

KUDO LAB.

[Peptide Catalysts]

– New Class of Enzyme-mimicking Catalysts –
Department of Materials and Environmental Science

Molecular Functional Materials Synthesis

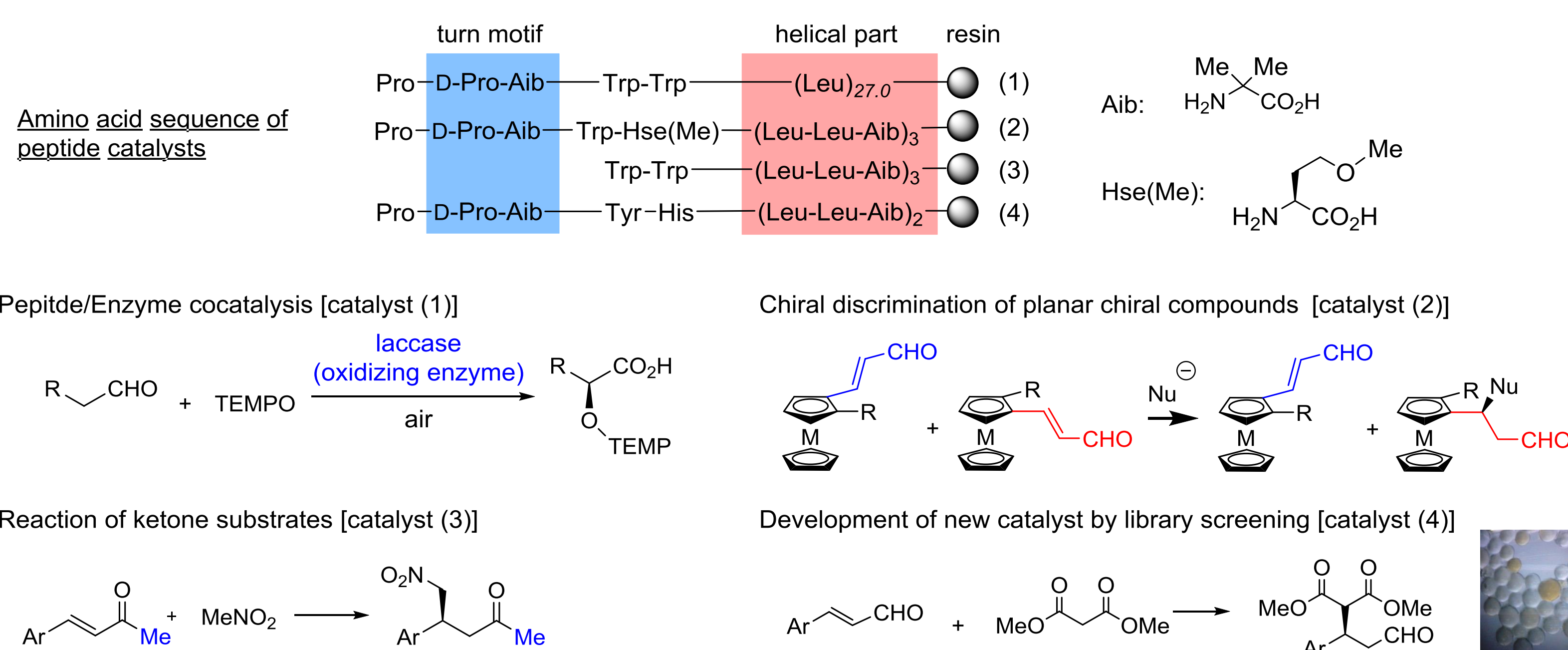
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(1) Peptide Catalysts

Enzymes efficiently catalyze various reactions in living organism. However, enzymes catalyze only the biogenic reactions, hence are not directly applicable to industrial production. To solve this problem, we have developed peptide catalysts because the peptides consist of amino acids, just as enzymes do. We could find some reactions that are unique to peptide catalysts and hardly realized by other artificial catalysts or enzymes. This research might shorten the synthetic route of fine chemicals and is expected to contribute to waste reduction and energy saving in chemical industry.

- ◆ Reactions proceed under ambient conditions
- ◆ Catalysts could be easily recovered and reused
- ◆ Cocatalysis with other catalysts is feasible
- ◆ Library screening method is applicable



(2) Biomimetic synthesis

Starting from simple compounds, living organisms synthesize a wide variety of compounds in their body and use them for life activities. Some of them are known to show pharmacological activities such as antibiotic or anticancer activities. Therefore, the development of efficient synthetic methods for them is important. We are developing a biomimetic synthesis for a series of compounds called polyketides. It is expected that various polyketide compounds can be made by a combination of relatively simple reactions.

