**Thymic and lymph node mesenchymal subsets can be derived from**

**PDGFR/+Gp38+CD34+ICAM1- vascular adventitial precursors**

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While discrete Gp38- and Gp38+ mesenchymal populations have previously been described in the lymph nodes (LNs) and in the thymus the putative relationship between LN and thymic mesenchymal cells remains unclear. Here, using transcriptome profiling as well as phenotypic and localization studies we comprehensively assessed the mesenchymal cell subset composition of the LNs and the thymus. We find that while LNs selectively harbored a BP3+ PDGFR+Gp38+ compartment consisting of CCL21-producing fibroblastic reticular cells (FRC), MAdCAM+ marginal reticular cells (MRC) and CR1\_2+ follicular dendritic cells (FDC), both organs were populated by two corresponding subsets of BP3- PDGFR+ cells, PDGFR-Gp38-ITGA7+ pericytes and PDGFR+Gp38+CD34+ cells localized in the vascular adventitia and in the capsule. Focusing on the thymus as a model organ we obtain evidence that the latter two subsets initially developed from a common PDGFR/+Gp38+CD34-ICAM1- embryonic precursor population. Notably, precursor-progeny studies involving transfer of adult thymus- and adipose tissue-derived BP3-Gp38+PDGFR+CD34+ICAM1- cells into thymic and LN re-aggregate organ grafts uncovered a precursor activity towards not only pericytes but also BP3+ FRC, MRC and FDC and provided evidence of local environmental imprinting of BP3-Gp38+ cells with organ-specific features. Finally, we demonstrate that BP3-Gp38+ mesenchymal cell maintenance/maturation in the thymus requires LTR signaling while this pathway appeared dispensable for pericyte differentiation. These findings bring novel insights to the understanding of lymphoid mesenchymal cell heterogeneity and implicate an unforeseen role of the vascular adventitia in lymphoid stroma turnover/regeneration.