

Redox mediators to boost butyrate-producing gut bacteria.

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Digestion/Absorption

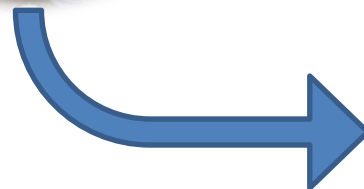
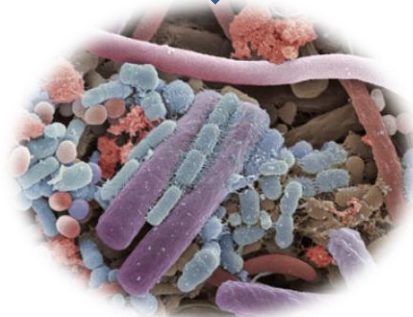


Food particles escaping human digestion
are available for colonic bacterial

fermentation



Gut microbes



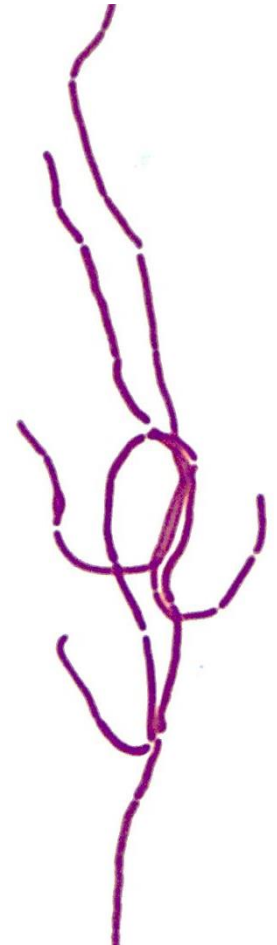
Has many beneficial features, such as:

- Regulation of colon pH**
- Providing energy for colonocytes**
- Detoxification of certain metabolites**
- Vitamin production**
- Regulation of oxidative stress**

Short chain fatty acids: Butyrate,
Acetate, Formate, Lactate
Gases: Hydrogen, Methane,
Carbon-dioxide

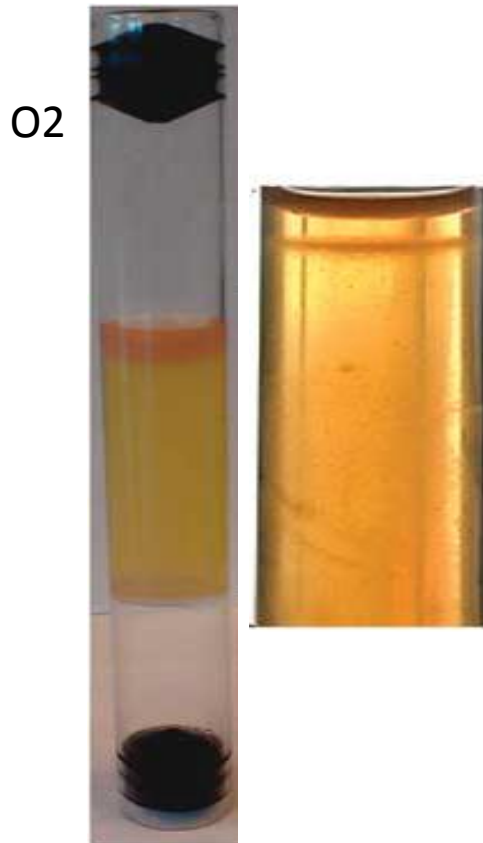
Faecalibacterium prausnitzii

- Clostridium group of firmicutes
- Gram variable, stains purple and pink
- **Strict anaerobe**, difficult to isolate
- Marker species of a **healthy gut**
- Produces **butyrate**
- **Anti-inflammatory** effect on colitis.

