



United Fight Against Osteosarcoma

Important Notice: An embargo applies to the contents of this press release until Tuesday, March 12, 10:00 AM.

(Vienna, March 12, 2024) **A particularly aggressive cancer, osteosarcoma, is the focus of a research project involving the St. Anna Children's Cancer Research Institute. DART2OS, coordinated by the Institute of Molecular Pathology (IMP), is funded through the FWF's "Emerging Fields" excellence initiative and will run for five years. The goal is to develop a new and improved cellular therapy against this bone tumor, based on T-cells.**

Osteosarcoma is a highly aggressive bone cancer affecting over 1,000 children and adolescents, as well as young adults in the EU annually, carrying numerous complex genetic mutations. This has hindered the development of targeted drugs, resulting in little progress in therapy for the past 40 years. The affected children are treated with chemotherapy. The DART2OS project aims to break this standstill with an innovative cancer therapy that harnesses the power of our immune system. It is financed alongside four other research consortia with 5.7 million euros through the FWF's "Emerging Fields" program. The project coordinator is Dr. Johannes Zuber, Senior Group Leader at the Institute of Molecular Pathology (IMP). Additionally, Dr. Sabine Taschner-Mandl, Principal Investigator at St. Anna Children's Cancer Research, Dr. Anna Obenauf, Senior Group Leader at IMP, immunologist Prof. Dr. Johannes Huppa from the Medical University of Vienna, bioinformatician Dr. Dietmar Rieder from the Medical University of Innsbruck, and Dr. Michael Traxlmayr from the University of Natural Resources and Life Sciences will bring their expertise to this large-scale project.

Directing T-Cells Against the Tumor

Taschner-Mandl explains: "We closely examine which mutations are present in the tumor and whether they can be recognized by T-cells." However, the T-cells, which should normally attack the tumor, are "shut down" by it. The team will study about 20 to 30 samples in great detail to investigate the causes that prevent osteosarcomas from being attacked by the immune system. Overall, osteosarcoma is a rare cancer, although it is the most common bone cancer in children and adolescents.

The information gathered will be used to develop patient-specific immune cells (so-called TCR-T-cells) that can recognize and kill cancer cells. Beyond osteosarcoma, the project also aims to lay the groundwork for developing personalized TCR-T-cell therapies for other types of cancer. Project coordinator Johannes Zuber comments: "Our team unites experts from various research fields behind a common goal: to make the promising concept of personalized TCR-T-cell therapies accessible for treating childhood cancer."

About Sabine Taschner-Mandl

Sabine Taschner-Mandl, PhD, has been leading the Tumor Biology group at St. Anna Children's Cancer Research Institute since 2018, where she has been active in research since 2008. In addition, the researcher teaches at the Medical University of Vienna and the Vienna University of Technology. Her academic training and



research activities in the field of molecular biology and cancer research have taken her to the University of Vienna, Medical University of Vienna, and the University of Helsinki. Taschner-Mandl has received numerous grants and awards for her research, including under the Horizon Europe and ERA-NET initiatives of the European Commission, the Austrian Science Fund, and the Vienna Science, Research, and Technology Fund. Her research focuses on elucidating the development and metastasis of Neuroblastoma, developing new therapeutic approaches, and innovative diagnostic tests for precision oncology.

About the St. Anna Children's Cancer Research Institute

The St. Anna Children's Cancer Research Institute (CCRI) is an international and interdisciplinary research institution dedicated to advancing diagnostic, prognostic, and therapeutic strategies for the treatment of children and adolescents with cancer through innovative research. Incorporating the specific characteristics of childhood tumor diseases, dedicated research groups collaborate in the fields of tumor genomics and epigenomics, immunology, molecular biology, cell biology, bioinformatics, and clinical research. Their aim is to bridge the latest scientific and experimental knowledge with the clinical needs of physicians in order to significantly improve the well-being of young patients. For more information, visit www.ccri.at or www.kinderkrebsforschung.at.

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