



May 5, 2021

Dear Colleagues,

It is with deep sorrow that we receive the news about the untimely death of Prof. Dan S. Tawfik of the Weizmann Institute of Science, who died yesterday in a tragic climbing accident in Croatia. Details about his funeral will be announced in due course.

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Prof. Dan S. Tawfik (1955 – 2021)

Dan S. Tawfik was born in 1955, served in the IDF, and was the deputy commander of a reserve battalion. He worked for the family construction company before pursuing academic education. He received his B.Sc. (1988) in chemistry and biochemistry and M.Sc. (1990) in biotechnology from the Hebrew University of Jerusalem. In 1995 he obtained his Ph.D. from the Weizmann Institute under Prof. Zelig Eshhar. Following two years of postdoctoral research at the University of Cambridge and the MRC Protein Engineering Center, he became a senior research fellow at the Sydney Sussex College and the MRC. In 2001 he joined the Weizmann Institute of Science. Tawfik won the Weizmann Prize for Research in Exact Sciences (2007), the Eli Horowitz Prize (2013), and the biochemistry EMT Prize (2020) "for his contribution to understanding the relationship between the structure and function of proteins and their evolutionary development, and for the development of systems for intentional evolution in artificial cells." Prof. Tawfik served as the Vice Chair of the Weizmann Institute Scientific Council.

The Tawfik group investigates the structure, mechanism, and evolution of enzymes, protein archaeology, and synthetic biology. They use the power of evolution to create new enzymes and combine these enzymes to make new metabolic systems. They study enzyme evolution at the molecular level. They showed that new protein functions could evolve within years or even months, as happens with drug resistance and with enzymes that degrade man-made chemicals. They demonstrated protein evolution in the laboratory in real-time, implementing the principles of Darwinian evolution to individual genes and enzymes. In doing so, they obtained crucial insights regarding the evolutionary intermediates and the routes and mechanisms that led to the highly proficient enzymes known to us today.

Tawfik's scientific approach was interdisciplinary, combining bioinformatics and molecular evolution, molecular and structural biology, biochemistry, and organic chemistry. The enzymes he studied originate from bacteria, humans, plants, and marine organisms, and their functions vary - hydrolases, dehydrogenases, methyltransferases, lyases, and isomerases. Their time of emergence ranges from several decades to ~3.7 billion years ago (the first protein enzymes). Knowledge derived from the reconstruction of past evolutionary events enabled him to engineer new enzymes with tailor-made properties for various applications, such as nerve agent detoxification and improved crop yields.

The ICS and the global chemistry community mourn the untimely loss of a great scientist.

Ehud Keinan