Single-molecule spectroscopy reveals photosynthetic LH2 complexes switch between emissive states
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Light-harvesting complex 2 (LH2) is the primary antenna in purple bacteria & the site of initial photo-absorption & energy transfer steps

Simultaneous measurements of fluorescence intensity, lifetime and spectra on single LH2 complexes

Correlated changes in fluorescence intensity & lifetime for excitation of all pigment groups

Spectral maximum shifts with ~3% of intensity changes

Spectral changes uncorrelated with intensity/lifetime changes

3 states revealed in lifetime-intensity space

Model of molecular mechanism behind observed states

Rate of state A to state B intensity dependent → photo-activated, reversible quenching

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