

Advanced Methods in Cell Adhesion and Migration I

T cell adhesion, extravasation and migration within the tissue are fundamental for an effective adaptive immune response. Leukocyte specific integrins and their ligands are the main adhesion molecules regulating these events. The activity of these integrins on the surface of leukocytes needs to be tightly controlled by multiple signalling cascades. In addition, reorganisation of the cytoskeleton is a prerequisite for leukocyte movement.

In order to identify specific signalling molecules regulating leukocyte migration downstream or upstream of integrins it is necessary to simplify complex in vivo situations utilising in vitro assays. The use of different assays allows drawing conclusions on different aspects of leukocyte migration (adhesion, migration in 2D vs. 3D, chemotaxis). As such, the choice of an appropriate assay is fundamental. The lecture and the hands-on course will familiarise participants with different in vitro assays on T cell adhesion and migration and will give advice which assay to choose for investigating particular aspects of leukocyte migration.

Three different assays will be performed using primary T lymphoblasts. In contrast to immortalised lymphoma cells from various cell lines - that are often used - these primary T cells have the great advantage of a regular signalling cascade close to the in vivo situation. In addition, primary T cells from different mouse mutant strains (knock-out, transgene, etc.) can be used to investigate the impact of single proteins on adhesion or migration related events.

Literature

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