
Synthetic Chemistry at Work:

Chemical Probes for Biology and Medicine

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In this short lecture, I will describe recent synthetic efforts in our laboratory aimed at preparing chemical probes to help investigate specific questions in biological and medical research. Projects highlighted will include (1) a collaborative study on DNA helicases, wherein synthetic chemistry overcame the limitations of commercially available pull-down ligands to facilitate investigation of minichromosome maintenance proteins, (2) an ongoing effort to map new structure–activity relationships for the bactobolin and acybolin families of translation inhibitors, and (3) chemoenzymatic preparation of isotopically labeled bilin pigments to help trace their in vivo transformations during phototherapy and oxidative stress.