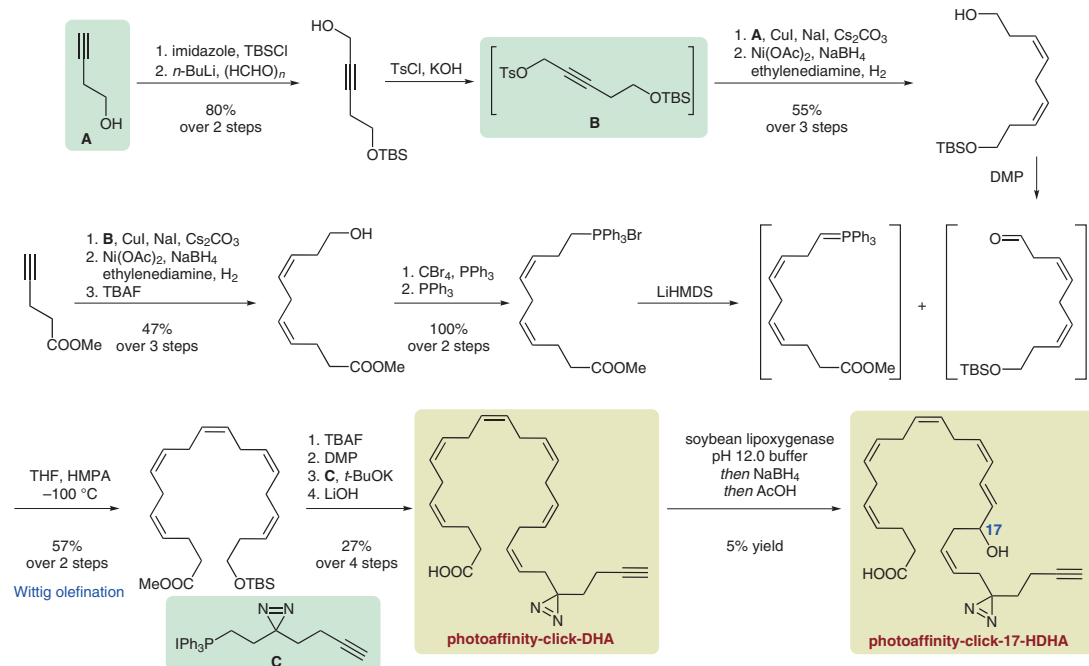
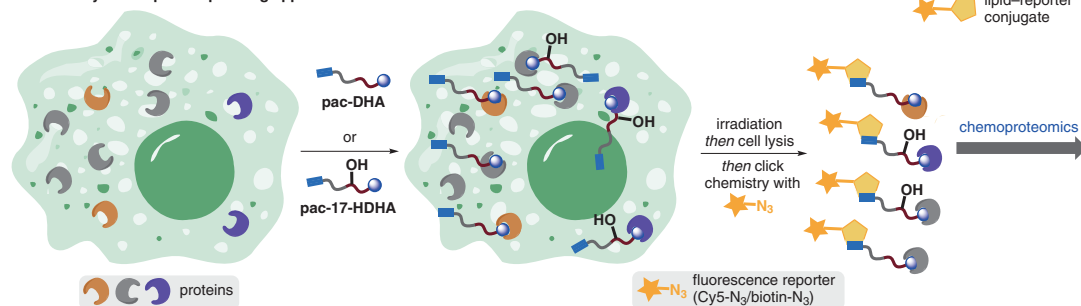


Photoaffinity Lipid Probes Decipher Docosahexanoic Acid Target



Photoaffinity-based protein profiling approach:



Significance: Docosahexanoic acid (DHA) is an omega-3-polyunsaturated fatty acid (PUFA) and an endogenous signaling lipid with anti-inflammatory properties. However, its biological mechanism in the resolution of inflammation is poorly understood. Here, the authors developed two bio-orthogonal photoaffinity-click (pac) probes, pac-DHA and its 17-hydroxy metabolite pac-17-HDHA, to identify their targets in human macrophages.

Comment: The authors synthesized the PUFAs using Wittig olefination as a key reaction. Photoaffinity-based protein profiling revealed prostaglandin reductase 1 as the lipid-binding partner, which metabolizes 17-oxo-DHA – a metabolite of 17-HDHA. The authors also found that 17-oxo-DHA reduces the formation of pro-inflammatory lipids in human macrophages and neutrophils.