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**Title:** Short-chain fatty acids are potent modulators of allergic airway inflammation

Mr. Aurélien 29395 Trompette aurelien.trompette@chuv.ch<sup>1,2</sup>, Ms. Koshika 29396 Yadava koshika.yadava@chuv.ch<sup>1,2</sup>, Ms. Eva 29397 Gollwitzer eva.gollwitzer@chuv.ch<sup>1,2</sup>, Ms. Anke 29398 Sichelstiel anke.sichelstiel@chuv.ch<sup>1,2</sup>, Prof. Dr Laurent 29399 Nicod laurent.nicod@chuv.ch MD<sup>1,2</sup> and Prof. Dr Benjamin 29426 Marsland benjamin.marsland@chuv.ch<sup>1,2</sup>. <sup>1</sup> Laboratoire de Pneumologie, CHUV, Lausanne, Switzerland and <sup>2</sup> Faculty of Biology and Medicine, UNIL, Lausanne, Switzerland .

**Body:** Over the past few decades, there has been a clear increase in the prevalence of asthma in westernized countries. Both experimental and epidemiological data indicate that environmental factors, such as an individual's diet and commensal flora can have profound effects upon the susceptibility and progression of inflammatory diseases. Short-chain fatty acids (SCFAs), end-products of the colonic fermentation of dietary fibers by bacteria, have been shown to exert protective effects upon cardiovascular and intestinal inflammation; however, their impact on lung inflammation remains to be determined. We have found that mice treated with SCFAs exhibit an accelerated resolution of house-dust mite (HDM) induced allergic airway inflammation. Although the antigen presentation capacity of dendritic cells (DCs) isolated from SCFA-treated mice was normal, such DCs failed to fully polarize cells towards Th2 or Th17 subtypes. Comparatively, mice that were fed a low-fiber diet (LFD)- reducing the availability of endogenous SCFAs - exhibited an exacerbated airway inflammation when exposed to HDM. Indeed, LFD-fed mice had an increased bronchoalveolar lavage (BAL) cellular infiltrate and eosinophilia, along with significantly more systemic HDM-specific IgE and IgG1 antibodies. Our results show that fiber and SCFAs have intrinsic immunomodulatory functions with the ability to accelerate the resolution of allergic airway inflammation.