

Pioneering work by the group of Gioacchino Natoli

During inflammation a cascade of genes becomes activated which are necessary to mediate appropriate immune responses. The transcription factor NFκB, which is released from its suppressor IκB during an inflammatory reaction, binds to specific sites of the DNA and induces the activation of many inflammatory genes.

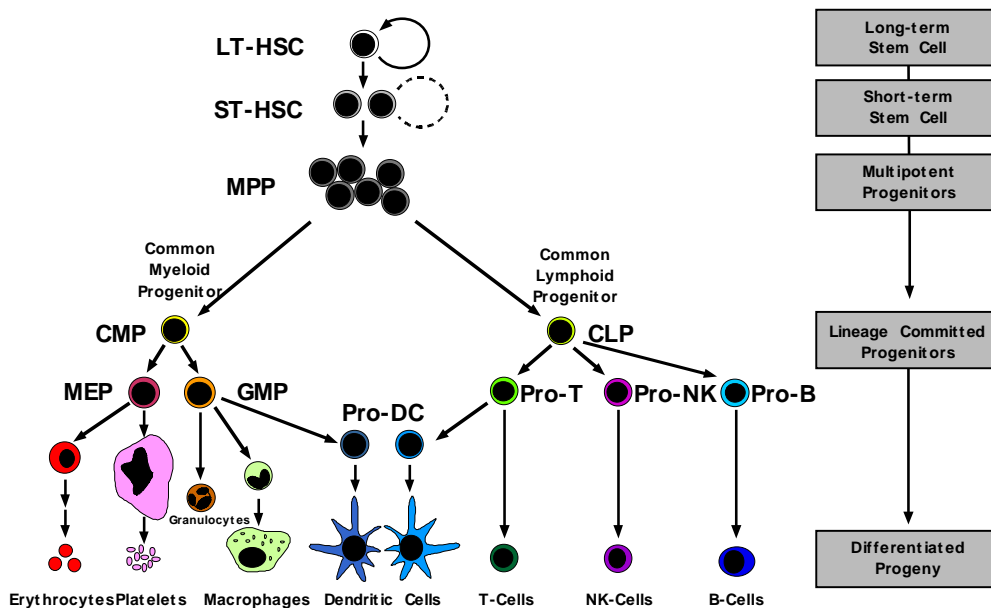


Dr. Saccani, Pantano and Natoli describe in the January issue of *Nature Immunology* (2002, 3:69-75, see figure) that NFκB dependent gene activation occurs in two waves. Some genes are readily activated because they constitutively expose NFκB binding sites. In addition, depending on the inflammatory impact on the cells the stress regulated protein kinase p38 is activated which leads via a mechanism called 'chromatin remodeling' to the uncovering of otherwise cryptic NFκB binding sites. This second wave of NFκB dependent gene activation allows immune cells to modulate the degree of the inflammatory responses upon stimulation with pathogens. Thus, governed by the strength of the inflammatory stimulus immune cells can mount different levels of immune responses. The findings by Saccani *et al.* provide new insights into the biochemical mechanisms which regulate distinct immune responses. The observation could be the basis for the development of

anti-inflammatory therapies which partially suppress immune responses, allowing mild protective responses to occur while abolishing severe reactions which often cause tissue injuries and persistent damage.

In recognition of his scientific merit and his engagement in teaching PD. Dr. Marcus Thelen received from the University of Bern the title of a honorary professor. The decision was taken by the senate of the University of Bern at which Prof. Marcus Thelen holds a venia at the medical faculty. The award newly underlines the effort of the IRB to contribute to the education of young scientists. Currently 16 students work on their master or PhD thesis at the institute.

In January 2002 Dr. Markus G. Manz joined the group of Antonio Lanzavecchia. He studies medicine and did four years of training in Hematology/Oncology at the University of Tübingen in Germany. For the last



adapted from: E. Lagasse et al., Immunity 2001

two and a half years he hold a postdoctoral position at Irving Weissman's laboratory at Stanford in California. His main scientific interest is in early hematopoietic development. Throughout life, a small fraction of self-renewing hematopoietic stem cells (HSC) continuously generate mature cells of the hemato-lymphoid system. The hierarchical

developmental process from HSCs to terminally differentiated cells involves progressive loss of self-renewal ability, proliferation capacity, and lineage potentials. During the last few years, substantial progress was made in defining early developmental intermediate cells, so called progenitor cells, which provide useful tools to understand better the normal hemato- and lymphopoiesis. By using defined murine and human progenitor cells, M. Manz will continue to study dendritic cell development (see graph).