

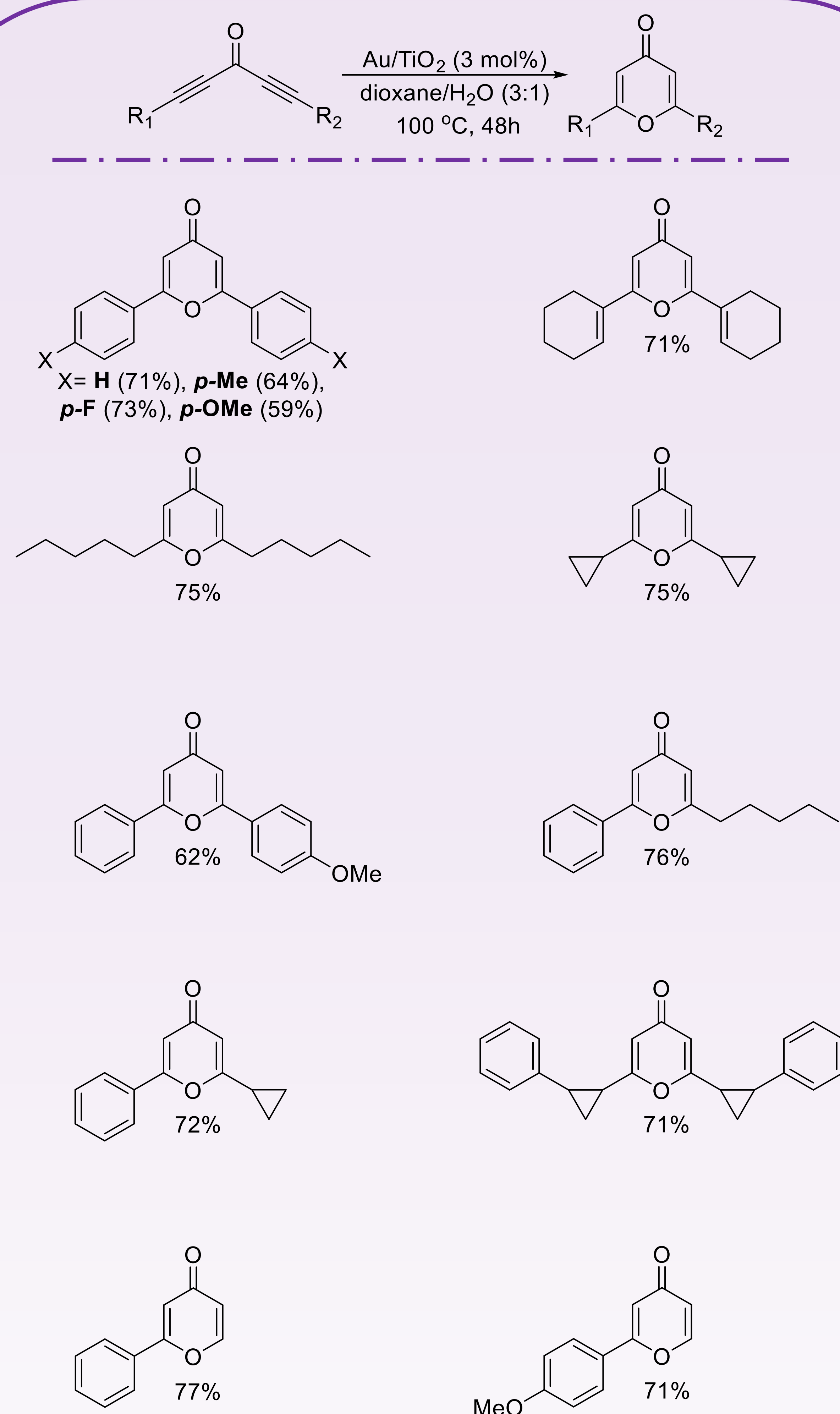
# GOLD NANOPARTICLE-CATALYZED AND ORGANOCATALYZED APPROACHES FOR THE SYNTHESIS OF 4-PYRONES VIA HYDRATION OF SKIPPED DIYNONES

