

## // BIOCATALYTIC PRODUCTION OF NADH AND AROMATIC/ALIPHATIC ALDEHYDES

Ref-No: TA-TM 1117

### BACKGROUND

Biotechnological processes are essential methods for the sustainable production of numerous types of chemical compounds, base chemicals as well as functionalized specialty chemicals. For the efficient run of fermentation processes it is generally also very supportive to provide sufficient supply of NADH, the universal „energy compound“ for nearly all biological processes in cells.

### SOLUTION

The biocatalytic reduction process is already elaborated in two variants, the first one providing chemical compounds which can be directly used for different purposes, the second one being a NADH-recycling process which can be easily "attached" to already existing fermentation processes in order to enhance their performance. The biocatalytic reduction process is working with hydrogen as sole reducing agent, thus being perfectly predestined for the application of "green" hydrogen for chemical synthesis (PtX-technologies).



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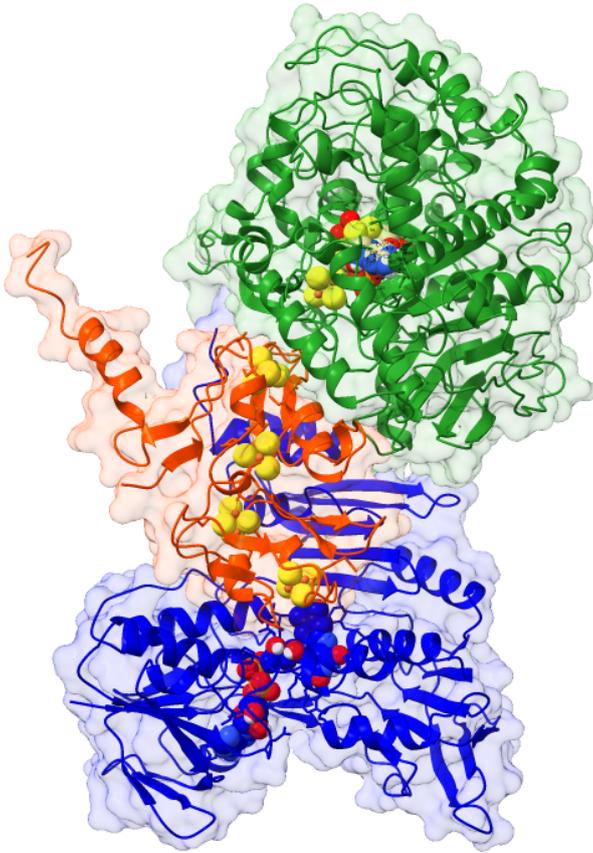
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### DEVELOPMENT STATUS

Laboratory model

### CATEGORIES

//Chemistry //Chemical synthesis and process engineering //Energy engineering //Energy engineering and energy storage //Food science and natural products //Food technology and nutrition //White biotechnology



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## ADVANTAGES

- Simple application of hydrogen as reducing agent
- Easily adjustable to the product of desire

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## SCOPE OF APPLICATION

Fermentation processes of all types

The first variant of the biocatalytic reduction process is well suited for the manufacturing of flavouring compounds (aldehydes) and biofuels (alcohols), the

second variant is applicable for improving all types of fermentation processes, for it provides a facile way of „NADH-recycling“ during fermentation processes generally. The products from the first variant can also be used as intermediate compounds for chemical synthesis (production). Thus the application fields of the invention are quite manifold.

- Chemical manufacturing generally
  - Production of biofuels, flavouring compounds, chemical intermediate compounds
  - Recycling of NADH (from NAD<sup>+</sup>)
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