

**Abstract**

Development of human B-lymphocytes is a convoluted process. A self-renewing stem cell progenitor in a primary lymphoid tissue commits to the lymphoid lineage. Subsequent B-lineage commitment entails somatic gene recombination processes which lead to the eventual expression of a surface antigen receptor. Functionality of the B-cell receptor, as well as successful testing for autoreactivity by the cell, are preconditions for the differentiation of a mature B-lymphocyte. Processes within this development are often investigated using single-cell analysis via flow cytometry, fluorescence-activated cell sorting and mass cytometry. Coupling these high-throughput methods with modern approaches to data analysis carries enormous potential in revealing rare cell populations and aberrant events in haematopoiesis.

**Keywords:** B-lymphocyte, lymphopoiesis, flow cytometry, FACS, mass cytometry, cluster analysis, FlowSOM, PCA, t-SNE, Wanderlust.