RESEARCHPROJECT

Institute
Life Technologies

Biopolymers from Syngas Fermentations (SYNPOL)

Partner(s) FP7 EU Project, CSIC (Spain) with 7 further academic partners and 5 industrial partners

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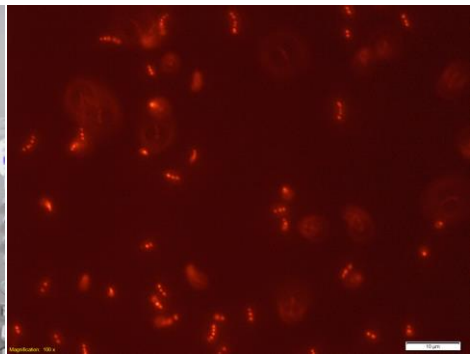
Description The basic idea of the SYNPOL project is to establish an integrated process technology for the cost-effective, sustainable synthesis of biopolymers by fermentation of syngas, the gas mixture produced by pyrolysis of very complex organic wastes.

R&D activities focus on the integration of innovative physico-chemical, biochemical, downstream and synthetic technologies to produce a wide range of biodegradable and/or biobased polymers, and include an assessment on the environmental benefits and drawbacks related to the whole concept.

HES-SO Valais is responsible for the design of syngas fermentations with the poly(3-hydroxybutyrate) producing *Rhodospirillum rubrum* in bench-top bioreactors under anaerobic growth conditions. The physiology of the cells is being investigated in depth using a newly set up laboratory for the safe handling of syngas and cutting-edge process analytical technology tools including a continuous mass spectrometer for gas analysis and a flow cytometer to allow process optimization. In addition, new methods for the downstream processing of PHB polymers in an environmentally friendly way are being investigated.

Modern process analytical technology is used to monitor and control the fermentations on syngas.



***Rhodospirillum rubrum* accumulates the biopolymer poly(3-hydroxybutyrate) intracellularly (bright, red granules under UV illumination after Nile red staining)**

URL www.synpol.org

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