Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs, Education and Research EAER

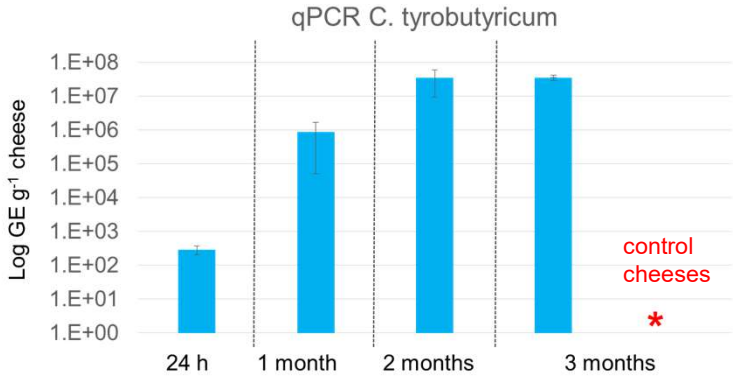
Agroscope

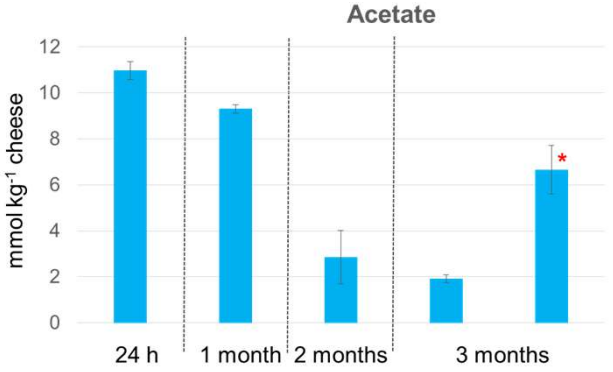
Deciphering the metabolism of *Clostridium tyrobutyricum* in cheese by transcriptomics

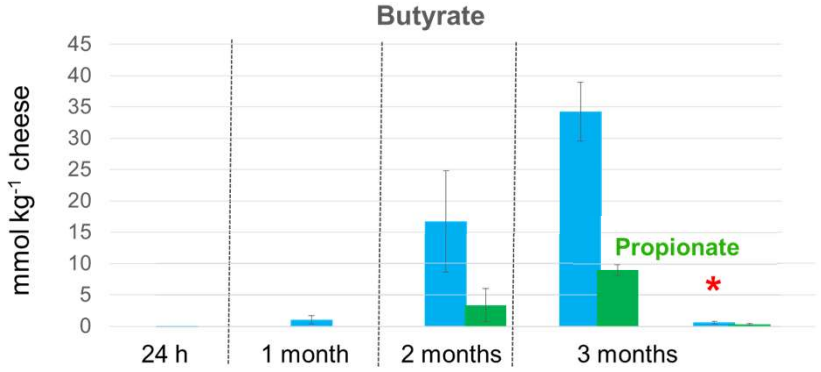
Emmanuelle Arias-Roth

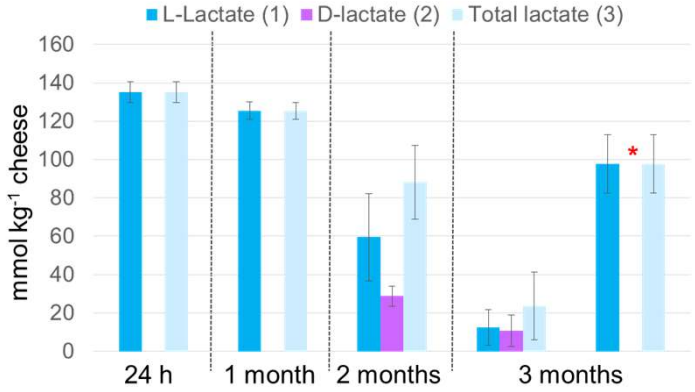
M. Storari, H. Berthoud, D. Wüthrich, S. Irmler

