Cell based 3D inflammation assays: Ex vivo activation of mouse splenocytes

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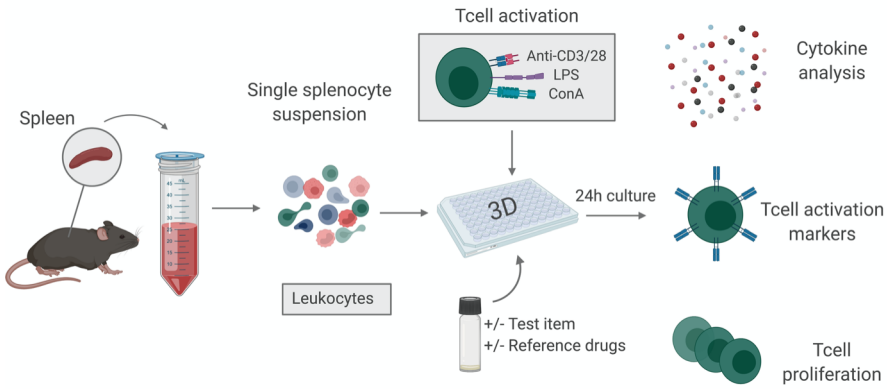
EX VIVO ACTIVATION OF MOUSE SPLENOCYTES

The ex vivo activation model is an excellent tool for initial evaluation of effects on the immune system, ranking of compounds or mechanism of action studies. Mouse splenocytes (naive or disease specific) are activated under different conditions ex vivo and resulting immunological effects are evaluated. In this experimental setup, we activate inflammatory cells in 3D cultures, closely resembling the local inflammatory response in vivo. The assay can be adapted to target cells and inflammatory markers of interest.



MODEL DESCRIPTION

Mouse splenocytes are activated in a 3D culture plate with LPS, anti-CD3/anti-CD28, ConA or disease related antigen (depending on cell types and pathway of interest) in presence of reference drugs or test item for 24 hours and analysed for cellular marker expression using flow cytometry. The supernatant is analysed for cytokine profile using Luminex technology. In addition to the standard readouts, there is an option to analyse proliferation and viability or other project specific functional assays.

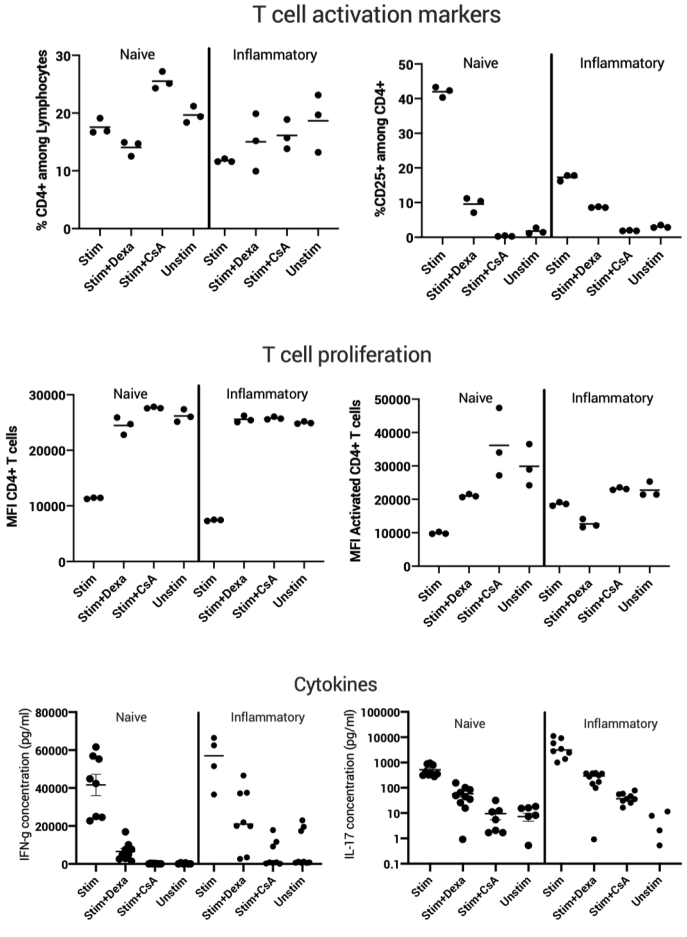
CHARACTERISTICS

CELL SUBSETS

Mouse splenocytes are analysed for expression of intra- or extra-cellular markers, cell subsets as well as functional readouts including T cell proliferation and viability using flow cytometry.

CYTOKINE PROFILE

Supernatant is investigated for levels of inflammatory cytokines using Luminex or ELISA. A standard inflammation panel or project specific custom adapted panels can be analysed depending on project specific requirements and target/cell pathway of interest.



CELLEVATE 3D CELL CULTURE SYSTEMS

Cellevate develops the next generation cell culture systems based on nanomaterials. Culture of cells in a network of nanofibers allows them to proliferate and interact in conditions resembling the in vivo environment. Thus, more predictive, reliable and translatable data can be generated. The usage of 3D cultures in cell assays can provide more realistic in vitro models for data, with more clinical relevance and successful research in drug discovery.