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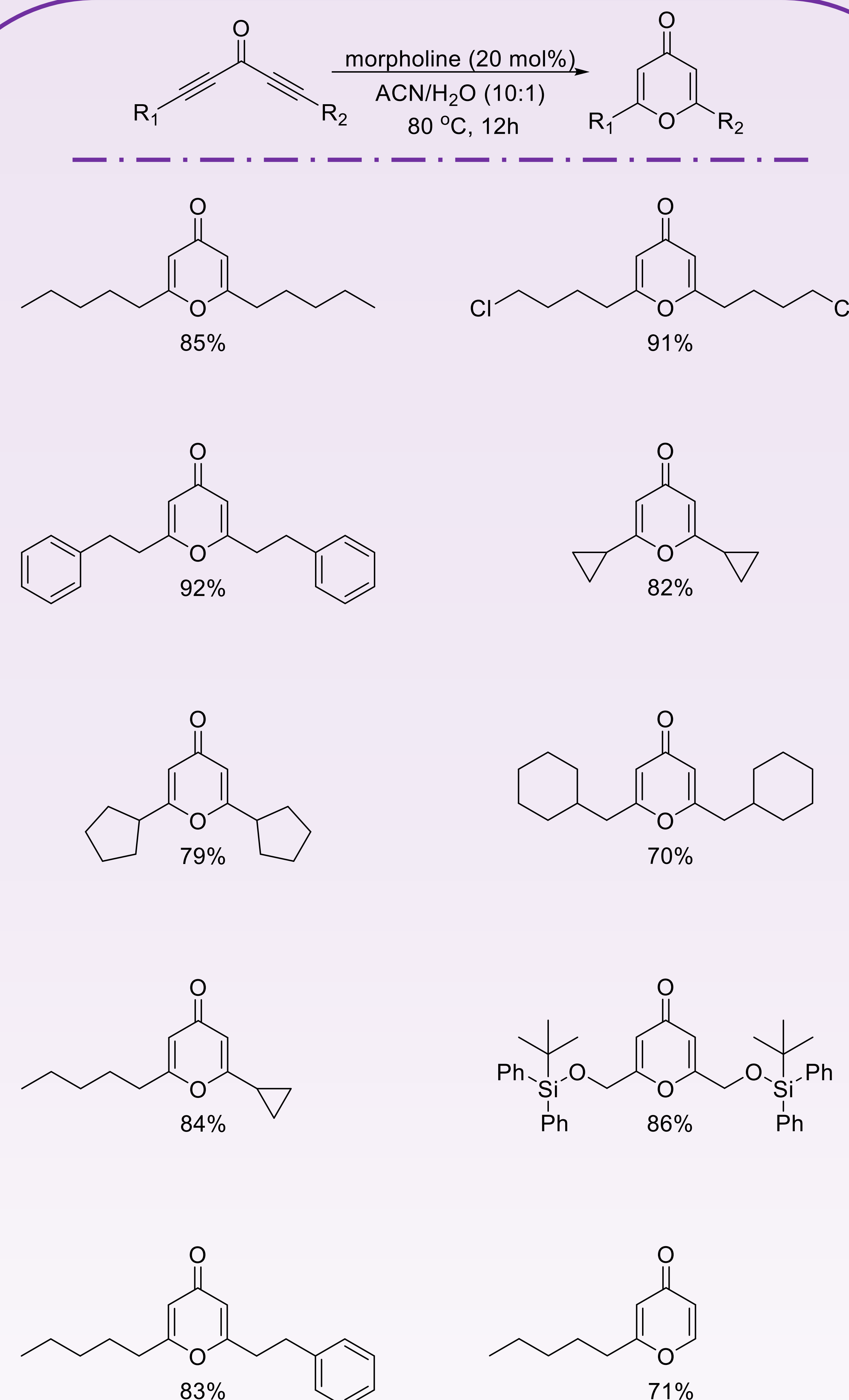
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**Abstract:** Au nanoparticles supported on TiO<sub>2</sub> catalyze via triple bond activation the hydration/6-endo cyclization of skipped diynones into 4-pyrones, in aqueous dioxane. The isomeric 3(2*H*)-furanones, which could formally arise through a competing and often prevailing 5-exo cyclization pathway under catalysis by ionic Au(I) substances, were not seen.<sup>1</sup> The same transformation can be achieved under milder conditions via organocatalysis by a secondary amine (e.g. morpholine) in aqueous acetonitrile. This reaction proceeds via initial conjugated addition of amine on triple bond, then Michael addition of H<sub>2</sub>O on the adduct, followed by amine elimination.<sup>2</sup>

