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Bror Erik Strandberg (1930–2018)

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Bror Strandberg was born 8 September 1930 and died 17 March 2018.

The year after finishing senior high school in 1949 in Borås, Sweden he continued his studies at Uppsala University, receiving his masters degree in 1955. Apart from a period in Cambridge, England, his formal training and professional life were based at Uppsala University, where his licentiate (*fil. lic.*) was awarded in 1961 and his doctoral degree in 1968. Bror obtained the title of docent the same year, became an associate professor in 1972 and a full professor of molecular biology in 1980, all at Uppsala University.

After his initial training in crystallography of organometallic compounds, led by Ingvar Lindqvist, Bror interrupted his PhD studies in 1958 to join the protein crystallography efforts led by Max Perutz and John Kendrew in Cambridge. There he contributed to determining the structure of myoglobin. In 1959 the team calculated an electron-density map at 2 Å resolution. This was the first atomic resolution protein structure. It showed several α-helices, each in the conformation predicted by Linus Pauling. The heme group with its iron and metal ligands was another prominent feature. Perutz, working on haemoglobin, and Kendrew were awarded the Nobel Prize in chemistry in 1962 for their successful efforts. The combined results on myoglobin and haemoglobin were the first evidence of biological evolution at a molecular level.

Returning in 1960 to the Department of Inorganic Chemistry in Uppsala led by Gunnar Hägg, Bror initiated protein crystallography in Sweden. Together with Bo Malmström he identified the protein carbonic anhydrase from human erythrocytes as a suitable project. Bror assembled a group and the resources necessary. A 5.5 Å structure was published in 1965, and a 2 Å structure was completed in 1970 and published in various forms between 1971 and 1972. This was the first Swedish protein structure. In contrast to the α-helical structures of haemoglobin and myoglobin, carbonic anhydrase was dominated by a ten-stranded β-structure that formed the basis for binding the zinc ion at the active site of the enzyme.

During the 1960s Bror was already aiming for more challenging projects. Viruses would be highly interesting structures with their icosahedrally symmetric protein shells enclosing the nucleic acid. A small virus called Satellite Tobacco Necrosis Virus (STNV) was crystallized in 1965, beginning an effort that led to a high-resolution structure in 1982. STNV is the smallest type of icosahedral virus with only 60 subunits in identical positions in the icosahedral protein shell. Bror's group continued with the investigation of other viruses and studies of inhibitors to viral enzymes. A natural step forward was to make use of viral structures for the design of specific drugs. Bror took the initiative to engage the group in the design of anti-AIDS drugs. HIV was the natural target, and specifically the essential enzymes HIV protease and HIV reverse transcriptase. In collaboration with the drug industry, a large number of complexes of drugs bound to the two enzymes were studied in order to enable structure-based drug design.

In 1972, Bror's accomplishments were recognized by the award of the King Oscar prize of Uppsala University, and in 1975 by the presentation of the Arrhenius Plaque by the Swedish Chemical Society.

Bror's enthusiastic character meant that he remained scientifically active long after his retirement. Among other things he made efforts to understand how atmospheric carbon dioxide could be enzymatically converted to less problematic compounds.