not surprising that diet-derived short-chain fatty acids exert beneficial effects on tissues other than the gut and the brain. In one recent example, the existence of a gut-lung axis was suggested by a study showing in a mouse model of allergic airway inflammation that a high-fiber diet reduced airway inflammation whereas a low-fiber diet exacerbated it[12]. Notably, ingestion of propionate decreased lung inflammation in an FFAR3-dependent manner and reduced the ability of dendritic cells from the lung-draining lymph nodes to provoke pro-allergenic phenotypes in T lymphocytes. Although short-chain fatty acids were not detected in the lung, propionate enhanced production of dendritic cells in the bone marrow; once in the lung, the newly generated dendritic cells activated pro-allergenic T cells less efficiently.

With its versatile metabolic capability, the gut microbiota acts as an important conduit between diet and host physiology. The findings of David *et al.*[1] and De Vadder *et al.*[2] are a step toward understanding this complex ecosystem and provide additional support for the proposition that intentional modulation of the gut microbiota is a valid strategy for improving human health.

COMPETING FINANCIAL INTERESTS
The authors declare competing financial interests: details are available in the online version of the paper (doi:10.1038/nbt.2845).

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