Weizmann Lab Web Site: **http://www.weizmann.ac.il/immunology/Lapidot/**

Weizmann Institute of Science

מכון ויצמן למדע

Tsvee Lapidot

Tsvee Lapidot was born and raised in Jerusalem, Israel. He completed his B.A studies at the Hebrew University in 1983 and his MA studies and research at the Weizmann Institute in 1985. He completed his Ph.D studies and research at the Weizmann Institute under the guidance of Prof. Yair Reisner (1985 – 1990) on the topic of stem cell bone marrow transplantation. During his Post Doc. training with Prof. John Dick (1990-1994) in Toronto Canada, he developed functional preclinical models for identification and characterization of normal human blood forming hematopoietic stem cells (HSC) (Science 1992) in transplanted immune deficient mice Tsvee has also identified and characterized for the first time human cancer stem cells. These Leukemia initiating stem cells were obtained from the blood of newly diagnosed Acute Meyloid Leukemia (AML) patients, in transplanted immune deficient mice (Nature 1994). After returning to the Weizmann Institute Tsvee focused his studies on the topics of regulation of both human and murine blood forming stem cell migration and development (both normal and leukemic) and the mechanisms underlying clinical bone marrow transplantation. Over the years Tsvees laboratory at Weizmann made several seminal findings which include regulation of human and murine hematopoietic, blood stem cell homing and engraftment by the CXCR4/CXCL12 axis (Science 1999). Clinical human G-CSF induced stem cell mobilization (Nature Immunology 2002). Bone turnover and osteoclast mediated stem cell mobilization, (Nature Medicine 2006). Direct regulation of human stem cells by the nervous system (Nature Immunology 2007). Mechanism of Connexin gap junction CXCL12 expression by human and by murine bone marrow stromal cells (Nature Immunology 2011). Regulation of murine hematopoietic stem cells by COX-2^{+} bone marrow resident monocytes and macrophages (Nature Immunology 2012). Metabolic regulation of long term repopulating hematopoietic stem cells (LT-HSC) by coagulation factors. Including, regulation of $EPCR^{+}/PAR1^{+}$ LT-HSC BM retention, and protection from chemotherapy insult by control of nitric oxide generation and CDC42 activation (Nature Medicine 2015). More recently, Tsvees lab and collaborators revealed the architecture of the blood bone marrow endothelial barrier for the first time and how it regulates hematopoietic stem cell bone marrow maintenance, migration and development by metabolic control of ROS generation (Nature 2016). In recent years Tsvees lab

research is focused on the topics of hematopoietic, blood forming stem cell regulation, including daily light and darkness cues which regulate both blood and bone forming stem cell migration and development (Cell Stem Cell 2018), mitochondria transfer between transplanted hematopoietic stem cells and stressed host bone marrow stromal cells (Blood 2020) and innate immune cell activation in the bone marrow by bacterial infections (Nature Communications 2020).