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Bioorthogonal tools to study fatty acid uptake in immune cells

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Propositions
Accompanying the thesis

Bioorthogonal Tools to Study Fatty Acid Uptake in Immune Cells

1. While bioorthogonality can be interpreted as orthogonality to (or independence from) biology, nature provides a rich source of inspiration for novel bioorthogonal probe design.
This thesis; Row, R. D. & Prescher, J. A., Acc. Chem. Res. 51, 1073–1081 (2018)
2. The inverse electron-demand Diels-Alder (IEDDA) reaction is currently the best bioorthogonal reaction for labelling in live cells.
This thesis, Chapter 2
3. Without a clear research question in mind, searching for answers in -omics datasets is like looking for a needle in a haystack.
This thesis, Chapter 3
4. The ability to multiplex information about nutrient uptake with flow cytometry and -omics approaches will open many new doors in immunometabolism research.
This thesis, Chapter 4; Heieis, G. et al., bioRxiv 2025.07.11.664320 (2025); Pelgrom, L. R. et al., Cell Rep. 42, 112828 (2023)
5. Bioorthogonal chemistry has greatly enhanced researchers' ability to study the biology of small biomolecules.
Iglesias-Artola, J. M. et al., Nature 646, 474-482 (2025)
6. Fatty acid transport is more complex than it seems.
Hamilton, J. A., J. Lipid Res. 39, 467-481 (1998); Schwenk, R. W. et al., PLEFA 82, 149-154 (2010); Samovski, D. et al., Annu. Rev. Physiol. 85, 317-337 (2023)
7. A well-functioning immune system largely depends on a well-functioning metabolism.
Makowski, L. et al., Immunol. Rev. 295, 5-14 (2020); Chi, H. Cell Mol Immunol 19, 299-302 (2022)
8. Interdisciplinary research between chemists and immunologists brings out the best of both worlds.
9. Fundamental curiosity-driven research is the foundation all applied science is built on. To the general public, it remains a hard sell.
10. The closer you get to the end of a PhD, the bigger the difference between χρόνος (chronos, measured time) and καιρός (kairos, perceived time) becomes.