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Oxidoreductase fusions

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Oxidoreductase fusions

Engineering enzymes for coupled reactions and stability

Friso Sybren Aalbers

1. Enzyme fusion can be a useful tool in the context of multistep (cascade) reactions, by simplifying expression, purification and thus application (**Chapters 3, 4, 5**).
2. The orientation of a fusion construct is in some cases crucial for the activity of the fusion enzyme, as enzymes can become inactive by extensions at the N- or C-terminus (**Chapter 3, Chapter 4**).
3. By-products from enzymatic reactions that seem undesirable can sometimes be of great utility. For instance, hydrogen peroxide production by (NADPH) oxidases can enable the use of horseradish peroxidase-coupled assays to screen activity, on colonies or cell-free extracts (**Chapter 4**).
4. Scientists in the past had to compensate lack of technology with a combination of knowledge and creativity. With the current state of technology, there is a risk that those qualities become overlooked and underestimated.
5. By treating others (and yourself) like they can change and grow, you promote such change.
6. The ideal work ethic, in terms of productivity and mental health, could be in-between the stereotypical Dutch and Italian work ethics: having some degree of stoicism and endurance (especially with negative results), while being passionate, celebrating achievements (with others!), and staying involved in social activities with colleagues and activities outside work.