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# Dynamics of blood diseases and the hierarchy of hematopoiesis

Hematopoiesis is a process that is based on a hierarchical organization of cell types, with stem cells at the very basis that differentiate into more specialized cells. A simple mathematical model to describe this process has been proposed [1]. This hierarchical structure has important effects on the dynamics of diseases, including blood cancers [2]. For example, it is becoming increasingly clear that our bodies harbor numerous mutant clones that do not give rise to no disease at all, although the mutations are typically associated with diseases. The fate of any mutant clone will depend on the target cell and on the fitness advantage, if any, that the mutation confers on the cell [3]. In general, we can expect that only a mutation in a hematopoietic stem cell will give long-term disease; the same mutation taking place in a cell located more downstream may produce just a ripple in the hematopoietic ocean [4].

## References

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