Technology Offer

Novel biomarker for diagnosis and targeted therapy of Acute Myeloid Leukemia (AML)

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New biomarker candidates for diagnostic sub-classification of AML patients with elevated expression of mitochondrial proteins and subsequent targeted therapy with BCL-2 inhibitors like venetoclax and/or agents targeting mitochondrial complex I

Background

Acute myeloid leukemia (AML) is an aggressive blood cancer with poor prognosis. Mutations and cytogenetic aberrations are used to stratify patients into prognostic subgroups and specify drug treatment. However, even though genomics has helped to resolve some of the clinical heterogeneity of AML and revealed specific drug targets, there continues to be a mismatch between genomic risk stratification and clinical outcome for some individual patients. Identification of novel clinically relevant biomarkers is vital in order to improve prognostic classification, risk assessment and therapeutic decision-making in AML.

Technology

Scientists from the Max-Planck-Institute of Immunobiology and Epigenetics have identified the System L amino acid transporter SLC7A5:SLC3A2 and the ectonucleotide pyrophosphatase-phosphodiesterase 2 (ENPP2) as additional therapeutic targets for autoimmune diseases in which pDCs are implicated. A combination of an inhibitor targeting xc- with an inhibitor of the JAK2-STAT5 pathway required to induce SLC7A5:SLC3A2 expression, resulted in an additive effect that essentially prevented cytokine production at the suboptimal doses of each drug alone. This is of particular importance as it allows for fewer possible toxic effects. Further dose reduction can be achieved when inhibitors for ENPP2 are included. Therefore, a combinatorial treatment significantly reduced IFNa and TNF production compared to single doses and as such represents a novel strategy for targeted inhibition of pDCs at sites of inflammation to treat autoimmune diseases like SLE.

We are now looking for either a licensing partner, or a collaboration partner to further develop this project.

Publication

Jayavelu et al., 2022. Cancer Cell. DOI: 10.1016/j.ccell.2022.02.006

Patent Information

A patent application was filed on December, 22nd 2021.

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