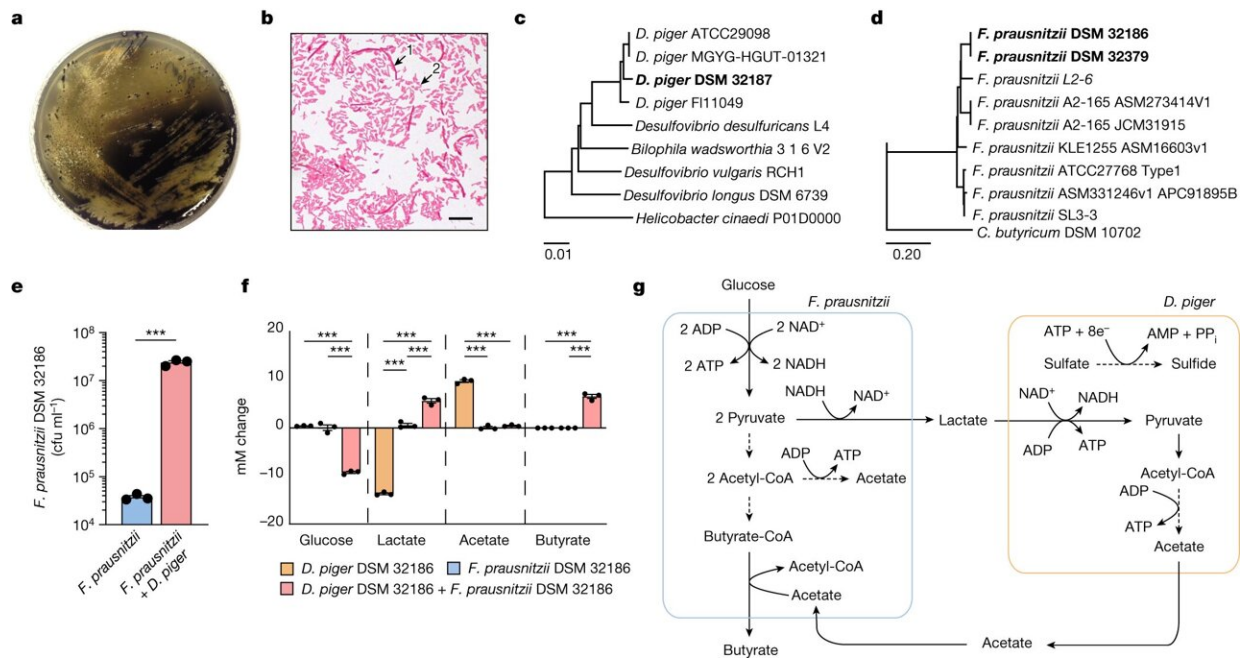


# An important step toward next-generation probiotics

August 2 2023



Co-isolation and cross-feeding of *F. prausnitzii* and *D. piger* in vitro. **a**, Co-culture of *F. prausnitzii* DSM 32186 and *D. piger* DSM 32187 on PGM plates without supplementation of glucose or acetate. **b**, Gram staining of colonies from isolation of *F. prausnitzii* DSM 32186 and *D. piger* DSM 32187. Arrows indicate *F. prausnitzii* (long fusiform rods) (1) and *D. piger* (short rods) (2). Scale bar, 10  $\mu\text{m}$ . **c**, Dendrogram illustrating the relationship between *D. piger* DSM 32187 and related genomes. **d**, Dendrogram illustrating the relationship between *F. prausnitzii* DSM 32186 and related genomes. **e**, The number of colony-forming units of *F. prausnitzii* DSM 32186 in monoculture and in co-culture with *D. piger* DSM 32187 under anaerobic conditions in mPGM (PGM containing 25 mM of glucose) for 24 h.  $P = 0.0003$ . **f**, Metabolite profiles of *F. prausnitzii* DSM 32186 and *D. piger* DSM 32187 cultivated as monocultures or co-culture under anaerobic conditions in mPGM (PGM containing 25 mM of glucose) for 24 h.  $P < 0.0003$ . **g**, Metabolic pathway diagram showing cross-feeding from *F. prausnitzii* to *D. piger*.

anaerobic conditions in mPGM medium for 24 h. Glucose:  $P = 0.0000031$  (*F. prausnitzii* + *D. piger* versus *D. piger*),  $P = 0.0000038$  (*F. prausnitzii* + *D. piger* versus *F. prausnitzii*); lactate:  $P = 0.0000001$  (*F. prausnitzii* + *D. piger* versus *D. piger*),  $P = 0.0000005$  (*F. prausnitzii* versus *D. piger*),  $P = 0.00014$  (*F. prausnitzii* + *D. piger* versus *F. prausnitzii*); acetate:  $P = 0.0000004$  (*F. prausnitzii* + *D. piger* versus *D. piger*),  $P = 0.0000003$  (*F. prausnitzii* versus *D. piger*); butyrate:  $P = 0.000001$  (*F. prausnitzii* + *D. piger* versus *D. piger*),  $P = 0.0000031$  (*F. prausnitzii* + *D. piger* versus *F. prausnitzii*). ‘mM change’ on the y axis indicates the difference in concentration from the inoculated medium at baseline. **g**, Schematic of the suggested cross-feeding between *F. prausnitzii* and *D. piger* as co-culture in mPGM.  $n = 3$  independent experiments, \*\*\* $P$

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