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Synthetic modification of fusogenic coiled coil peptides

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Citation

Crone, N. S. A. (2021, December 16). *Synthetic modification of fusogenic coiled coil peptides*. Retrieved from <https://hdl.handle.net/1887/3247291>

Version: Publisher's Version

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Propositions

Accompanying the thesis:

“Synthetic modification of fusogenic coiled coil peptides”

- I. Liposomes containing peptide ‘E’ anchored to the lipid membrane are stabilized through homomeric peptide interactions. (Chapter 2)
- II. Xylene stapling is an effective method for the generation of helical cyclic peptides, and should be considered as the go-to method for preorganization of coiled-coil peptides. (Chapter 3)
- III. The binding strength of fusion mimics is the most dominant interaction to predict fusion efficiency. (Chapter 3)
- IV. The high degree of complexity in the regulation of natural membrane fusion makes this both an interesting and a difficult challenge to mimic in a synthetic model system.
- V. Azobenzene-containing amino acids have shown promise as a general tool for peptide and protein photocontrol. (Chapter 5 and 6)
- VI. There is a limit to the effect of isomerization effect that a single azobenzene can achieve in coiled coil peptides. (Chapter 4 and 5)
- VII. Molecules can be elegant, or function in an elegant manner; but the molecules you can make will always outperform an elegant paper design.
- VIII. To achieve high spatiotemporal control in an active drug delivery system based on photoswitches, a short relaxation half-life is an advantage.
- IX. knowing how ‘common’ scientific facts have been determined is a good starting point to understanding both the gaps in knowledge, and how to investigate them.
- X. New ideas often don’t appear when trying hard to solve a problem, but when doing something completely different.
- XI. Short contracts, low job security and questionable opportunity for research funding and career progression results in low retention of academic staff, high rates of mental health problems and research focussed on short-term results.