

A Tribute to Lars Ernster

Lars Ernster passed away in the night of November 4, 1998, in his home in Stockholm, Sweden. Lasse (for his friends) was born in Budapest, Hungary, on May 4, 1920.

During World War II Per Ange, Raoul Wallenberg's closest partner and friend, a young diplomat of the Swedish legation in Berlin and Budapest, issued Swedish provisional passports for threatened Jews in Budapest in the effort to save Hungarian Jews from the Nazi holocaust. In 1945, through this action, Lasse and his wife Edit, immigrated to Sweden. Edit, a proficient violinist, became concertmaster of the Stockholm Opera Orchestra and Lasse, an extraordinary scientist, arrived at the highest levels of research achievement.

Lasse received his doctoral degree in 1956 at the University of Stockholm. At only 37 years he was appointed Head of the Department of Physiological Chemistry at the Wenner-Gren Institute for Experimental Biology. In 1967 he moved to the Department of Biochemistry of the University of Stockholm as Professor and Chairman from where he retired in 1986. In the following years his research contributions continued at the highest level, hosted as well by a number of institutions: The Rockefeller Institute, the Johnson Research Foundation, the Israel Institute of Technology, the Biozentrum of Basel, the University of California both in Berkeley and in Los Angeles, and the University of Buenos Aires.



Professor Lars Ernster, with his wife Edit, at a meeting in 1993.

The centre of gravity of the interests of Lasse was Bioenergetics, which he developed with a number of students who today occupy leading positions throughout the world.

As Secretary of the Swedish National Committee for Biochemistry of the Royal Swedish Academy of Sciences (1969–1984), Member of the Swedish Medical Research Council (1971–1980), Member of the Nobel Committee for Chemistry of the Royal Swedish Academy of Sciences (1977–1988) and a member of the Board of Trustees of the Nobel Foundation (1990–1991) he gave large and important contributions to the science administration in Sweden. Equally famous in the international scene, he has been President of the International Cell Research Organisation (ICRO), Secretary-General of the International Council of Scientific Unions (ICSU), President of the International Life Sciences Institute (ILSI), Foreign Member of eleven National Academies and Doctor *honoris causa* from five Universities. Lars Ernster was author of about 600 publications in the fields of biochemistry and cell biology including bioenergetics, mitochondrial metabolism and diseases, membrane biochemistry, free radicals and antioxidants.

We and all the scientists around the globe mourn the loss, and our heartfelt sympathy goes to Edit Ernster, his wife, who was always present and taking part in the scientific activities.

As a tribute of respect and admiration for Lasse some quotations transcribed below are aimed to describe Lars Ernster as seen from colleagues.

“Lars Ernster was a man of small physical stature but those who knew him recognised him as a giant in his field. Lars Ernster was a forefather of modern biochemistry and molecular biology. He made monumental contributions in the heyday of the expansion of modern biochemistry, commencing in the 1960s”.

“I first met Lars in the 1950s, when the fields of mitochondrial bioenergetics and photosynthesis were rising up to conquer the mysteries of

biological energy transformation. He appeared on my scene by a visit to the Johnson Research Foundation (Britton Chance’s laboratory). The impression I formed during that visit of his keen, intense interest in biological energy conversion problems, mechanisms of electron transport, and mitochondriology, was only strengthened during the following decades of our association. His frequent winter visits to California led him to cultivate strong friendships.”

“In 1961 he organised a conference at the Wenner-Gren Institute, Stockholm, that gathered the leaders from Europe, America and Japan in the emerging field of bioenergetics. This conference was typical of Lars: its friendly and co-operative yet challenging tone set the stage for tackling the then-unsolved problems in the field of bioenergetics. Relationships were formed between the key laboratories that endured for years, and that would later lead to triumphs in the understanding of biological energy conversion mechanisms.”

