Peptides in Action! – unlocking their potential in chemical biology

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Peptides have emerged as powerful tools in chemical biology and drug discovery because of their intrinsic characteristics that positioned them in the sweet spot between small molecules and biologics. Peptides act as key biological mediators with minimal toxicity. As biologics, peptides can acquire a particular secondary structure for improved molecular recognition. Yet, generally, peptides have lower cost and immunogenicity. Easily synthesised and modified, peptidomimetics can overcome challenges related to uptake and stability. The growing interest in synthetic peptides in drug research highlights their efficacy[1] and their role in chemical biology as tools for modulating protein-protein interactions, target identification, and eventually deciphering complex biological processes to improve life.
In my group, we have intensively worked with peptides to manipulate biological processes. In this talk, I will provide a brief overview of our research program, highlighting the use of peptides as modular platforms for organelle-dependent activation of photosensitizers[2] and optoepigenetic tools for in vivo control of hematopoiesis.[3,4] Mainly, I will focus on our most recent work that demonstrates how peptides can assist us in the discovery of new therapeutic targets[5] and beyond, including non-published results.

References:

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