

MEDICAL PHILATELY

Ulf Von Euler and Catecholamine Physiology

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Ulf Von Euler- Nobel Prize 1970.
Noradrenalin at the nerve terminal and its mechanism stamp, Sweden 1984

Ulf Von Euler (1905-1983) was born in Stockholm. His life seemed to be destined for a scientific career. His father Hans Euler received a Nobel Prize in chemistry (1929) for his work on enzymes. His mother Astrid Cleve, daughter of notable chemist P T Cleve was a scientist in her own right, a PhD. botanist known for her studies in Fossils Diatomaceae. Great **Svante Arrhenius** was his godfather.

Ulf Euler entered Karolinska Institute as a medical student in 1922. After a period of study under Robin Fahraues (a pioneer in blood sedimentation and rheology), Von Euler began some research work on his own, on study of blood and vessels in fever. From 1926 he worked as assistant in G. Liljestrand's Department of Pharmacology; work with Liljestrand led to the discovery which was named Euler-Liljestrand mechanism (a physiological arterial shunt in response to lung hypoxia). He also produced his thesis in 1930 and was appointed as Assistant Professor in Pharmacology in the same year. Von Euler had a good fortune of obtaining Rockefeller Fellowship for studies abroad. This was a period of



2nd Pharmacology conference,
Prague-1963 stamp-Czechoslovakia, 1963

diversified studies in Physiology and Pharmacology which provided an invaluable basis for further research. He had unerring instinct to work with important scientific leaders. Euler's short stay as a student under **Sir Henry Dale** in 1931 was the most fruitful. Along with Gaddum he discovered active, important biological factor he called substance P, from extract of animal gut. Substance P caused non-cholinergic contraction of isolated rabbit's jejunum, despite atropine blockade. Soon after his return home, Euler turned in that direction and led to the finding of prostaglandin from semen (1931), a Substance P which became the first, in long and steadily increasing series of neuropeptides. Prostaglandin opened further new areas of research.

Otto Loewi had found adrenalin to be the transmitter in sympathetic supply to frog heart (1921). Euler's discovery gradually made evident, that it is non-methylated homologue of adrenalin-noradrenalin, which served the equivalent function in sympathetic nerve system. With major discovery of isolation and identification of noradrenalin in sympathetic ganglia

and nerve fibers (1946), he achieved an international reputation, as a pioneer in catecholamine physiology. Subsequent development in this rapidly expanding field was greatly facilitated by Falck and Hillarp's fluorescence method of demonstrating noradrenalin in different tissues (1959). Holt opened a clinically important approach in 1944, by discovering noradrenalin excretion in urine. Euler in collaboration with Hillarp researched a highly significant discovery that noradrenalin is stored as granules in subcellular particles along sympathetic nerves, which could be visualized by using fluorescent technique. Nobel Prize in Physiology or Medicine was awarded to him in 1970 together with Julius Axelrod and Bernard Katz "*for their discoveries concerning humoral transmitters in the nerve terminals and mechanism for their storage, release and inactivation*"

Von Euler was promoted as Professor of Physiology at Karolinska Institute, a post which he held until 1971. From 1961 to 1965 he was Secretary of the Nobel Committee for Physiology or Medicine and was appointed Chairman of the Board of the Nobel Foundation (1965). Von Euler's specific interest in isolating and testing substances from body fluids and tissues sustained throughout his life. The work suited his liking with his basic elements of technical skills, great care, perseverance and industry.

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