Proctor Award and Lecture

Joseph Horwitz
Introduction of Joseph Horwitz for the Proctor Medal

It is a privilege for me to introduce Dr. Joseph Horwitz as the recipient of this year’s Proctor Medal. When I first met Joe at the Jules Stein Institute at UCLA in 1975, I was captivated by his exuberance, enthusiasm, and infectious love of science. Who is Joe Horwitz and how has he come to this prestigious position?

Joe was born in 1936 to Latvian parents who had immigrated to Palestine. After 2 years of high school, Joe decided academics was not for him, and he enrolled in a vocational school for electronics, where he remained for 3 years. Then, in 1954, Joe joined the army and achieved the rank of corporal. At the tender age of 21, Joe found himself in the tank battalion during the 1957 Suez war. He spent 3 months in the Sinai tending a captured warehouse that stored army shoes and Halvah candy. After the war, Joe served in the aircraft industry, learning navigational and radar equipment repair for another 2 years. This work foreshadowed his brilliance in building scientific equipment and kindled Joe’s desire for more scientific education.

In 1960, Joe, with little more than the shirt on his back, immigrated to Los Angeles. He entered UCLA and obtained a bachelor of science degree in physics in 1965. Seeking more biologic terrain, Joe switched to biophysics for his Ph.D., which he obtained at UCLA under the tutelage of Dr. Hardin Strickland. While a graduate student, the pre-doctor Horwitz was a consultant for Beckman Instruments, where he developed and built the prototypic circular dichroism spectroscope. In appreciation, they eventually gave Joe this model instrument for his laboratory. Indeed, much of what we know about the circular dichroism spectra of crystallins was contributed by Joe using this machine. Joe’s Ph.D. thesis led to fundamental knowledge of spectroscopic properties of aromatic amino acids and ribonucleases. The findings were published in the American Chemical Society Journal and Journal of Biological Chemistry.

Joe received his doctorate in 1970, stayed on for 1 more year of post-doctoral work, and became an Assistant Professor of Ophthalmology and Biophysics at the UCLA School of Medicine. Advancement came quickly. By 1976, Joe was an Affiliate Member of the Molecular Biology Institute at UCLA and an Associate Professor of Ophthalmology. Four years later he was promoted to full Professor and Associate Director of the Jules Stein Eye Institute at UCLA Medical School, positions he still holds today.

Joe is an independent, imaginative, and productive scientist. Joe’s early studies with the late Joram Heller on retinol binding proteins pioneered investigations of the binding site and transport properties of retinol in plasma to the target organs. Joe then turned his attention to the lens and produced a virtual whirlwind of exciting discoveries. His circular dichroism analyses of crystallins were succeeded by immunologic studies. Joe has generously supplied many investigators with highly specific and reliable antibodies, which has led to a host of important advances on crystallins and lens. Joe has described changes in the physical properties of crystallins and enzymes during aging and cataract. In the study of cataract, he was the first to recognize the importance of separating clear regions of lens from opaque regions by microdissection. Joe was among a very few who gave serious attention to lens membrane proteins at a time when crystallins dominated activity in this area, and he made far-reaching contributions to the understanding of the intrinsic membrane protein MP26. He discovered its unusual aggregation response to heat, providing a quick assay that led to identification of its post-translational cleavage products. Soon thereafter, Joe expanded his heat experiments to relate the thermostability of crystallins to their natural history. With his post-doctoral fellow, Michael Gorin, Joe cloned and proposed a model for the structure of MP26. Joe’s studies on lens membrane proteins have been extended to channel proteins, his studies on cataract and lens aging have been related to nutrition, and his contributions on lens have included the biochemistry of pigmentation. His experimental animals have ranged from arctic fish to desert iguana. There is more; these are highlights. To know Joe is to free the spirit.

Joe’s research has been honored by the Rhoto Award for cataract research and an Alcon Research Institute Award for outstanding contributions to vision research. In addition to his contributions at the bench, Joe has impacted vision science at a national level.
level. He has served on the editorial boards of *Investiga-
tive Ophthalmology & Visual Science* and *Experimental 
Eye Research*, and has been a member of the NIH Vi-

sual Sciences A Study Section. He helped write the 

1982–1987 Cataract Research National Plan for the 

National Eye Institute and then acted as chairman for 

its revision for 1992–1996. Joe served on the Board of 

Scientific Counselors for the National Eye Institute, 

and today is a member of the National Advisory Eye 

Council of the NEI.

All this, and Joe remains modest, unassuming, and 

always willing to help and encourage. He is a devoted 

family man. His wife, Arlene; son, Dan; daughter, 

Leora; stepson, Keith; and parents-in-law are among 

his loving family in the audience today. I am proud to 

be his friend and honored to present Professor Joseph 

Horwitz as the 1992 Proctor Medalist.

*Joram Piatigorsky*

*Laboratory of Molecular and Developmental Biology*

*National Eye Institute*