

Application of biocatalysis in carbohydrate chemistry

Sabine FLITSCH [1],

[1] *The University of Manchester, UK*

sabine.flitsch@manchester.ac.uk

Carbohydrate active enzymes provide useful tools for the analysis and synthesis of glycans, and the toolbox of these biocatalysts is expanding in terms of reaction diversity and substrate range. Whilst enzymes have been used widely for native biochemical reactions, it is now increasingly possible to design and engineer biocatalysts that can also be used for non-natural reactions with much wider substrate scope [1,2].

This lecture will discuss a variety of applications of biocatalysts to the synthesis of modified carbohydrates such as protected sugar building blocks [3], deoxy-fluoro sugars [4], imino sugars [5,6] and glycoconjugates such as glycoproteins [7,8] and antibodies [9].

Bibliographic references:

- [1] E.L. Bell et al. (2021) *Nature Reviews Methods Primer* (1) 46.
- [2] W. Finnigan et al. (2021) *Nature Catalysis* (4) 98.
- [3] A. Marchesi et al. (2020) *Angew. Chem.* (59) 22456.
- [4] P. Valverde et al. (2020) *Chem. Commun.* (56) 6408.
- [5] G. Ford et al. (2022) *JACS AU* (2) 2251.
- [6] C.R.B. Swanson et al. (2023) *ACS Central Science* (9) 103.
- [7] E.G. Pallister et al. (2020) *Biochemistry* (59) 3123.
- [8] A. Matthey et al. (2019) *ACS Catalysis* (9) 8208.
- [9] A. Angelastro et al. (2022) *ChemSusChem* (15) e20210