

BIOGRAPHICAL SKETCH

Rachel Lichtenstein is a senior lecturer in the Department of Biotechnology Engineering at Ben-Gurion University and a member in the Regenerative Medicine and Stem Cell (RMSC) Research Center at Ben-Gurion University.

She received her BSc, MSc and PhD at Ben-Gurion University. She graduated her MSc Cum Laude and her PhD Magna Cum Laude. She worked for 3 years in the biotech industry; there she trained in the Glycobiology field.

Lichtenstein's research goal is to understand the roles of glycans and glycan binding proteins and lipids that mediate cellular processes central to immune regulation in human disease and development. She has expertise in methods of glycan (sugar) analysis, biochemistry and cell biology. During her work at Ben-Gurion University, her research focused on identifying glyco-molecules by analytical chemistry methods and mass spectrometry to find unique biomarkers in fluids collected from patients with different diseases. She has developed these systems in study of amyotrophic lateral sclerosis (ALS), tumors and embryonic/pluripotent stem cells (ESCs/PSCs). In basic research done on tumors, human ESCs and later on ALS, she has found roles for end sugar residues (like, sialic acids, and alpha-fucosyl groups) in tumor immunoediting, in hESC differentiation into mesoderm and into cardiomyocytes, in glycopeptide that prolongs life expectancy, and physiological abilities of ALS mice. These form a unique set of tools that enable her to study the involvement of adaptive cells in ALS and of glycosphingolipids in cell signaling during stem cell differentiation.