

### **Method for producing polyhydroxyalkanoates in recombinant organisms**

The present biotechnological approach for the production of polyhydroxyalkanoates (PHAs) uses microbial systems. The high production costs make them substantially more expensive than synthetic plastics. Engineering a novel pathway in eucaryotic cell systems is a beneficial alternative to the production of PHAs in bacteria. This pathway will initially produce free (C8) fatty acids from the fatty acid synthetic pathway through the action of thioesterase, that will then add a CoA moiety to the free fatty acid through the action of an acyl-CoA synthetase, that will produce 3-ketoacyl-CoAs from the acyl-CoA through the action of a thiolase, that will produce R-(-)-OH-acyl-CoAs from the 3-keto acid CoAs through the action of a dehydrogenase isoform from yeasts. These R-(-)-3-OH-acyl-CoAs will finally be used as substrate for the PHA synthase reaction.

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