RESEARCH TOPIC MEM18

Single-cell analysis to identify signatures of response to immunotherapy in Diffuse Large B-cell Lymphoma
Curriculum MEM

Laboratory name
Lymphoma Translational Research Lab, IRCCS Humanitas Research Hospital

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Abstract
A variety of novel antibody-based immunotherapies (Bispecifics, Antibody Drug Conjugates) are increasingly used for the treatment of relapsed/refractory Diffuse Large B-Cell Lymphoma. However, response-predicting biomarkers and mechanisms of resistance to immunotherapy remain largely unknown. To address these issues, we designed a translational research project focusing on single cell (sc)RNA-seq and scTCR-seq to characterize the transcriptional and immunological profiles of peripheral blood mononuclear cells. We will perform scRNA-seq and scTCR-seq on longitudinally collected PBMCs to elucidate the contribution of immune cells at baseline and during immunotherapy and to identify relevant receptor clonotypes and track their evolution during treatment. This will allow to (i) identify signatures of response to antibody-based immunotherapy, (ii) increase our knowledge on the mechanisms of resistance to immunotherapy, and (iii) improve the upfront identification of refractory patients.

Main technical approaches
DNA-seq, scRNA-seq, scTCR-seq

Scientific references
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