Growth of *C. tyrobutyricum* in cheese

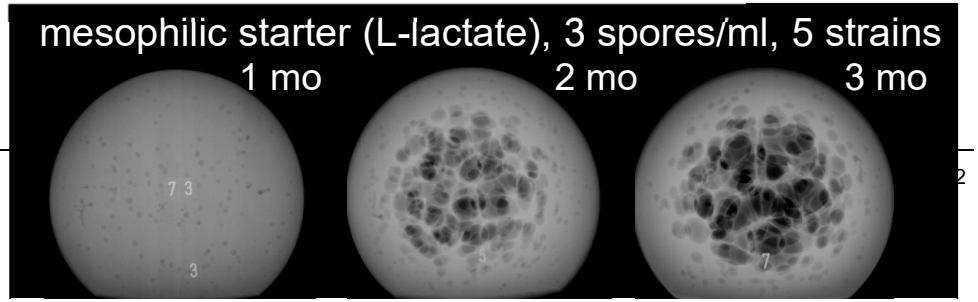






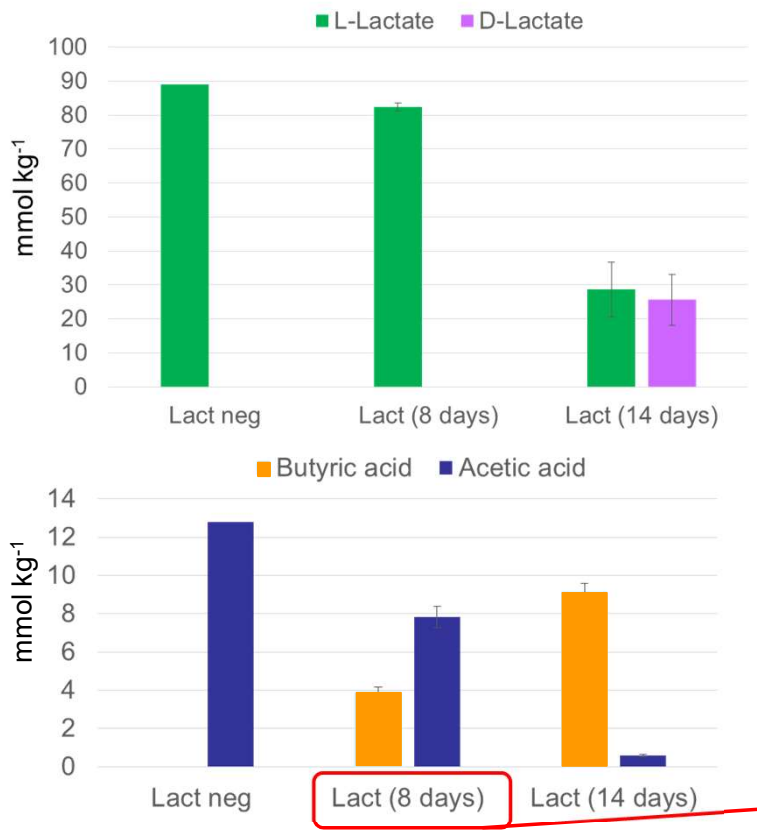


+ other metabolites (Gómez-Torres, 2015)



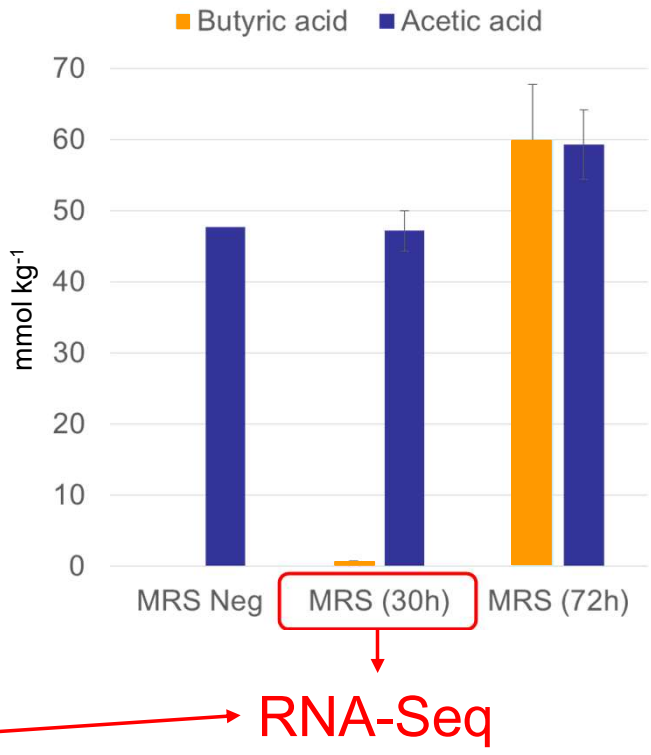
Growth of *C. tyrobutyricum* FAM22553 *in vitro*

Defined medium mimicking cheese
(L-lactate, acetate)



