

## PROJECT OF MD STUDENT TOBIAS BEXTE RECEIVED GILEAD GRANT IN THE FIELD OF ONCOLOGY

Funding award for the Ullrich research group's project ([CRC 1292 / TP12](#)) on the development of a virus-free *Sleeping Beauty* CAR-NK cell therapy.



At a virtual event on November 18, 2020, pharmaceutical and biotechnology company Gilead Sciences announced the awards of the 2020 Gilead Grant Program. In the field of oncology, the team of Professor Dr. med Evelyn Ullrich ([CRC 1292 / TP12](#)) from the Department of "Experimental Immunology" of the Pediatric and Adolescent Medicine of the University Hospital Frankfurt received an award and the associated funding for the project to develop an innovative *Sleeping Beauty* (SB)-based CAR-NK cell therapy.



Tobias Bexte, medical student and IRTG/CRC-1292 fellow from Prof. Evelyn Ullrich's team established a new virus-free method for gene modification of natural killer (NK) cells in cooperation with Prof. Zoltan Ivics's group at the Paul Ehrlich Institute in Langen. NK cells are part of the body's innate immune defense against foreign and infected cells. In the award-winning project, primary NK cells could be equipped with a chimeric antigen receptor (CAR) in a virus-free manner using for the first time the SB Transposon System developed by Prof. Dr. Zoltan Ivics.

SB-generated CD19-CAR NK cells show increased killing of CD19-expressing acute lymphoblastic leukemia (B-ALL) cells, which is significantly higher than the cytotoxicity induced by unmodified NK cells. In addition to the increased functionality of SB-CAR-NK cells, this virus-free gene modification method was also shown to have a significantly safer genomic integration into NK cells than classically used lentiviral technologies of CAR-NK cell generation. This new technology is not only suitable as a relatively cost effective and safer new cell therapy approach for the generation of CAR-NK cell therapy for ALL, but also for treatment of other types of cancers.

The Gilead grant program supports promising research projects in medicine and, since 2016, also innovative projects in the field of oncology to explore novel therapies for cancer patients. An independent panel of experts reviewed numerous applications and selected the best projects, which will receive a total of 600,000 euros in funding.

We are very pleased and congratulate Tobias Bexte, Prof. Evelyn Ullrich and Prof. Zoltan Ivics on this award!

(Fotoquellen: Ullrich: KGU, Bexte: privat)