



innovations from nature



acib Technology Offer

Directed modification of proteins

*Common immobilization techniques do not work for your enzyme?
Your protein carries a post-translational modification that is difficult to introduce?
You want to improve the oxidation stability of your protein?
You want to increase the scope of your protein engineering?*

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=> Unnatural amino acids are the innovative solution!

Background

The 20 amino acids prescribed by the genetic code cover only a very limited palette of chemical groups. Nature usually compensates for these limitations by introducing chemical diversity via post-translational modifications, which are very difficult to specifically introduce in a cost-efficient manner. However, it is possible to mimic the side corresponding side chain chemistry by using non-canonical amino acids (ncAAs). They are not included in the genetic code, but are very abundant in nature and allow to vastly expanding the scope of chemical protein modification. Using ncAAs also allows going beyond the standard possibilities of protein engineering to introduce new specificities, as well as higher activities and stabilities.

With standard amino acids, useful chemistries for selective coupling reactions e.g. PEGylations are also missing. For the selective and site-specific chemical modification of proteins, bioorthogonal chemistry can be incorporated into proteins by the introduction of unnatural amino acids. By controlling the position and number of ncAAs the position and number of coupled agents such as PEG can be fine-tuned exactly.

acib-Technology

We are experts in introducing amino acids with reactive side chains into proteins and modifying them using bioorthogonal conjugation chemistry. For this, we exploit the natural substrate tolerance of the translation apparatus in engineered strains. We biosynthesize selected unnatural amino acids from cheap precursors, allowing for cost-efficient use of this technology. We have also devised an improved procedure for upscaling, allowing for large-scale applications (EP 2876165A1).

acib-Offer

We offer residue-specific incorporation of a wide panel of unnatural amino acids, such as methionine, proline, tryptophan, tyrosine, phenylalanine analogs, etc. We can advise you on the best reactive ncAAs for your desired bioorthogonal conjugation reaction. Under protection of a CDA we offer to evaluate possible strategies to modify your protein by our technology. We can provide you with a comprehensive project plan so you can decide yourself on the potential gains and the benefits of such a project.

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