

## IN MEMORIAM



### *Marija Alačević, professor emeritus*

*(April 19, 1929 – February 25, 2015)*

Professor Marija Alačević, a pioneer in the application of genetic approaches in biotechnology, and a driving force in bringing genetic toxicology research and testing to the former Yugoslavia, died in Zagreb, Croatia on February 25, 2015. Her numerous successful collaborations with scientists from the pharmaceutical industry on understanding genetic recombination in *Streptomyces* formed the basis for the 'Zagreb School of *Streptomyces* Genetics', and greatly improved the production of tetracycline antibiotics.

Marija Alačević was born in Makarska, a picturesque town on the Adriatic coast of Croatia. Technically oriented, she studied electrical engineering for three years before discovering that the real challenge for her was in the complexity of living matter. In 1954 she received her BSc in Biology from the University of Zagreb, Croatia, and shortly after joined the Faculty of Technology, the Department of Biotechnology at Zagreb University. As a scientist with a technical background and an evolving interest in genetics, she was in an ideal position to join the rapidly developing field of biotechnology led by Professor Vera Johanides, a prominent figure in industrial microbiology. Through collaborations with the geneticist Giuseppe Sermonti at the Istituto Superiore di Sanità in Rome, Italy, Marija Alačević mastered *Streptomyces* genetics and in 1965 completed her PhD thesis, co-mentored by Sermonti and Johanides, on interspecific recombination in *Streptomyces*. In 1977, Marija Alačević was promoted to Professor at the Faculty of Technology (now Food Technology and Biotechnology) at Zagreb University, where she was Head of the Laboratory for Biology and Microbial Genetics until her retirement in 1994. From 1987 to 1993 she served as Chair of the Department of Biochemical Engineering at the Faculty of Food Technology and Biotechnology.

Marija Alačević's research focused on the genetics of industrial microorganisms and environmental mutagenesis. As a geneticist dealing with genetic changes beneficial for strain improvement, she became concerned with the long-term consequences of potentially mutagenic chemicals in the environment on human health. She quickly embraced concepts emerging from laboratories in the USA and Europe regarding the need for mutagenicity testing of chemicals, and her laboratory began to apply genetic systems with different levels of complexity for testing food additives, pesticides and drugs, as well as air and water pollutants.

As an emissary of progress in science, she helped organise many international conferences, travelled the world, and was remarkably resourceful in connecting people with shared interests in the pre-Internet era. In 1968 under the auspices of the Yugoslav Academy of Sciences and Arts she organised the International Symposium on Genetics and Breeding of *Streptomyces* held in Dubrovnik. This event was the predecessor of the International Symposia on Genetics of Industrial Microorganisms (GIM) that have been held every four years since. Marija formed the Yugoslav Section of the European Environmental Mutagen Society (EEMS) in 1977 and, with the help from the Yugoslav Genetic Society, served as organiser of the 9th EEMS meeting held in Tučepi, Croatia, in 1979. She was a member of the Editorial Board of *Mutation Research* from 1981 to 1995, and of numerous regulatory panels, including the Genetics of Industrial Microorganisms – International Commission (GIM-IC), the Recombinant DNA Safety – European Science Foundation, and the International Commission for Environmental and Applied Microbiology (ICEAM). She was also a member of numerous national and international scientific societies including the Society for General Microbiology (UK), the American Society for Microbiology, and the European Environmental Mutagen Society.

Marija Alačević approached all her endeavors with passion and determination, especially the education of young scientists. She was an excellent teacher of undergraduate and graduate courses in biology, microbial genetics, genetic engineering, and genetics of eukaryotic microorganisms, and encouraged her students to attend scientific conferences and to train in reputable laboratories at home or abroad. In spite of limited funding, she always found a way, often through collaboration with industry, to obtain fellowships or travel expenses for her students. She mentored generations of graduate students and functioned as an adviser for more than forty masters' and doctoral theses. Many of her students continue their careers in laboratories throughout the world.

Inspired by institutions such as the Cold Spring Harbor Laboratory in New York, USA, Marija dreamed of establishing an international institute for Molecular Biology and Genetics in Croatia that would offer academic freedom and training for young interdisciplinary scientists. Although she formally retired from her position at the Faculty of Food Technology and Biotechnology in 1994, as *professor emeritus* she remained actively involved in the planning and genesis of the Mediterranean Institute for Life Sciences (MedILS), which was co-founded with Professor Miroslav Radman (a Croatian native, and longtime colleague and friend) and opened in 2004 in a strikingly beautiful location in Split, on the Adriatic coast.

Professor Marija Alačević was an excellent mentor, a colleague, and more importantly, a good friend. She was intellectually demanding, yet open-minded, and always ready to challenge preconceived ideas. Although she held strong opinions, she was also willing to listen and to lend a hand to friends, students and colleagues. She is survived by a daughter, son-in-law, grandson, sister, niece, nephew, and an extended family of friends and colleagues around the world.

*Jasna Franekić  
Zdenka Matijašević  
Jasenka Pigac*