

Editorial
In memoriam

Endre A. Balazs, M.D.



January 10, 1920eAugust 29, 2015

Endre A. Balazs, a distinguished biomedical scientist, educator and businessman passed away at his summer home, Villa Nifnaha in San Tropez, France. He was co-founder and co-editor of *Experimental Eye Research* for 29 years. He also co-founded and was the first President of the International Society for Eye Research (ISER).

Born in Budapest, Hungary, Endre A. Balazs (known as Bandi to his friends) obtained his education and Medical Degree during the years of the Second World War. While in the university he received scientific training in Biochemistry and published his first research paper in 1939. In 1947, after attending a scientific congress in Stockholm to present his work on synovial fluid formation, Bandi decided to leave Hungary and moved to Sweden shortly before the communists took over his native country. He worked for three years at the Karolinska Institute, then moved to Harvard to continue his successful work on the chemistry and functional role of the intercellular matrix, with particular emphasis on hyaluronic acid. This was the central focus of his research interest throughout his life, initially using the vitreous as a simple experimental tissue where hyaluronic acid was abundant. In Boston, Bandi developed a laboratory equipped with the most advanced technology at that time. This lab was associated with the Massachusetts Eye and Ear Infirmary, and later became the Retina Foundation and the Boston Biomedical Institute, where he was director in 1962–63. In 1975 Bandi became Professor of Experimental Ophthalmology, and the Malcom P. Aldrich Professor at Columbia University Medical Center, New York, continuing there with his wife and close research partner, Janet Denlinger (Jenti), the studies on the biophysical and biochemical properties of hyaluronan.

One of the extraordinary features of Bandi's character was his interest in finding medical applications for his scientific discoveries. This preoccupation led him to develop the concept of viscosurgery, a procedure designed to protect the tissues of the anterior chamber from trauma during intraocular surgery, at the time primarily cataract surgery, using the non-inflammatory fraction of sodium hyaluronan that he had isolated and patented. Years later, Bandi proposed viscosupplementation as a means to restore the rheological properties of synovial fluid as a treatment of osteoarthritis through the intra-articular injection of high molecular weight hyaluronan.

To transform scientific advances into practical realities requires personal virtues that are rarely found in a scientist. In addition to a sharp intelligence and clear mind, Bandi excelled in financial negotiating skills, entrepreneurial and management skills with the ability to build and motivate multidisciplinary teams. As a result, his patented 1% hyaluronan solution prepared from rooster combs (Healon®), became the star product of the pharmaceutical company, Pharmacia, for 20 years. This one product had an enormous impact on intraocular surgery.

In 1999 he founded Biomatrix Inc., to produce the cross-linked high molecular weight hyaluronan Synvisc®, still the most employed hyaluronan product for viscosupplementation in knee joint osteoarthritis. Bandi sold the company at the peak of its success and founded together with Jenti, using their own money and contributions from others, the Matrix Biology Institute (MBI), a non-profit research institution dedicated to support intramural and external research on the potential medical uses of hyaluronan. Author of over 300 scientific publications, Bandi's last research project was conducted at MBI and his last research paper appeared in Nature Communications two days before his death (Nat Commun. 2015 Aug 27; 6:8095).

Endre Balazs received multiple honors in his long and productive career. He was recipient of the Friedenwald Award from the Association for Research in Ophthalmology (1963); a Guggenheim Fellow (1968) and a Macy Foundation Scholar in 1991; the Cornelius D. Binkhorst Medal from The American Academy of Ophthalmology (1986); recognized by the American Arthritis Foundation as Humanitarian of the Year (1998); Herman F. Mark Technology Medal from the Polymer Research Institute of Polytechnic University, Brooklyn, NY (2003); Ellis Island Medal of Honor, NY (2004); In 2005 he received the George Washington Award of the American Hungarian Foundation; Distinguished Alumni Award from the Schepens Eye Research Institute (2008); induction into the Ophthalmology Hall of Fame by the American Society of Cataract and Refractive Surgery (2009); He became an external member of the Hungarian Academy of Sciences in the Section of Chemistry in 2010; received the Helen Keller Prize for Vision Research (2011); and the New Jersey Inventors Hall of Fame (2012). Earlier this year he was honored with a named chair, The Endre A. Balazs Professorship in Innovation and Entrepreneurship, at the Karolinska Institute in Stockholm, Sweden. He also received several honorary degrees: 1967: in Medicine, from the University of Uppsala, Uppsala, Sweden; 1991: in Medicine, from Semmelweis University for Science and Medicine, Budapest, Hungary; 2005: in Science, from Purdue University, West Lafayette, Indiana; 2009: of Humane Letters, from Saint Leo University, Saint Leo, Florida. But possibly the greatest reward for him was the certitude that his efforts continue to help millions of individuals enjoy a better life.

It is difficult to summarize in a few words the multiple incidences of a long and successful professional life except by saying that it was lived with a passionate dedication to science in multiple facets. Still, for those that had the privilege of being Bandi's friend, his human qualities were by far, the most valuable part of his personality. His loyalty, serene character, generosity and cultural depth made Bandi a very special friend. Just like the good wines that he appreciated so much, Bandi appeared to grow in wisdom and equilibrium with age; Jenti, his inseparable partner and loving wife for 37 years, had a lot to do with this. We all know that inevitably, every life, albeit long and fruitful, reaches an end. For his family and close friends, his absence makes the world today a bit more solitary place.