

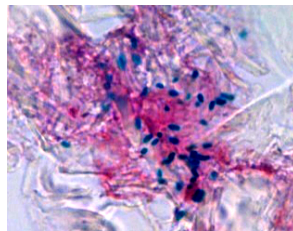
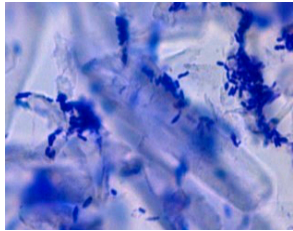
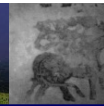
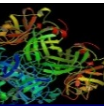
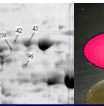
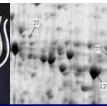
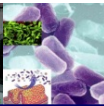
Engineering bacterial strains for consolidated cellulosic biorefinery Construction of butanol/ethanol hyperproducing *C. cellovorans* by metabolic engineering

Roberto Mazzoli

PhD, Assistant Professor Biochemistry

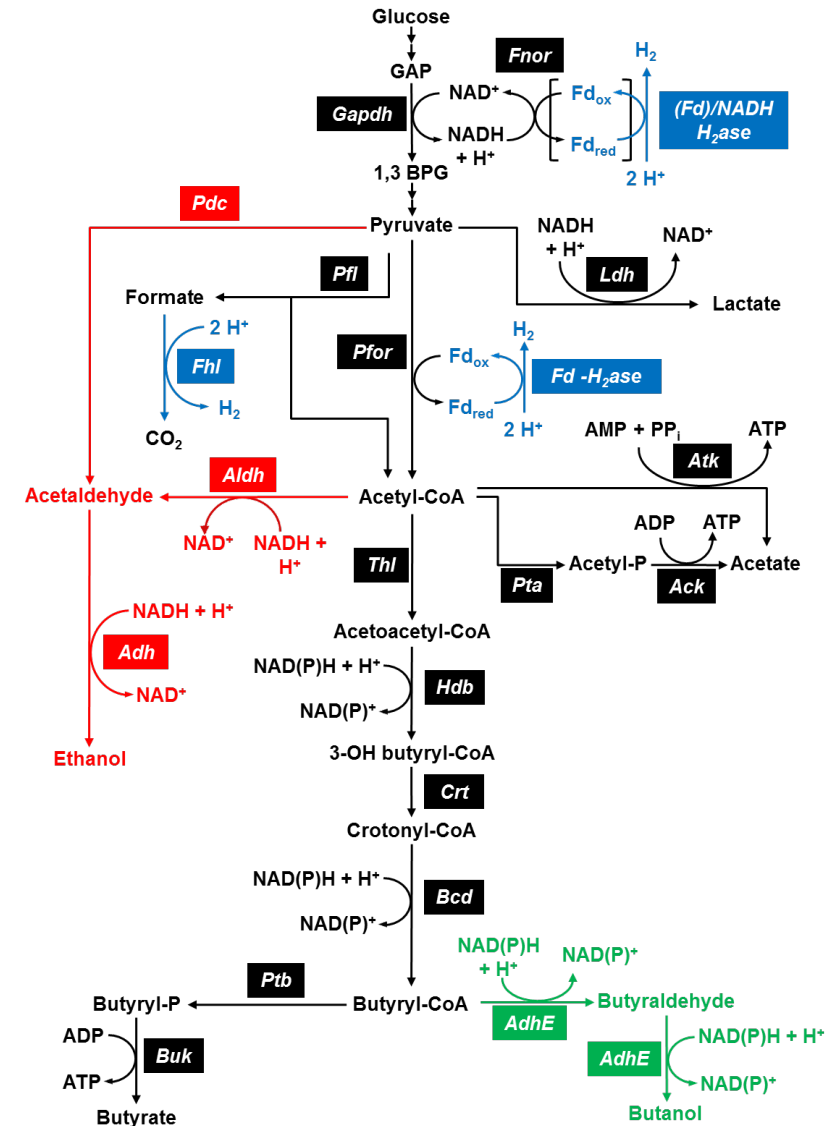
Proteomics and Metabolic Engineering of Prokaryotes (PMEP)

Dept. of Life Sciences and Systems Biology, University of Torino



Clostridium cellulovorans 743B

- Strictly anaerobic bacterium, mesophylic
- Growth substrates: crystalline cellulose, xylan, pectine, several mono and di-saccharides
- Main metabolic products: butyrate, formate, acetate, lactate and traces of ethanol



Aims and methodologies

- Detailed characterization of *C. cellulovorans* metabolism on plant polysaccharides (cellulose, hemicelluloses) vs soluble sugars (glucose, cellobiose): comparative fermentation + metabolite analysis (HPLC) + proteomic analysis (2D electrophoresis)
- Development of efficient and reliable protocols for *C. cellulovorans* gene manipulation: gene cloning, transformation, gene integration into the bacterial chromosome.