Project Summary: MondoA in malignancy and signaling of acute lymphoblastic leukemia in vivo

Acute lymphoblastic leukemia (ALL) is a cancer of the white blood cells. It is the most frequent tumor in children younger then 15 years of age, with a peak incidence between 2–5 years of age. Intensification and optimization of chemotherapy regimens have dramatically improved the cure rate. Now it is possible to say that ALL is a curable disease, but the challenge of resistance and treatment failures remains. In addition, toxicity of therapy causes a significant burden of cure. A prerequisite of overcoming both, resistance and toxicity, is the identification of specific targets in ALL cells.

The comparison of gene profiles of healthy lymphoid progenitor cells to leukemia cells has identified a novel signature of genes highly expressed in ALL. One of the most prominent genes among them is MondoA. MondoA is a factor, which has largely uncharacterized effects on glucose metabolism, cellular growth and survival. It is potentially connected to malignancy and mechanisms of leukemic aggressiveness and may thus be an attractive candidate for targeted treatment of ALL.

This project will first clarify the role of MondoA in malignancy and survival of lymphoblastic leukemia cells. It will provide the basis for future therapeutic approaches. These developments may next include both drug and cellular therapies. Our strategic goal focuses on the development of allogeneic MondoA restricted T cells. To this end, it is helpful to clarify the requirement of MondoA for malignancy and aggressiveness of leukemia in vivo.

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CV Dr. Alexandra Sipol

The grant holder is Dr. Alexandra Sipol, employed at Raisa Gorbacheva Memorial Institute of Children's Hematology and Transplantology Saint-Petersburg, Russia, as a medical doctor specialized in clinical laboratory diagnostics.

She was graduated in State Medical I. Pavlov University, Saint-Petersburg, Russia in 2002, then worked in Children's City Hospital #1 at the leukemia department, Saint-Petersburg, as a pediatrician till 2004. In 2004-2007 she attended Postgraduate Studies in Saint-Petersburg State Medical I. Pavlov University, clinical laboratory diagnostics department and received a PhD. The PhD thesis dealt with research on the molecular biology characteristics of patients with acute lymphoblastic leukemia after allogeneic HSCT. Her main scientific interests are in the area of leukemia characteristics and development of novel effective treatment strategies for patient with resistant disease, adoptive cellular therapies, gene therapy and post transplant immunity.

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