

IN MEMORIAM

## Maria Sergeevna Rautian (1952–2023)

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**Fig. 1.** Maria Sergeevna Rautian (1952–2023).

On August 31, 2023 Doctor of Sciences, PhD Maria S. Rautian, a remarkable Russian protistologist and geneticist, passed away in Moscow after serious illness at the age of 71. We lost a wonderful scientist – an enthusiastic experimental researcher who was keen on her work and able of analyzing deeply various aspects of protistan biology (Fig. 1).

Maria Rautian was born on January 2, 1952 in Moscow, and grew up in the family of scientists with deep Russian-Swedish and Russian-Finnish roots. Her father, Professor Dr. Sergei G. Rautian was a prominent physicist, since 1979 – a corresponding member of the Academy of Sciences of the USSR (later in 1991 – corresponding member of the Russian Academy of Sciences), and her grandfather Dr. Sc. Gleb N. Rautian and grandmother Dr. Sc. Lidiya I. Demkina were renowned optic technologists. Maria's mother Iya N. Nyberg was a daughter of a famous mathematician, physicists and biophysicists Prof. Dr. Nikolay D. Nyberg. We can confidently say that Maria was immersed in an inspiring and creative scientific atmosphere since her childhood, a milieu that would accompany her throughout her entire life.

During the years at the Physics and Mathematics Lyceum of Novosibirsk State University, Maria studied genetics in the laboratory of Professor Raisa L. Berg at the Institute of Cytology and Genetics, Acad. Sci. USSR. After graduating from the Lyceum, Maria entered the Faculty of Biology and Soil Science of Leningrad (now St. Petersburg) State University, where she learned from the outstanding professors and researchers of that era: Yury I. Poljansky, Boris V. Gromov, Alexey A. Zavarzin, Sergey G. Inge-Vechtomov, Viktor G. Smirnov. After graduating from the Department of Genetics and Selection, Maria Rautian worked as a junior, then senior and leading scientist at the Institute of Biology of the St. Petersburg State University



Fig. 2. Dr. Maria Rautian is sampling at Loch Ness, Scotland (2012).

where she went through her entire academic career. Starting the research at the Laboratory of Invertebrate Zoology (head – Professor Dr. Lev N. Seravin), she continued her studies at the Laboratory of Karyology of Unicellular Organisms under the supervision of Professor Dr. Dmitry V. Ossipov who later became her close colleague and coauthor. In 1984, Maria successfully defended the PhD Thesis, and in 2002 – the Doctoral dissertation and became a Doctor of Biological Sciences.

From the very beginning, Maria's fascination lay in the intricate genetic relationships between ciliated protozoa and prokaryotic organisms. She swiftly recognized the paramount significance and promising prospects within this realm of biology. She obtained her most outstanding scientific results on genetics of symbiotic interactions between various *Paramecium* species and intracellular bacteria and algae. She comprehensively characterized and described symbiotic bacteria of the genus *Holospora*, delving into the genetic and molecular mechanisms of their interaction with hosts. Maria devoted substantial time and effort to expanding the collection of living paramecia and their symbionts initially established by Prof. Ossipov. She organized and took part in many expeditions to the remote regions of Russia and beyond, meticulously collecting samples, examining them in field conditions, and adhering to complex procedures to transport them safely to the laboratory (Fig. 2). The collection is now an

important resource within the Centre for Culture Collection of Microorganisms at the St. Petersburg State University.

Maria's intellectual curiosity wasn't confined to this niche of symbiotic lifestyle and microbiology. She broadened her interests to encompass various facets of cell and molecular biology in unicellular organisms. Being inventive and technically skilled, she helped to develop various technical solutions to facilitate this rather new approach at that time.

Since the 1990s, Maria actively fostered close and fruitful collaborations with international colleagues. She participated in numerous joint projects with laboratories in Germany (Prof. Hans-Dieter Görtz), Japan (Prof. Masahiro Fujishima), and Poland (Prof. Ewa Przyboś), presenting her ideas and contributing to the publication of a substantial body of work. During those years, Maria made several respectable discoveries in the field of intraspecific differentiation of ciliates with description of new stands of the *Paramecium* species.

As a result of her impressive research, M.S. Rautian authored or co-authored over 80 research papers of lasting value, including several invited review articles in the prestigious international editions.

Over about five decades, Maria was active in her research as well as in teaching. For many years, Dr. Rautian was lecturing and supervising students at the St. Petersburg State University. She was a



**Fig. 3.** At the International conference “Chromosome 2009” (Novosibirsk, Russia). From left to right: A. Belyavskaya, Dr. M.S. Rautian, academician Dr. N.N. Pokrovsky, a historian N.D. Zol’nikova.

skilled professor, tutor and adviser who helped young researchers taking their first steps in science. M.S. Rautian was also an active member of the Protozoological Society RAS and a highly welcome guest lecturer at numerous conferences all over the world (Fig. 3).

Maria was rather ambitious and strongly confident in her own judgement. Albeit being deeply involved in the research experimentation, Dr. Rautian also managed to carve out time for other pursuits. Her many friends treasured her affinity for music, interest to sports, and traveling.

The last year of her life proved Maria’s remarkable strength and courage. When the serious illness locked her inside her apartment, she still retained the willingness to work and interest to communicate via the Internet, kept reading the newly published scientific articles and books.

Maria is survived by her husband, Prof. Dr. Alexander V. Rodionov, her daughters Anastasia and Sofia, five grandchildren and a great-grandson. Those who knew Maria personally will remember her as an open-minded and social person. This obituary would not be complete without acknowledging the profound influence Maria had on students, colleagues, and friends. Beyond being a brilliant scientist, she embodied qualities of kindness, patience, respect, and commitment to principles. Dr. Rautian was a true mentor, instilling a

lifelong curiosity and love for learning. She cultivated integrity and emphasized the importance of critical and conceptual thinking. Social gatherings in Maria and Alexander’s house were always open for everybody and brimming with laughter, stories, and engaging discussions ranging from biology, genealogy, arts, music, and travel to politics and philosophy. It is clear that Maria Rautian has left a legacy in science and a lasting memory for us all who had the privilege of knowing her personally or through her scientific publications. We will all miss her greatly!

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