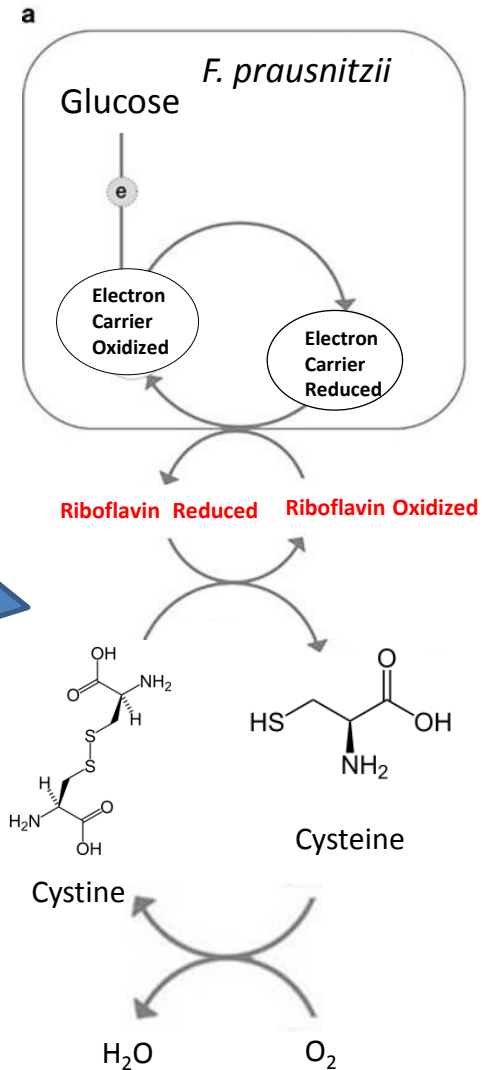




Survival under oxygen stress



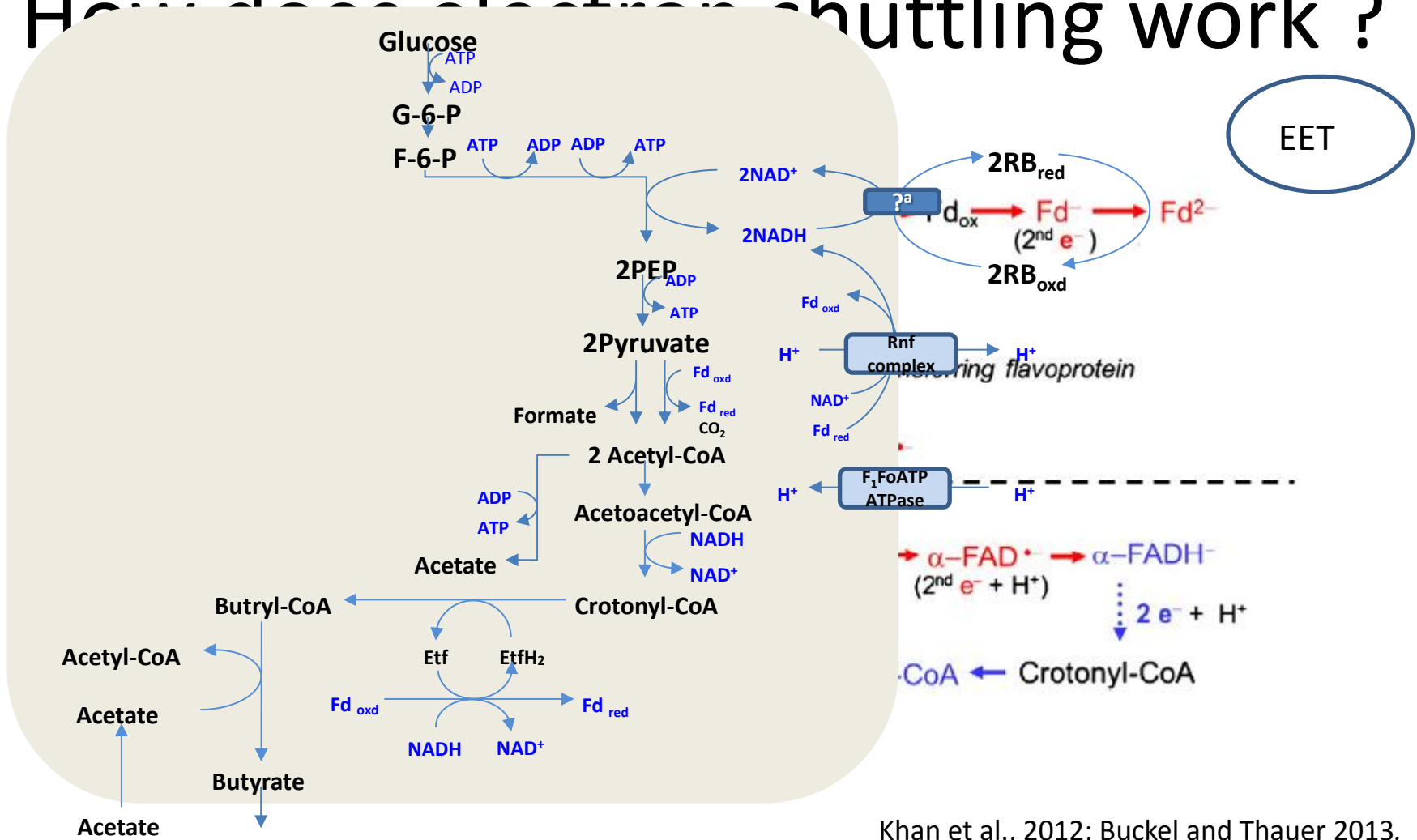
Riboflavin as electron mediator (EMT)





