

ORGANIC SEMINAR

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Amidines as Amide Surrogates: Unlocking New Opportunities in Peptide Chemistry

Amidines are almost entirely unstudied as surrogates for the native amide bond within the peptide backbone. Yet, the growing demand for bioactive peptides to treat disease compels the development of new chemistries that can tune their properties. By manipulating the peptide backbone—rather than side chains—an orthogonal and powerful strategy for molecular design emerges. The absence of amidines in this context reflects a long-standing lack of general methods to introduce them into peptides. Over the last five years, our group has developed such methods, establishing amidines as an intuitive and versatile amide-bond isostere. These advances reveal new opportunities in peptide folding, stability, and drug design, and open a broader landscape for reimagining the chemistry of the peptide backbone.