



Rotem Karni, Ph.D.

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Prof. Karni, a native of Israel, is a full professor at the Dept. of Biochemistry and Molecular Biology in the Institute for Medical Research at the Hebrew University Medical School.

He began his academic career at the Hebrew University, where he received both his B.Sc. and PhD degrees. As a Ph.D. student in the Department of Biological Chemistry, Institute of Life Sciences under the mentorship of Prof. Alexander Levitzki, he focused on researching cellular signaling pathways in cancer cells. Then, as a post-doctoral fellow in the laboratory of Prof. Adrian Krainer, CSHL, NY he studied the role of alternative splicing in cancer. In 2008 he joined the Dept. of Biochemistry and Molecular Biology, where he still is today.

Prof. Karni research is focused on the role of RNA processing in cancer. He has published extensively on the oncogenic activities of various alternative splicing factors and their respective targets. Recently Prof. Karni's team discovered that RNA splicing perturbation due to loss of the splicing factor RBFOX2 is the main cause for pancreatic cancer progression and metastasis, described the molecular mechanism and found an approved drug that can block pancreatic cancer metastasis. Based on his studies he is working on developing ways to modulate these alternative splicing events as a cancer therapy. Prof. Karni developed specific splicing factor inhibitors (decoy oligonucleotides) to directly inhibit the activity of specific splicing factors. Prof. Karni's group has designed and tested decoy oligonucleotides which are recognized by specific alternative splicing factors. These decoy molecules also represent a novel approach for targeting cancers in which splicing factors are overexpressed. Another avenue in Prof. Karni's research is to modulate RNA processing in order to force tumor cells to express neoantigens that will engage the immune system to attack the tumor. These research avenues represent an original and targeted approach for cancer therapy. Prof. Karni is also doing research relevant to genetic diseases, such as Duchenne muscular dystrophy and other genetic diseases, where he is applying his knowledge of RNA stability and splicing to search for new therapeutic approaches. Prof. Karni has several patents related to these projects and co-founded three biotech startups developing therapies to genetic diseases and cancer.