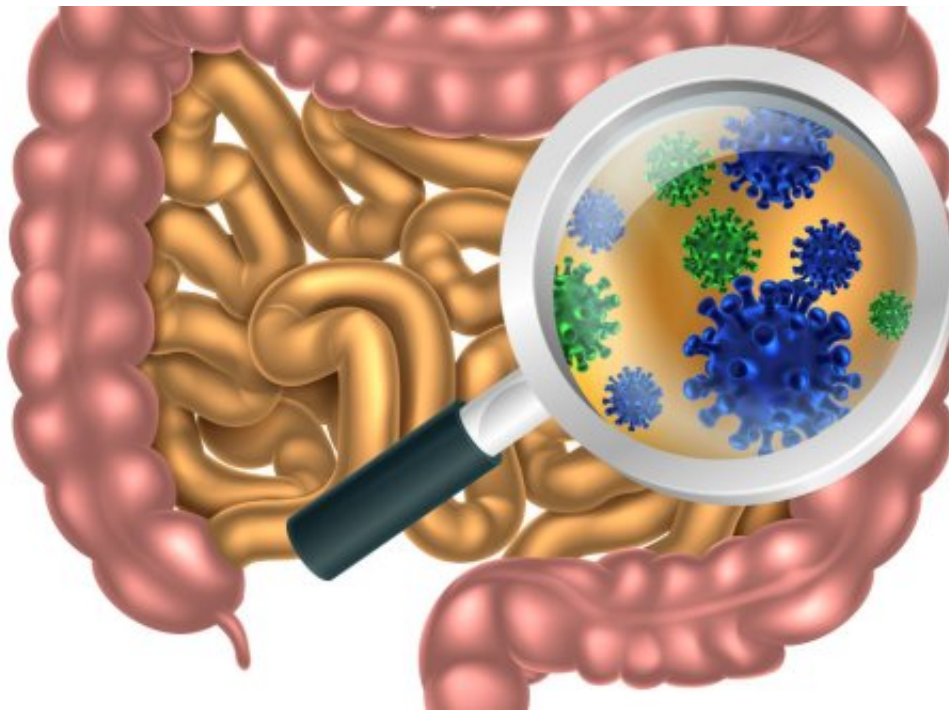


Novel intestinal bacterium provides human gut with healthy compounds

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Fibers in our food are thought to be good for health since they are converted in the intestinal tract into the favourable compound butyrate, that is crucial to maintain intestinal health. In contrast, protein is believed to be less healthy since intestinal fermentation of the building blocks of proteins, amino acids, generates undesired compounds. This latter picture is now changing since a novel intestinal bacterium has been

isolated by the researcher Nam Bui and co-workers at Wageningen University. The team reported their findings in the December 1 issue of *Nature Communications*.

The new intestinal bacterium is a member of a newly discovered genus *Intestinimonas* and is able to efficiently produce butyrate from the amino acid lysine, the most abundant amino acid. Hence, this bacterium can be considered as a missing link between protein metabolism, butyrate production and health.

When the team at the Laboratory of Microbiology led by Prof Willem M. de Vos studied the genome and its encoded pathways they discovered *Intestinimonas* to be also capable of generating butyrate from fructoselysine, a potentially harmful so called Amadori compound that is formed in heated foods from the sugar glucose and the amino acid lysine. It has been estimated that about 10 % of the proteins and peptides (chains of [amino acids](#)) that reach the colon every day are Amadori products. They are known as precursors of glycotoxins or Advanced Glycosylation Endproducts (AGEs). Diet-derived AGEs have been associated with serious cardiovascular diseases and diabetes, and recently a causal relation has been established in mice between AGEs in foods and dementia.

The discovery of a bacterium capable of producing butyrate from protein, Amadori products and AGEs, will open a new field with attention for protein fermentation instead of the sole focus on sugar degradation from fibers. The team also found that bacteria carrying this novel butyrate-producing pathway are detectable in only some humans, which opens the possibility of targeted approaches to improve gut health in people lacking *Intestinimonas* or related bacteria.

More information: Thi Phuong Nam Bui et al. Production of butyrate from lysine and the Amadori product fructoselysine by a human gut

commensal, *Nature Communications* (2015). [DOI: 10.1038/ncomms10062](https://doi.org/10.1038/ncomms10062)

Provided by Wageningen University

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