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Creation and evolution of organocatalytic artificial enzymes

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Stellingen behorende bij proefchrift

Creation and Evolution of Organocatalytic Artificial Enzymes

Reuben Boddington Leveson-Gower

1. Working on a highly interdisciplinary topic may feel impossible because acquiring expertise on each individual component already takes a lifetime. Actually, the ability to tackle such research topics is an expertise in itself.
2. Directed evolution of enzymes is mostly a laborious task where the skills which can be learnt are mastered long before the process is complete (Chapters 3 and 6). Therefore, both research and researchers alike will benefit from its automation.
3. If the goal of an evolution campaign is to learn something about an enzyme, then the outcomes should be extensively characterised (Chapter 5). If instead a highly effective catalyst is sought, the campaign should be conducted by a company.
4. The performance of a catalytic process should not be judged by arbitrary cut-off parameters, like having 95% *ee*. Ultimately, other factors may result in the process being inviable.
5. The benefit of a bicycle trip to work for creativity in the scientific process should not be underestimated.
6. When replicating a literature procedure, researchers should not necessarily be discouraged by its failure to work as described, and take seriously the possibility that its description may be erroneous.
7. The application of artificial intelligence to solve scientific problems will only ever be truly satisfactory if it can provide explanations and not only answers.
8. Aspiring academics are diverse with regard to their skills, interests and ambitions. It is then questionable that the promotion opportunities provided by universities do not have similar diversity built in.
9. Young researchers often experience a perceived pressure to be constantly productive. However, leading a balanced lifestyle will lead to better health and professional performance for most people.