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Homing of B Cells via Afferent Lymphatics

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Abstract : While the entry mechanism of lymphocytes into the lymph node via the blood are well described, it is still largely unknown how cells enter lymph nodes that arrive via afferent lymphatics. In order to address this, our group has established a micro-injection technique in mice through which cells are delivered directly into the lymphatic vessel immediately afferent to the popliteal lymph node. Injected cells can then be tracked via multi-colour fluorescence or 2-photon microscopy, and their localization can be analysed within the popliteal or downstream lymph nodes by immunohistology. Since naïve B cells express the chemokine receptor CXCR5 we intra-lymphatically co-injected B cells derived from wildtype and Cxcr5-deficient mice. While CXCR5 does not play a role in guiding B cells out of the subcapsular sinus, it affects their positioning within the lymph node parenchyma, since CXCR5-deficient B cells are impaired in migrating into the B cell follicle. The knowledge obtained by studying B-cell migration may prove beneficial in clinical settings regarding tumor metastasis or autoimmune diseases.

Keywords : afferent lymphatics, B cell migration, chemokine, intra-lymphatic injection
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