

## Eosinophil activation status and CD62L expression in airways disease

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### Introduction

Eosinophils are granulocytic immune cells whose role is not fully understood. While eosinophils have regularly been thought to be destructive to their surroundings, new thinking has led to the hypothesis that different subsets of eosinophils play different roles [1]. These include inflammatory eosinophils which provoke inflammatory processes and homeostatic eosinophils which suppress inflammation [2].

L-selectin (CD62L) mediates cell rolling along the endothelium, and has been shown to be expressed at lower levels on inflammatory eosinophils and at higher expression on resident eosinophils in lung tissue and sputum [3]. Here we assess the levels of CD62L and different activation markers to determine whether blood eosinophils are in different states in eosinophilic and non-eosinophilic groups of patients with airways disease and healthy donors.

### Methods

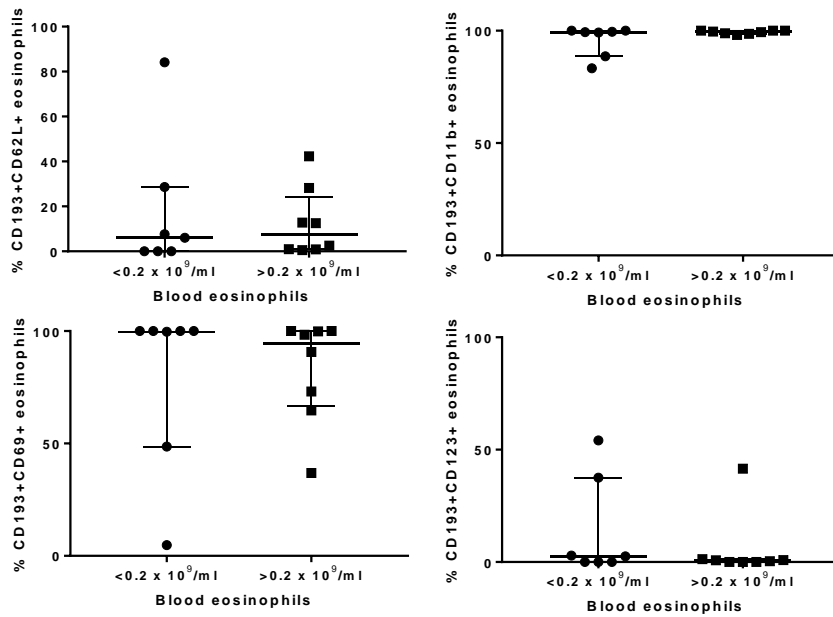
Whole blood was received from 7 healthy donors, 4 patients with COPD and 7 asthmatic patients. Cell surface markers CD193, CD11b, CD69, CD123 and CD62L were assessed by flow cytometry. Data was analysed using FlowJo 10. Eosinophilic disease is defined as patients with  $>0.2 \times 10^9$  blood eosinophils/ml.

### Results

No inflammatory eosinophils were identified in blood from any individual using the CD62L<sup>lo</sup>CD123<sup>hi</sup> criteria. No difference in CD62L expression was seen between patients with eosinophilic or non-eosinophilic airways disease (Median (IQR): 7.525 (0.86-24.35) and 6.02 (0-28.6) respectively,  $p=0.611$ ). Activation state of eosinophils was also similar between inflammatory groups as seen by CD11b (Median (IQR): 99.5 (98.68-100) and 99.4 (88.6-100) respectively,  $p=0.353$ ) and CD69 (Median (IQR): 94.55 (66.8-99.98) and 100 (48.6-100) respectively,  $p=0.578$ ).

### Conclusion

Inflammatory eosinophils as defined by CD62L<sup>lo</sup>CD123<sup>hi</sup> were not present in blood. Expression of CD62L and activation markers CD11b and CD69 does not differ between eosinophilic and non-eosinophilic patients with airways diseases and healthy donors.



1. Lee, J.J., et al., *Eosinophils in health and disease: the LIAR hypothesis*. Clin Exp Allergy, 2010. **40**(4): p. 563-75.
2. Marichal, T., C. Mesnil, and F. Bureau, *Homeostatic Eosinophils: Characteristics and Functions*. Frontiers in Medicine, 2017. **4**: p. 101.
3. Mesnil, C., et al., *Lung-resident eosinophils represent a distinct regulatory eosinophil subset*. The Journal of Clinical Investigation, 2016. **126**(9): p. 3279-3295.

