Chemical control over hemi-indigo photoswitches

Duindam, N.

Stellingen

Behorende bij het proefschrift

Chemical Control over Hemi-Indigo Photoswitches

1. Photoisomer interconversion at the photostationary state represents untapped potential. (This thesis)

2. Harnessing the selective activation of photoisomerization upon substrate binding provides a strategy toward directional molecular pumping. (Chapters 2 and 6)

3. Shifting the thermal equilibrium between isomers through supramolecular interactions effectively complements quantitative yet irreversible photoisomerization. (Chapter 4)

4. Intramolecular blocking of the binding site in the low-affinity state of a photoswitchable receptor maximizes the affinity difference between isomers. (Chapters 4 and 5)

5. The effects of chemical stimuli on photoswitch behavior should be assessed by disentangling changes in thermal and photochemical properties.

6. Ground-state interactions do not govern excited-state behavior; therefore, the relative stabilization of one isomer cannot account for an observed shift in the photostationary state. (*Angew. Chem. Int. Ed.* **2021**, *60*, 19442-19450)

7. Although photoisomerization occurs on the picosecond timescale, slow bulk photoisomerization remains a major hurdle in the field.

8. Generating chemical gradients via differential irradiation of a photoswitchable receptor across macroscopic compartments does not involve microscopic directionality; therefore, the receptor cannot be defined as a molecular pump. (*Science* **2024**, *385*, 544-549 and *Nat. Chem.* **2014**, *6*, 202-207)

9. The world is a museum of people; life is better when you surround yourself with the most interesting ones.

10. A delusional plan is better than no plan at all.

Nol Duindam

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