BioMed Research International

Special Issue on

Cytokines and Nuclear Receptors Influence Decision-Making during Haematopoiesis

CALL FOR PAPERS

Recent discoveries from intensive investigations have highlighted controversies in our understanding of haematopoiesis and the validity of existing models. The most widely represented model involves a series of binary choices from hematopoietic stem cells (HSC) with an early branch point separating the myeloid from the lymphoid lineages. However, progenitor cells that possess lymphoid potentials and just a subset of the myeloid options have been described. An alternative model groups the pairwise relationships between lineage fates around a broken circle to depict the spectrum of options available to HSCs. There is also good evidence to support multiple differentiation routes towards certain cell fates, especially for dendritic cells.

Haematopoiesis cannot occur without the developing cells receiving signals from cytokines. There is an active debate about whether cytokines instruct haematopoietic lineage choice or merely permit precommitted cells to survive and differentiate along a particular lineage. The eventual lineage fate of a cell is controlled by spatiotemporal fluctuations in the concentrations of transcription factors (TFs) some of which appear to be lineage specific. These either cooperate or compete to drive the expression of lineage-associated genes. It is well accepted that the activities of TFs that are also members of the nuclear receptor superfamily, such as retinoic acid receptor α, are important not only for haematopoietic cell development but also for the embryonic development of a wide range of organisms.

We invite authors to submit original research articles and review articles that will illustrate and stimulate the continuing effort to understand cell decision-making and the roles of cytokines and transcription factors, including nuclear receptors, during haematopoiesis.

Potential topics include, but are not limited to:

- Recent discoveries that help to better understand the mechanisms that govern the commitment of HSCs to become one particular type of cell
- The invariant nature or flexibility of lineage pathways during haematopoiesis
- The roles of cytokines in decision-making by stem and progenitor cells
- The role of bone marrow stromal cells in haematopoietic cell survival and lineage commitment
- The roles of transcription factors, including nuclear receptor superfamily members, in lineage decision-making during haematopoiesis
- Disturbances of the above processes in leukemias

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/bmri/hematology/cnri/.

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