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# COPD sputum eosinophils: relationship to blood eosinophils and the effect of inhaled PDE4 inhibition

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**PDE4 inhibition reduces sputum eosinophils in those COPD patients with higher eosinophil counts. This evidence supports an effect of PDE4 inhibitors on eosinophilic inflammation.** <https://bit.ly/3airXw7>

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## To the Editor:

Patients with COPD who have higher eosinophil numbers in the airways and peripheral blood demonstrate a greater clinical response to inhaled corticosteroids (ICS) [1–3]. Furthermore, the effect of the oral phosphodiesterase-4 (PDE4) inhibitor roflumilast on exacerbations in severe COPD patients with chronic bronchitis, who are treated with ICS and long-acting bronchodilators, also appears to be greater at higher blood eosinophil counts [4]. The mechanisms responsible for these differential drug effects remain to be defined, but may relate to increased type-2 inflammation and/or decreased presence of colonising airway bacteria in COPD patients with more eosinophils [5, 6], leading to different responses to anti-inflammatory drugs. An association between blood and sputum eosinophils has been observed in some, but not all studies [7–12]. Accurate sputum eosinophil count measurement requires good quality samples to make cytopins where eosinophils can be clearly counted; variable quality of sputum samples, particularly in multicentre studies, will affect the ability to show a relationship with blood eosinophil counts.