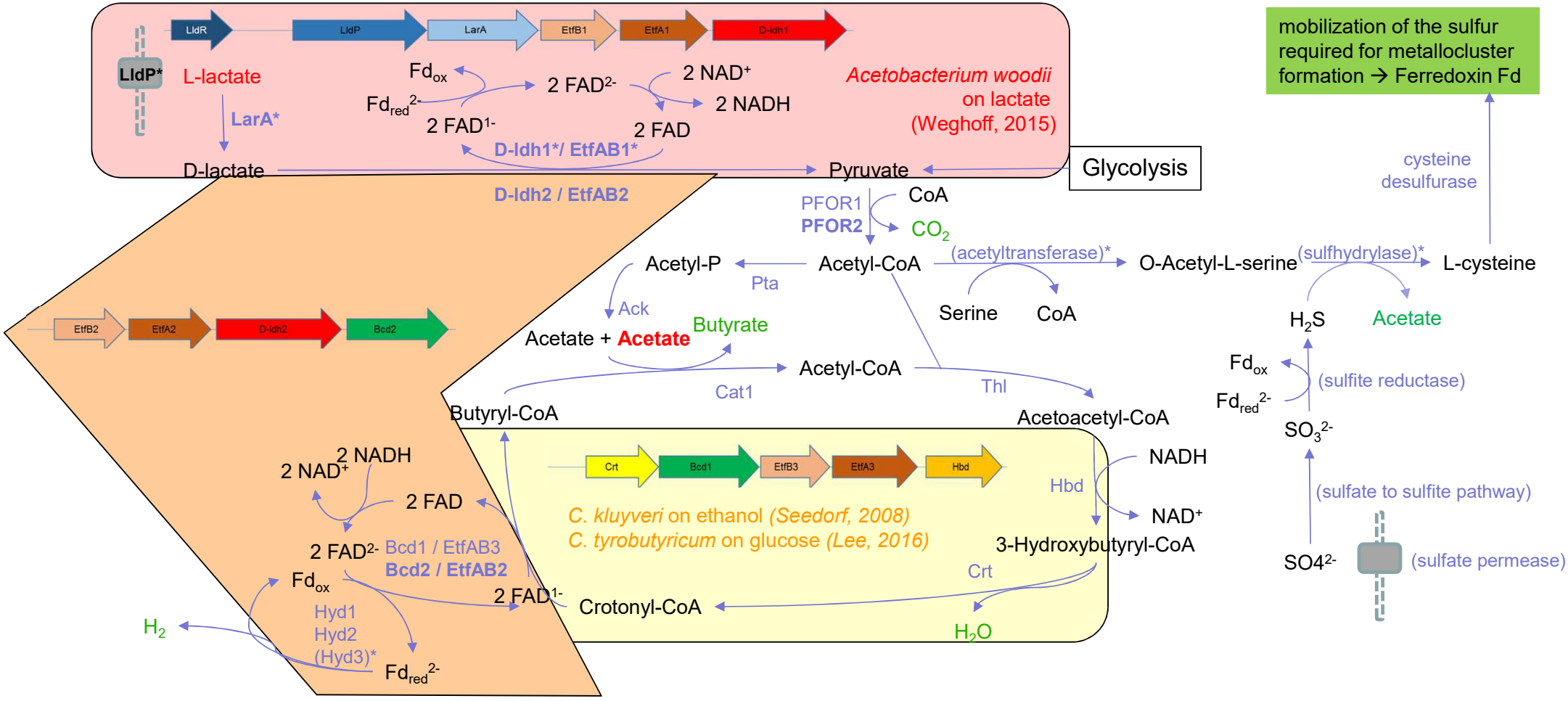
MRS
(glucose, acetate, yeast extract,…)

- no lactate detected, 0.4 mol/L propionate



RNA-Seq

RNA-seq – butyrate metabolism - FAM22553



Agroscope

Conclusion

Metabolism of *C. tyrobutyricum* in cheese = what did we learn from the transcriptomic study?

- Enzymes involved in the consumption of lactate: LarA, D-Ldh

- serine and methionine / H_2S seem to be key compounds for growth of *C. tyrobutyricum* in cheese

- Acetate producing starter and non-starter LAB promote late blowing (heterofermentative and citrate metabolizing LAB, propionic acid bacteria)

Thank you for your attention

Emmanuelle Arias-Roth
emmanuelle.arias@agroscope.admin.ch

Agroscope good food, healthy environment
www.agroscope.admin.ch