Svetlana Mojsov, Ph.D.

RESEARCH ASSOCIATE PROFESSOR

A biochemist whose work has translated into widely used treatments for diabetes and weight loss, Mojsov's long-standing interests are in understanding how peptides and small proteins regulate physiological processes in healthy and disease states. She applied her expertise in the chemical synthesis of peptides in numerous lines of research, including studies which led to her discovery of glucagon-like peptide 1 (GLP-1), an incretin hormone produced by gut tissue that plays a key role in insulin secretion and glucose metabolism.

Mojsov is listed as co-inventor on a series of patents for the use of GLP-1 for treatment of diabetes that were licensed to the pharmaceutical company Novo Nordisk. This work was later used to develop a new class of therapeutic medicines for treatment of Type 2 diabetes that are marketed under the trade names Victoza, Ozempic and Rybelsus. Victoza and Ozempic, approved for weight loss under trade names Saxenda and Wegovy, respectively, are now used by millions of individuals with Type 2 diabetes and obesity to control their glucose levels or lose weight.

Mojsov has launched additional studies of the function of GLP-1 in fish glucose metabolism, which is controlled by different regulatory networks than in mammals. During evolution, teleost fish underwent a whole genome duplication that gave rise to duplicated genes, including two glucagon genes that encode two preproglucagon proteins, one expressed in the intestines and a second one in the pancreatic islets. In fish, insulin is not a glucoregulatory hormone and GLP-1 is not an incretin. Instead, GLP-1 regulates glucose metabolism through its actions in the liver by a mechanism similar to glucagon. Like in mammals, GLP-1 is released in the brain and controls the feeding behavior of fish. Mojsov, in collaboration with Deena Oren from the Structural Biology Center at The Rockefeller University, has shown through analysis of existing three-dimensional structures that the biological effects of GLP-1 in fish are not transmitted by binding to a GLP-1 specific receptor, but instead through a receptor with dual ligand selectivity towards glucagon and GLP-1. It is the first and only example so far of a vertebrate G-protein coupled receptor (GPCR) with dual ligand specificity towards GLP-1 and glucagon.

EDUCATION

B.S. in physical chemistry, 1971
Belgrade University

Ph.D. in biochemistry, 1978
The Rockefeller University

POSTDOC

The Rockefeller University, 1978–1981

POSITIONS

Research Associate, 1981–1983
The Rockefeller University

Member, Endocrine Unit, 1983–1990
Assistant in Biochemistry, 1983–1990
Director of the HHMI/Massachusetts General Hospital Core Facility, 1983–1990
Massachusetts General Hospital

Instructor in Medicine, 1983–1990
Harvard Medical School

Associate, 1983–1990
Howard Hughes Medical Institute

Assistant Professor, 1990–2002
Research Associate Professor, 2002–
The Rockefeller University

AWARDS

Vinfuture Prize for Innovation, 2023

Nature's 10, 2023

Pearl Meister Greengard Prize, The Rockefeller University, 2024

The 100 Most Influential People, Time Magazine, 2024

The 100 Most Influential People in Health, Time Magazine, 2024

Tang Prize, 2024

Princess of Asturias Award, 2024

Lasker-DeBakey Clinical Medical Research Award, 2024

The Warren Triennial Prize, Massachusetts General Hospital, 2025

SELECTED PUBLICATIONS

Irwin, D.M. and Mojsov, S. Diversification of the functions of proglucagon and glucagon receptor genes in fish. *Gen. Comp. Endocrinol.* 261, 148–165 (2018).

Oren, D.A. et al. Structural Mapping and Functional Characterization of Zebrafish Class B G- Protein Coupled Receptor (GPCR) with Dual Ligand Selectivity towards GLP-1 and Glucagon. *PLoS One* 11, e0167718 (2016).

Nathan, D.M. et al. Insulinotropic actions of glucagon-like peptide-I (7-37) administered to diabetic and non-diabetic human subjects. *Diabetes Care.* 15, 270–276 (1992).

Mojsov, S. et al. Insulinotropin: glucagon-like peptide I (7-37) co-encoded in the glucagon gene is a potent stimulator of insulin release in the perfused rat pancreas. *J. Clin. Investig.* 79, 616–619 (1987).

Mojsov, S. et al. Preproglucagon gene expression in pancreas and intestine diversifies at the level of post-translational processing. *J. Biol. Chem.* 261, 11880–11889 (1986).