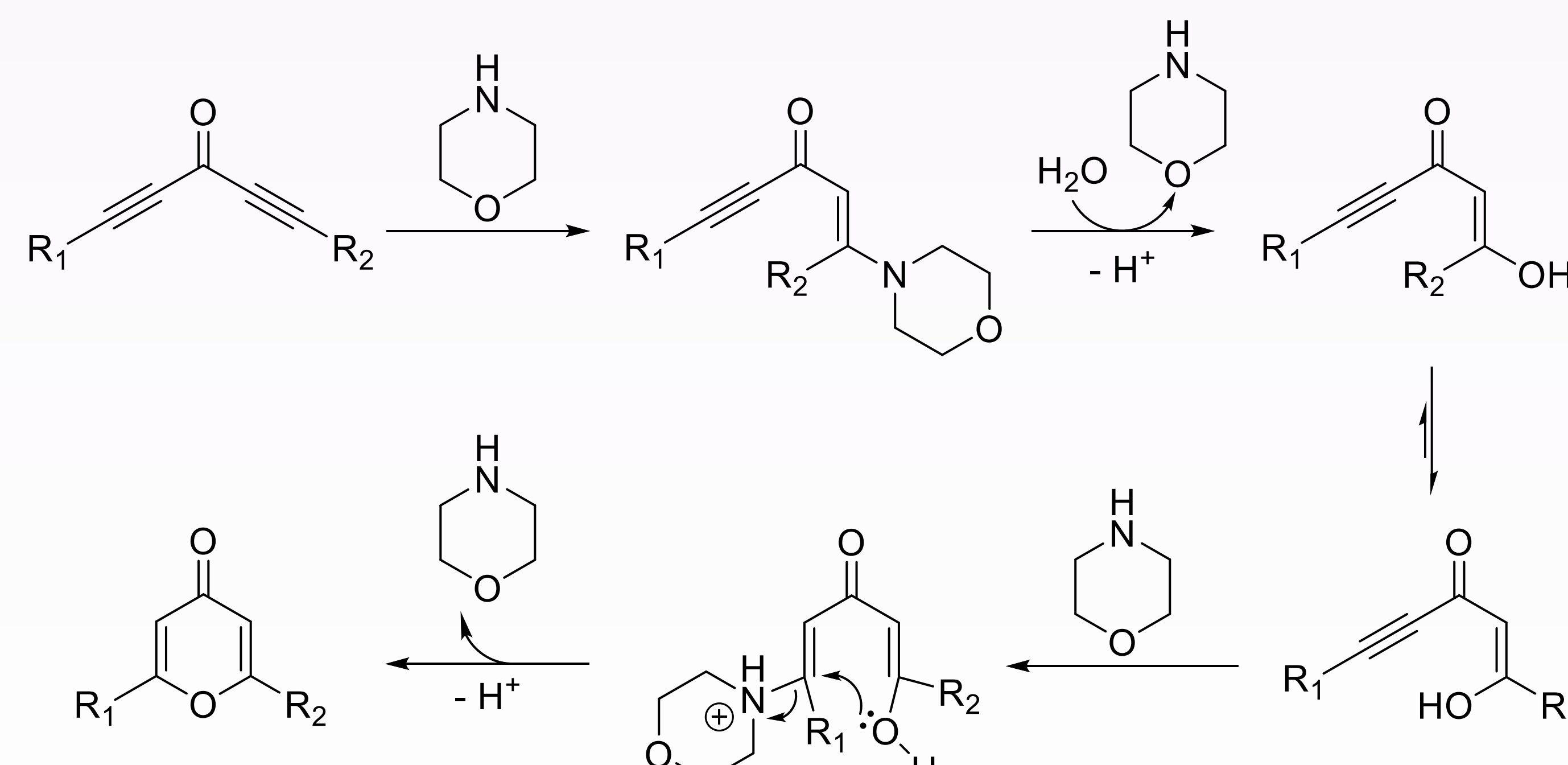
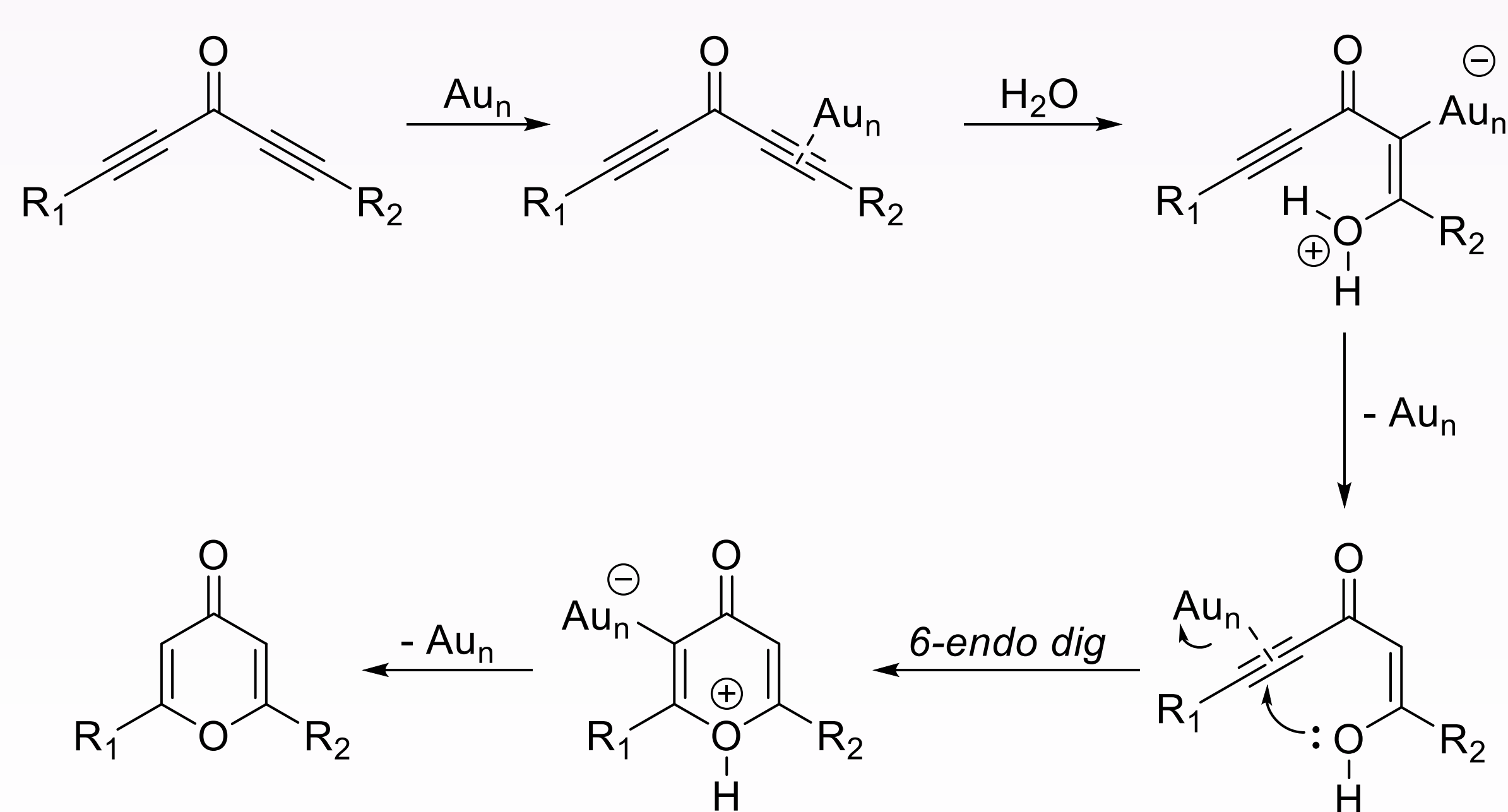
## Gold Nanoparticle-Catalyzed Approach



## Organocatalyzed Approach



## Proposed Mechanisms



**References:** [1] Zantioti-Chatzouda, E.-M.; Kotzabasaki, V.; Stratakis, M. *J. Org. Chem.* **2022**, *87*, 8525.  
[2] Zantioti-Chatzouda, E.-M.; Koromilas, N.; Kosidekakis, E.; Stratakis, M. *In preparation*.

Digital version of the poster can be found here:

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