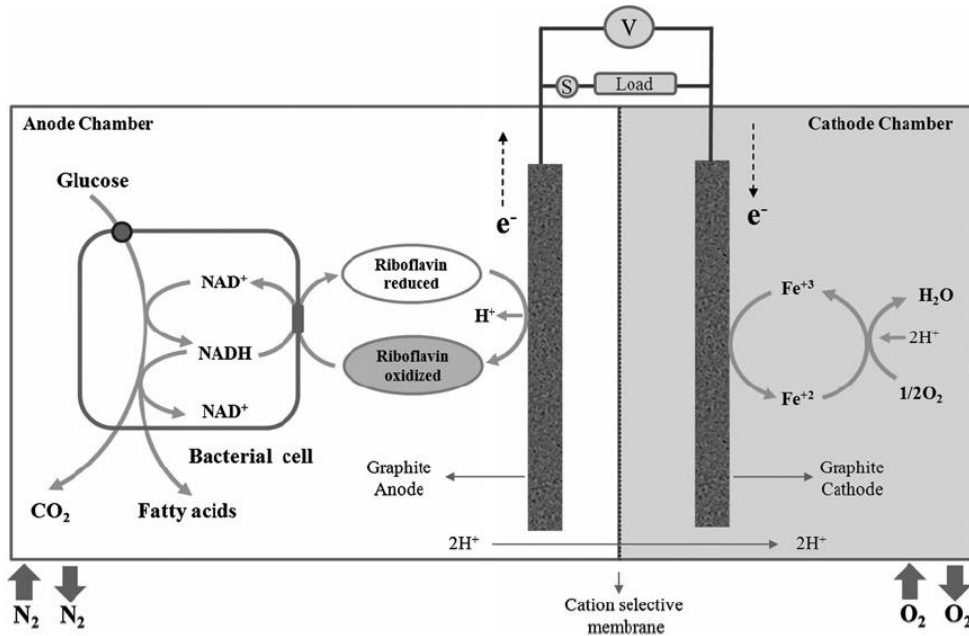
How does electron shuttling work ?

EET

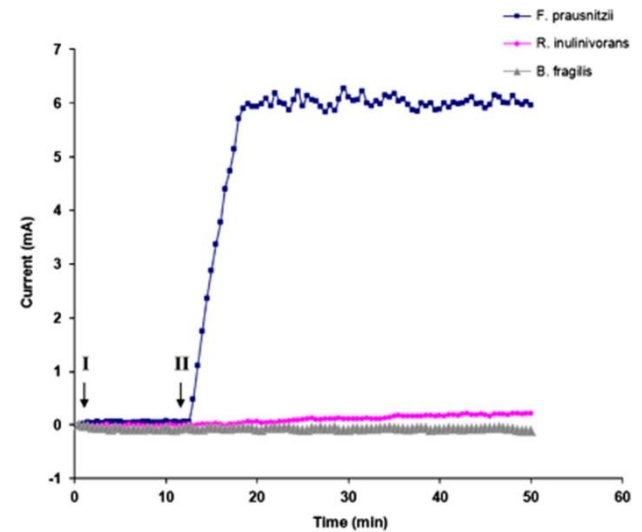


Khan et al., 2012; Buckel and Thauer 2013.

Microbial fuel cell



Riboflavin as ETM



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