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Title: Circulating mature and progenitor eosinophils in patients with stable asthma express all major traffic related receptors

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Body: Background: Eosinophils differentiate in the bone marrow from CD34+ cells released to the blood with possible traffic to the lung tissue. The known data about eosinophil traffic mostly refer to mature eosinophils and have originated mainly from animal models or from asthma patients after allergen exposure. Thus, we investigated whether mature and progenitor blood eosinophils in patients with stable asthma express similar trafficking related receptors. Methods: Participants, 13 patients with stable asthma; 7 with high (≥0.3x109/L) and 6 with low (≤0.2x109/L) blood eosinophils, and 5 healthy controls were selected from the West Sweden Asthma Study. Airway eosinophils were studied in induced sputum. Mature (CD45+IL-5Rα+SSChigh) and progenitors (CD45+CD34+IL-5Rα+SSClow) eosinophils and their expression of selectin (PSGL-1), integrins (VLA-4:CD49d+CD29+, Mac-1:CD11b+CD18+), eotaxin(s) receptor (CCR3+), and activation (CD69+, CD25+) were quantified in fresh blood by flow cytometry. Results: Asthma patients with high blood eosinophils had increased sputum eosinophils and blood eosinophil progenitors compared to the healthy controls ($p<0.05$). Mature and progenitor eosinophils expressed similar levels of PSGL-1 and VLA-4. Mac-1 was expressed in all mature eosinophils but was reduced in progenitors, in all groups (<0.01). Mature eosinophils expressed high levels of CCR3 compared to progenitors ($p<0.05$). However, the CCR3+ eosinophil progenitors were more activated in all groups (<0.01). Conclusion: Both mature and progenitor blood eosinophils in patients with stable asthma express all major trafficking related receptors important for transfer into the lung tissue.