



processes often give a relatively low optical purity, and the third one is only suitable for production of (S)-3-hydroxycarboxylic acids and short chain length (R)-3-hydroxycarboxylic acids.

## Advantages

The biotechnological process developed represents a promising platform for RHA production, since

- RHAs with different chain lengths (C4 to C14) and functional groups can be produced
- A variety of starting materials from sugar to fatty acids or even waste oil is readily available
- *Pseudomonas putida* is a wild-type, non-pathogenic, readily available bacteria
- Conditions for RHA production and purification are mild and safe
- The produced RHAs have high purity and enantiomeric excess

## Applications

RHAs can be used as chiral building blocks for synthesis of

- Antibiotics (such as  $\beta$ -lactams, elaiophylin, norpyrenophorin and viscosin)
- Pharmaceuticals (such as hypocholesterolemic agent)
- Vitamins
- Flavors
- Pheromones

## Ownership

Empa, Swiss Federal Laboratories for Materials Testing and Research, Überlandstrasse 129, CH-8600 Dübendorf

## References

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## Keywords

Biotechnological process, bacterial fermentation, enantioselectivity, R-hydroxycarboxylic acids (RHAs), chiral building block, *Pseudomonas putida* GPo1, *polyhydroxyalkanoates* (PHAs)

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