

## George M. Malacinski

George M. Malacinski was born and reared in Norwood, Massachusetts, where he went to public school and proudly became a first-generation college student. George graduated from Boston University with a B.A. in biology (1962). His intellectual interest in scientific inquiry began as an undergraduate student with the genetic analysis of the bacteriophage life cycle, which he presented at the Eastern New England Biology Conference in 1961. He chose IU Bloomington for his graduate study because it had an excellent bacteriology department and he was able to "live in a different part of the U.S.A." having previously never traveled outside New England. Under the tutelage of Dr. Walter A. Konetzka he investigated bacterial phosphorus metabolism, receiving the Ph.D. in 1966.

During his postdoctoral experience under the mentorship of Dr. W. J. Rutter (University of Washington – Seattle), he switched his research interest from microbiology to vertebrate biology by investigating the developmental genetics of the mammalian pancreas. In 1968 Dr. Robert Briggs, a world-famous embryologist, recruited George to return to IU as part of the core group being assembled to "modernize" the zoology department (which later merged along with other departments into the Department of Biology). By 1979 George had achieved the rank of professor of biology. During his career he has investigated various aspects of early vertebrate embryology using amphibians as a model system. His research has made significant contributions to our understanding of amphibian developmental genetics, molecular embryology, muscle development, and body plan development in response to gravitational forces. When colleagues collaborate with George, scientific inquiry becomes a comprehensive intellectual interaction challenging the critical thinking and hypothesis-testing abilities of all involved. Through his intellectual passion, George has always encouraged others to do their best, as attested by the numerous postdoctoral, graduate, and undergraduate students and junior faculty whom he has mentored during his career.

The amphibian for which IU is known throughout the world is the *axolotl* (*Ambystoma mexicanum*), a salamander that keeps its gills and tail fin for its entire life and maintains an aquatic lifestyle. Famous for its regenerative abilities, it is also an important research model organism for topics like vision, olfaction, embryogenesis, and heart development. The IU Axolotl Colony was founded by Rufus R. Humphrey (1957), who established the animal's importance in developmental genetics. As the colony's director since 1975, George enhanced the value of this one-of-a-kind worldwide resource for research animals. The colony has received continuous funding from the National Science Foundation since 1969.

The heart of science is communication. Science is therefore highly dependent on effective writing. George is a great communicator, capturing the essence of scientific ideas and relaying them succinctly to different audiences. He has authored more than 120 research articles and four teaching publications and has edited four volumes of *Primers in Developmental Biology*. He also wrote two special issues of the *International Journal for Developmental Biology* entitled *Developmental Biology of Urodeles* and *Teaching Developmental Biology*. Besides serving on numerous editorial boards, he was the founding American editor for the *International Journal of Developmental Biology* and has co-edited numerous special editions of journals and books. In addition, he is the author of a popular textbook *Essentials of Molecular Biology*, currently in its fourth edition.

George's classroom teaching has included embryology, scientific writing, and molecular biology. Of special note is his molecular biology course offered in a collaborative learning format, where students attend lectures three times per week and met in small groups once per week. During lectures he engages students in critical thinking, problem solving, data analysis, and experimental design, including hands-on construction of DNA models. George designed three-dimensional model kits that permit students to convert abstract concepts into visual and tangible realities. Students have responded positively to George's teaching methods: he has received eight teaching awards from IU as well as from the Student Alumni Association. Most telling, however, are the files full of unsolicited comments from students and their parents. From a young man in George's last molecular biology class (2004):

I have just finished [your] course this fall and would like to say it was the best class I've taken thus far in my college career. It taught me a lot more than just Biology. The course, and you, taught me valuable study skills, and also methods that are more effective in my learning. The course helped me in all of my other classes, and I strongly believe it will help in the rest of the classes I take here at IU.

Or from a father: "Both [his] mother and I thank you for being a positive influence in our [son's] life." A primary focus of George's life becomes evident.

Through the years, George has been the recipient of numerous grants to fund his research and teaching efforts. He was also the principal investigator for IU's first Howard Hughes Medical Institute grant for undergraduate education (1989). The grant permitted the addition of collaborative learning formats to several courses in the biology curriculum—all of which persist to this day.

George has served IU for four decades. His intellectual passion for research and education has benefited both the biology department as well as IU over those years, and we appreciate his contributions. He has not forgotten his early interests in scientific inquiry as an undergraduate student. Realizing the challenge and pleasure of awakening young minds, George has been involved in the Intensive Freshman Seminar (IFS) program for years, and he looks forward to influencing the next generation of potential scientists under its auspices.

Upon his retirement George plans to maintain his passion for intellectual pursuits by continuing his study of gene expression during early amphibian embryogenesis, and by writing and teaching his IFS course, Human Cloning and Embryonal Stem Cells: Yes or No. Having already bicycled over 20,000 miles in more than two dozen countries around the world, he plans to continue this pursuit. In addition, he intends to continue his reincarnation as an ice hockey player (left wing position). Concerning his retirement plans George feels "retirement will be just like before, but I just won't get up so early in the morning."

Anton W. Neff