Cellevate

Read more:
- Candini. et al. A Novel 3D In VitroPlatform for Pre-Clinical Investigations in Drug Testing, Gen Therapy, and Immuno-oncology. Sci Rep 9, 7154 (2019).
- Antoni et al. Three-Dimensional Cell Culture: A Breakthrough in Vivo. Int. J. Mol. Sci. 16, 5517-5527 (2015).

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Cell based 3D inflammation assays: Ex vivo activation of human primary cells

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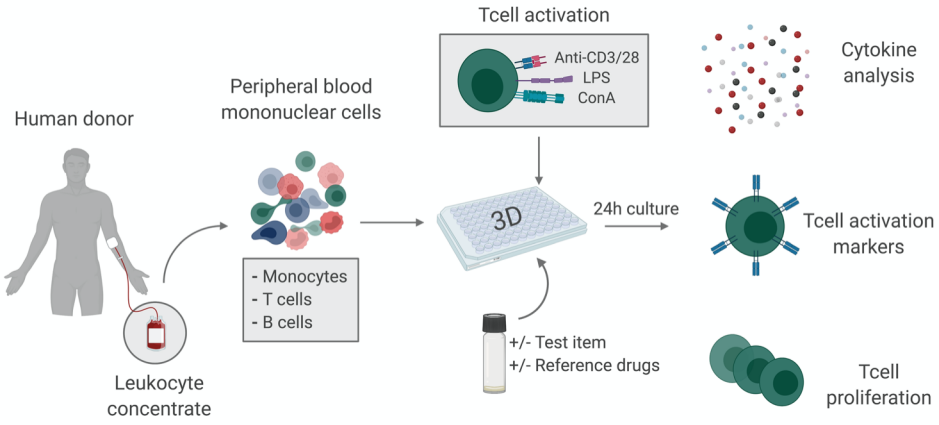
EX VIVO ACTIVATION OF PRIMARY HUMAN PBMCs

The ex vivo activation model is an excellent tool for initial evaluation of effects on the immune system, ranking of compounds or mechanism of action studies. Human peripheral blood mononuclear cells (PBMCs) comprising lymphocytes (T cells, B cells, and NK cells), dendritic cells, and monocytes are activated under different conditions ex vivo and resulting immunological effects are subsequently evaluated. In this experimental setup, we activate inflammatory cells in 3D cultures, resembling the local inflammatory response in vivo. The assay can be adapted to target cells and inflammatory markers of interest.



MODEL DESCRIPTION

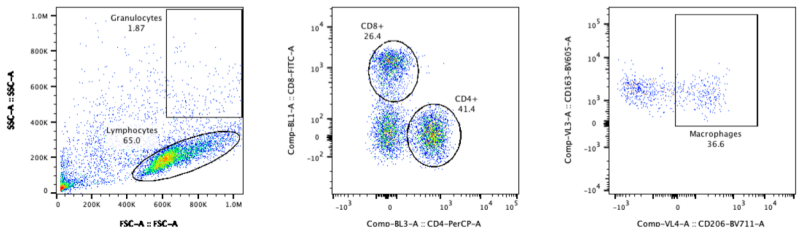
Human PBMCs are activated in a 3D system with LPS, anti-CD3/anti-CD28 or ConA (depending on celltype and pathway of interest) in presence of reference drugs or test item for 24 hours and analysed for cellular marker expression using flow cytometry. The supernatant is analysed for cytokine profile using luminex technology. In addition to the standard readouts, there is an option to add on analysis of proliferation and viability or other project specific markers.

CHARACTERISTICS

CELL SUBSETS

Following activation, the cell subsets are analysed based on expression of intra and extra-cellular markers as well as functional effects including T cell proliferation and viability using flow cytometry.

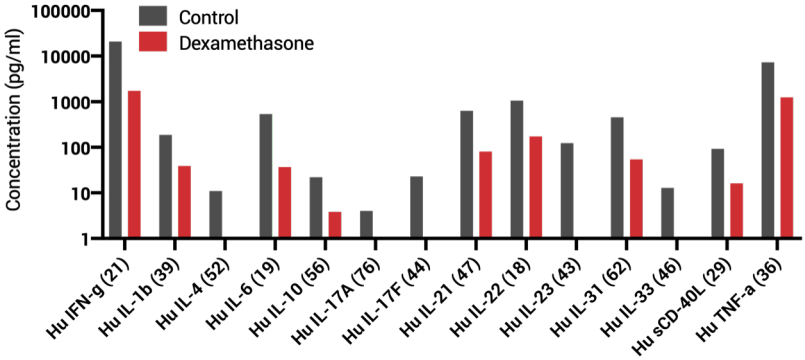
Cellular composition



CYTOKINE PROFILE

Supernatant is investigated for levels of inflammatory cytokines using Luminex or ELISA. A standard inflammation panel or project specific custom adapted panels can be used depending of project specific requirements and target cell/pathway of interest.

Cytokine profile



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