

## Ilan Samish – Biography

Dr. Ilan Samish is the Founder & CEO of Amai Proteins, a company established in 2016 to produce designer proteins via biotechnology. The AI Computational Protein Design (AI-CPD) platform first product is sweelin<sup>®</sup>, a serendipity berry sweet protein that enables 40-70% sugar reduction without compromising taste, health, cost and sustainability. A double-blind random clinical trial demonstrated that sweelin<sup>®</sup> has no effect on blood sugar and insulin levels. Amai was perceived after Dr. Samish published in 2017 what became the leading book in the field of CPD with over 85k downloads

Prior to opening Amai, Dr. Samish had an academic career as a researcher and a lecturer. He contributed to biophysical and biochemical understanding of specific proteins and the proteome as whole and developed CPD methods. His multidisciplinary approach combines wet-lab experiments with theoretical research. Within this frame, he is known for founding and co-chairing what became the leading meeting in the field of structural computational biology (3Dsig) of the annual computational biology conference (ISMB). As part of his interest in sweet science, Dr. Samish co-founded along with **Prof. Masha Niv** (Hebrew University) the Israeli Academia-Industry Forum for Sweet Science.

Dr. Samish was a at the Biotechnology Engineering Dept. of the Braude College of Engineering and a consultant at the Weizmann Institute researching photosynthesis and membrane proteins and their adaptation to different ecological niches. He worked with **Dr. Arie Marcovich** (Kaplan hospital & Weizmann Institute), on *ex vivo* and *in vivo* rabbit-eye surgeries for corneal collagen crosslinking. For a summary of his research: <https://www.youtube.com/watch?v=8M0iwrNWbQs>

As a lecturer, Dr. Samish taught Biology, Chemistry and Computer Science at the Weizmann Institute, Hebrew University, Open University, Braude College and Tel-Aviv-Jaffa Academic College. His courses include: bioinformatics, structural bioinformatics, structural biochemistry, biotechnology information science, genetics, biochemistry (metabolism & enzymology), biochemistry labs, protein separation lab, physical chemistry (thermodynamics & kinetics), and scientific writing. In addition, he supervised numerous projects in Biotechnology Engineering and in Software Engineering.

Dr. Samish gained his know-how in CPD during his postdoctoral studies at the U. of Pennsylvania (UPenn) focusing on membrane protein CPD in the labs of **Prof. Jeffery Saven** (School of Chemistry) and **Prof. William (Bill) DeGrado** (School of Medicine) who established the field of protein design. As an EMBO and HFSP fellow, Dr. Samish built an algorithm for computational protein design of membrane proteins leading to the first *de novo* designed membrane transporter. In addition, he studied the M2 proton channel of influenza, collaborated with **Prof. James Bowie** (UCLA) on predicting protein helical kinks, and wrote book chapters in the leading book on structural bioinformatics and the most cited review on CPD.

Dr. Samish received his PhD from the Weizmann Institute where he deciphered structure-function relationships of membrane proteins for which he received the top international student award of the International Society for Computational Biology. Further, he studied the mechanism of photosynthesis resulting in a *Nature* publication and a patent regarding protein stability required for biofuels. The research was supervised by **Prof. Avigdor Scherz** (Plant and Environmental Sciences Dept.) with an active graduate committee of **Prof. Marvin Edelman** (same Dept.) and **Prof. Joel Sussman** (Dept. of Structural Biology, Faculty of Chemistry). During his studies he visited **Prof. Wolfgang Haehnel** (Freiburg U., Germany) for several months to conduct chemical synthesis of chlorophyll-containing peptide assemblies.

Dr. Samish studied at Israel's leading undergraduate program, The Adi Lautman Interdisciplinary Program for Outstanding Students of the Tel-Aviv University Supervised by **Prof. Shmuel Carmeli** (Dept. of Organic Physical Chemistry) and **Prof. Eugene Rosenberg** (Dept. of Molecular Microbiology and Biotechnology) he had a 3-year project deciphering the mechanism of a novel antibiotic.

Dr. Samish was a popular science lecturer and journalist. He founded the 'Frontiers in Science Meetings' at the Davidson Institute of Science Education (part of the Weizmann Institute). He gave courses on computational biology, the human love machine, psychobiology and more. He regularly wrote and was interviewed in the local media: Ynet, NRG, Yisrael Hayom, Ha'aretz, Galei Tzahal, Reshet Bet, Channel 10 and has a blog on healthy science. He is an active leader in the 2023 democracy protest as part of the High-tech Protest and the Brothers & Sisters of Arms. Dr. Samish is a father of 3 kids and an amateur flamenco dancer.