

Leukemia is the most common cancer in children. Over the last decades the cure rate of children with leukemia has approached almost 90%. But this cure is with highly toxic chemotherapy. Our overreaching goal is to cure every child with leukemia with less toxic biologically targeted therapy. Towards this goal we conduct research to understand how leukemia is formed and to identify potential targets for novel therapies. We combine multiple advanced research methodologies. These include genomics, gene editing, transgenic mouse models, analysis of primary patients derived specimens in-vitro and in-vivo as xenografts in immunodeficient mice. One of the great advantages of our lab is that it is part of the largest center for treating cancer in children in Israel. This ensure availability of patients biological samples. Another advantage is the close collaborations with international partners in Europe, USA and Australia. One of our major discoveries over the last several years has been a subtype of high-risk childhood (and adult) leukemia that is characterized by mutational activation of the CRLF2/IL7R/TSLP/JAK-STAT pathway¹⁻⁷. These discoveries have led to a clinical trial with targeted therapy in multiple medical centers in the USA. Other important discoveries are on the pathogenesis of central nervous system leukemia and the role of the lipid metabolism in enhancing survival of leukemia cells in the brain (presented at ASH 2018, manuscript submitted). Our current research is focused on functional genomics of childhood leukemia with detailed analysis of the interactions between JAK-STAT and other signaling pathways working on both mouse models and xenotransplant of human leukemia in immunodeficient mice. We have trained over 30 students and postdoctoral fellows and enjoyed several outstanding international researchers. Our lab is located in the campus of Schneider Children's Medical Center of Israel affiliated to Tel Aviv University. Application of outstanding, highly motivated, creative candidates with background in molecular biology/genomics should be sent to sizraeli@gmail.com

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