



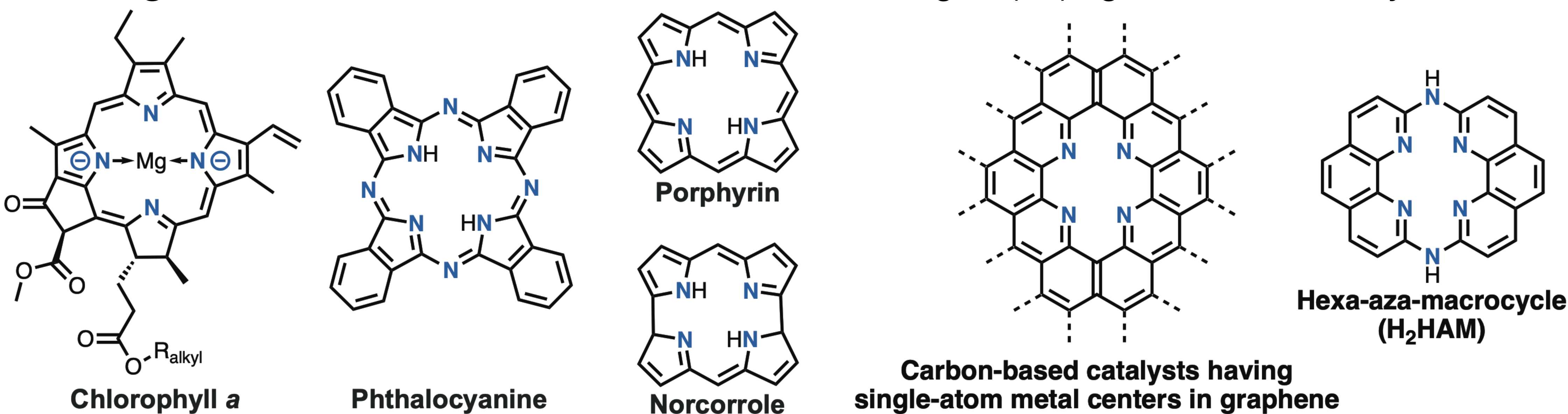
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Development of Synthesis of [1,10]phenanthroline[5,6-*f*][1,10]phenanthroline

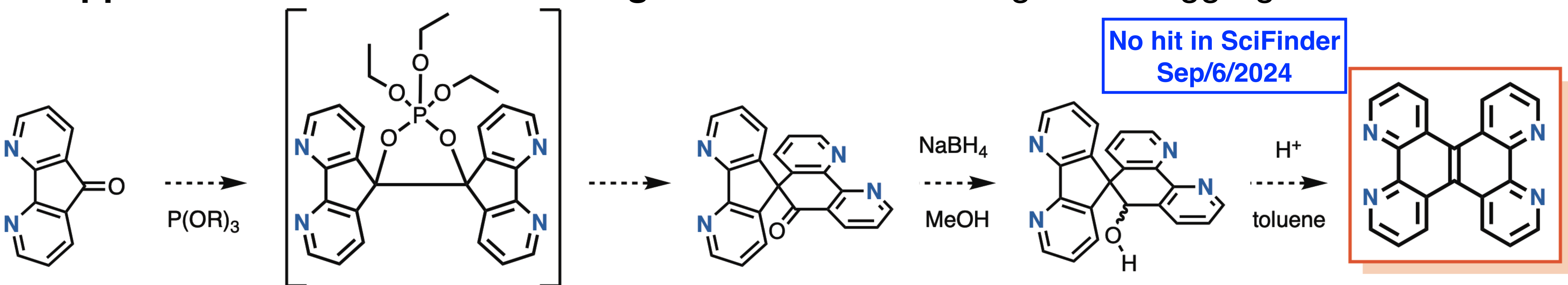
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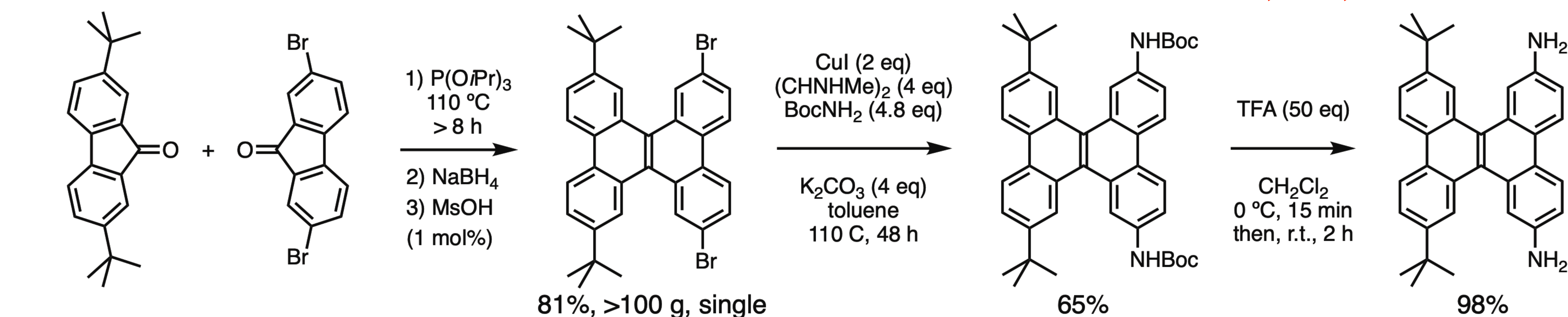
1. Background: Mother Nature tames tetradentate nitrogen (N₄) ligands for redox systems.



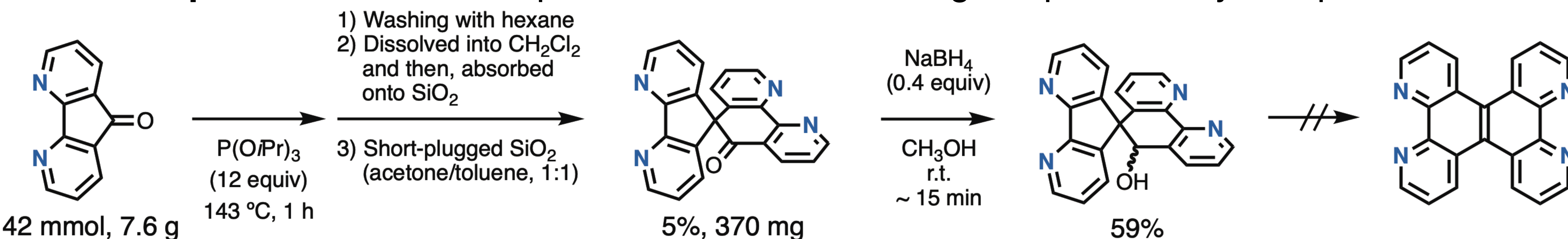
2. Approach to Our Molecular Design: An extroverted N₄ ligand for aggregation *via* metals



Because we established the dimerization of fluorenones: *Tetrahedron* 2023, 143, 133549



3. Real Experiments: Each step faces a serious challenge of productivity and purification.



Some insights into the process: the penta-oxy-phosphorane was found in high yield.

