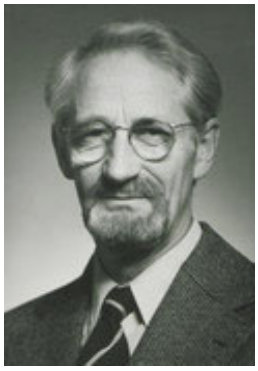
Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Jens Christian Skou



Name: **Jens Christian Skou**
Life dates: **8 October 1918 - 28 May 2018**

Research Priorities: biophysics, sodium-potassium pump, sodium-potassium ATPase (Na+/K+-ATPase), adenosine triphosphate (ATP), enzyme mechanisms

Jens Christian Skou is a Danish biophysicist. In 1997, he received the shared Nobel Prize in Chemistry for the discovery of the "sodium-potassium pump", together with John Ernest Walker and Paul Delos Boye. All three scientists worked on the molecule adenosine triphosphate (ATP), the most important energy carrier within cells.

Academic and Professional Career

1978 - 1988	Professor, Department of Biophysics, Aarhus University, Aarhus, Denmark
1963 - 1978	Professor, Department of Physiology, Aarhus University, Aarhus, Denmark
1954 - 1963	Associate Professor, Department of Physiology, Aarhus University, Aarhus, Denmark
1954	Physician, Orthopaedic Hospital, Aarhus, Denmark
1947 - 1954	Assistant Professor, Department of Physiology, Aarhus University, Aarhus, Denmark
1944 - 1947	Clinical training, Hjørring Hospital, Orthopaedic Hospital, Aarhus, Denmark
1944	MD, University of Copenhagen (UCPH), Copenhagen, Denmark
1937	Student, Haslev, Denmark

Honours and Awarded Memberships

1997	Nobel Prize in Chemistry (shared with John Ernest Walker and Paul Delos Boye), Royal Swedish Academy of Sciences, Sweden

1985	Honorary Doctorate, University of Copenhagen, Copenhagen, Denmark
1985	Nordic Prize, Eric K. Fernström Foundation, Lund, Sweden
1977	Anders Retzius Medal, Swedish Society for Anthropology and Geography (SSAG), Sweden
since 1977	Member, German Academy of Sciences Leopoldina, Germany
1973	General Consul Ernst Carlsens Foundations Prize, University of Copenhagen, Copenhagen, Denmark
1954	LEO Award, LEO Pharma Research Foundation, Copenhagen, Denmark
1965	Novo Nordisk Prize, Novo Nordisk Foundation, Hellerup, Denmark
	Member, Royal Danish Academy of Sciences and Letters (KDVS), Denmark
	Member, European Molecular Biology Organization (EMBO), Heidelberg, Germany
	Foreign Member, National Academy of Sciences (NAS), USA
	Honorary Member, Japanese Biochemical Society (JBS), Japan
	Honorary Member, American Physiological Society, USA
	Member, Academia Europaea

Research Priorities

Jens Christian Skou was a Danish biophysicist. In 1997, he received the shared Nobel Prize in Chemistry for the discovery of the “sodium-potassium pump”, together with John Ernest Walker and Paul Delos Boye. All three scientists worked on the molecule adenosine triphosphate (ATP), the most important energy carrier within cells.

Jens Christina Skou's primary research was on the breakdown of ATP. He discovered the transport enzyme sodium-potassium-ATPase (Na+/K+-ATPase), which transports substances through the cell membrane and uses up ATP in the process. There is a concentration gradient between the cell interior and the exterior, which is necessary for many processes in the cell. However, sodium ions are constantly diffusing into the cell interior, which would lead to a voltage balance between the cell interior and the exterior in the long run. However, if the voltage between the inside and the outside were the same, the transmission of an electrical stimulus would be impossible. The sodium-potassium pump maintains the concentration gradient between the inside and the outside. The enzyme (Na+/K+-ATPase) enables the transport of three positively charged sodium ions out of the cell and two positively charged potassium ions into the cell, thus ensuring the differential distribution. ATP is broken down into adenosine diphosphate (ADP) and phosphate in this process.

Jens Christian Skou isolated the enzyme from the nerve cell membranes of crustaceans. With his research, he clarified the basics of this enzyme mechanism. The mechanism is important for

maintaining cell volume and plays a role in controlling the heartbeat. Defects of the sodium-potassium pump could be a possible cause of epilepsy.