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c-Myc is a transcription factor and an attractive therapeutic target as it drives the majority of human cancers. However, inhibiting c-Myc at the protein level is difficult, in part due to its intrinsically disordered structure. Dr. Sheng Feng aims to circumvent this problem by inhibiting c-Myc mRNA with small molecules. Dr Feng will use a fragment-based approach using an RNA-biased library that is functionalized to improve affinity for RNA. Dr. Feng will tether fragments that bind to adjacent RNA sites to improve binding affinity and selectivity. These experiments will be conducted in Dr. Eric Kool's lab at Stanford University. Dr. Feng's research will explore a new route for inhibiting an important target in oncology and represents a general method for inhibiting other difficult protein targets.

As a graduate student in Dr. Stephen Buchwald's lab at the Massachusetts Institute of Technology, Feng developed copper hydride-catalyzed bond forming reactions that are highly regio- and stereoselective. Such reactions produce important substructures for pharmaceuticals, agrochemicals, and natural products. Dr. Feng's background in organic chemistry has prepared her to design and prepare small molecule ligand libraries for targeting c-Myc mRNA.

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