“The Bari conferences on bioenergetics are a prime example, where major laboratories in bioenergetics gathered each year to discuss their progress. Similarly, the yearly Gordon research conferences on Energy Coupling Mechanisms were another forum for his activities. Attendance at conferences was characterised by several habits. He chose to take a seat in the first or second row, and was present throughout the entire conference—he neither arrived late nor left early. This courtesy coupled with enthusiasm and a genuine respect for his colleagues was typical of Lars. His active quest for new knowledge and understanding led him to ask insightful questions, sparking vigorous and exciting discussions.”

“One mark of a person is always the strength of the relationships that he/she forms with those around them. Lars Ernster had friends all over the world, and a loyal international following.

Many people who literally loved Lars Ernster were dedicated to collaborating or working with him throughout his life. Even on his last day he was planning new experiments with his long-time colleague C.P. Lee."

"People often attended conferences knowing that Lars would be there to be with him both for science and friendship."

"As a speaker at major conferences his presentations were characterised both by the importance of his work and by the enthusiasm that he brought to research. Lars was a brilliant and articulate person. Such a combination of intellectual mastery and genuine personal warmth is rare in any field. Lars Ernster left behind a generation of admirers who will sorely miss him."

"Scientific curiosity: never was he seen at scientific meetings without fully active participation, and this translated in his ability to identify genuinely novel observations. For instance he was the first to treat animals with lycopene, an area that lay dormant for decades after his initial observation in 1958 until very recently. Lasse was an exceptionally productive scientific mind, opening goldmines for future work for himself and his associates as well as very generously to other scientists he was so able to stimulate."

"Once I met Lars Ernster in a meeting in Turkey, he was chairing my session. I addressed to him as to my scientific "grandfather" being the scientific father of Licio Azzone my supervisor. He was genuinely amused and every time I met him since he was addressing to me as 'grandson'".

"In the Wenner Gren Institute Lars Ernster was, in the mid sixties, very active in the study of the mechanism of oxidative phosphorylation. It was together with Olov Lindberg in those days that Lars Ernster was isolating enzymes by using an unusually large centrifuge in the base-

ment of the Institute. It was the time when enzymes could not be ordered by phone and arrive at the lab within one or two days. They had to be prepared."

"He was touching on the field of drug metabolising enzymes with success together with Sten Orrenius. But the studies on the mechanism of energy conservation in mitochondria remained central in his career. In the late sixties, Lars Ernster collaborated with C.P. Lee on this subject and a number of important papers were produced. The energy linked nicotinamide adenine dinucleotide transhydrogenase has been an important subject where Lars Ernster was responsible for a scientific breakthrough."

"The microsomal membranes have attracted Lars Ernster as well. Their composition, their function have been studied in detail together with Gustav Dallner, who remained close to him until the very last days. And then one should mention names like Lech Wojtczak and Anna Wojtczak that also have been associated with Lars Ernster and Rydström. Kerstin Nordenbrand has been a faithful collaborator of Lars Ernster since the early seventies and together with her a number of important discoveries have been made."

"In that time through fluorescence probes, some of the structural properties of different membranes had become analysable. It was for me a very stimulating experience to study the microsomes with Gustav Dallner and Lars Ernster, using this technique and to contribute a paper together"

"In the studies of the mitochondrial respiratory chain Lars Ernster was in particular interested in the flavoproteins and has contributed together with Britton Chance to a number of studies in this field. A paper in the Proceedings of the National Academy of Sciences of 1967 authored by Britton Chance, Lars Ernster, Peter Garland, C.P. Lee, Ann Light, Tomoko Ohnishi, Ian Ragan and David

Wong represents an association of talents and human beings that is hard to forget."

"In the eighties Lars continued his studies on mitochondria. The number and spread of collaborations gives an idea of his intellectual and human power: Gomez Puyou (Mexico), Yuri Ovchinnikov (USSR) Gabriella Sandri and Fulvio

Ursini (Italy), Lazlo Kovac (Czechoslovakia), Enrique Cadenas (USA), and many others."

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Helmut Sies and Jose Viña
*For the Society for Free Radical Research
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