great appreciation.

I have also been privileged, at different stages, to have worked in two special environments, each critical in its own way. Arthur Kornberg's Department of Biochemistry at Stanford, where I began this work in 1978 and stayed until 1988, fostered original and bold biochemistry, following Kornberg's own example. Here a high risk project could be undertaken and developed, even when many of my colleagues around the world doubted its validity for many years. Kornberg's unwavering faith in the ultimate power of biochemistry was contagious. More recently, the Sloan-Kettering Institute has provided the ideal environment to see our initial discovery through to its present state of development.

It is an honour to share this Prize with Professor Günter Blobel and Dr. Hugh Pelham. In many ways Professor Blobel has been a mentor to me. His critical discoveries and profound thinking have shaped the entire field of cell biology and it is indeed a privilege to count him as a good friend. Dr. Pelham has contributed centrally to the field of cell biology, providing the paradigm of retrograde transport, and it is a pleasure to share in this recognition with him also.

On a more personal level, I owe a great debt to my parents, Dr. Martin Rothman and Gloria Rothman, for their lifelong love and support. To my wife and best friend Dr. Joy Hirsch, a gifted scientist in her own right, I owe as much, for without her love, support, and constantly good advice, the work honoured today would not have stayed its steady course. And finally, but certainly not least, I thank our son Matthew Rothman for understanding a busy father and for being a nice guy, even though a teenager.

Once again I am deeply honoured by the recognition of our work afforded by this Prize and am most grateful to the selection committee and others who have been involved.