A New Green Photochemical Synthesis of Vorinostat

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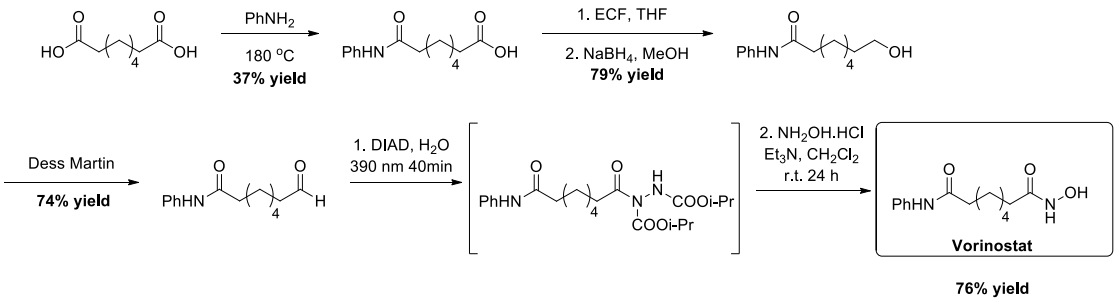
Vorinostat, also known as suberoylanilide hydroxamic acid (SAHA), inhibits class I and class II histone deacetylase enzymes (HDAC), meaning it prevents cell growth, cell differentiation and leads to apoptosis of malignant cells and solid tumors. It can be used to counteract cutaneous T cell lymphoma diseases. Furthermore, it exhibits the ability to be a part of combination therapies to treat other forms of cancer.[1] Nowadays, the synthesis of valuable pharmaceuticals benefits from green, sustainable and especially metal-free procedures. Having that in mind, we were able to develop a photochemical approach for the hydroacylation of azodicarboxylates. After a thorough optimization of the reaction, using irradiation of 390 nm and water as the solvent, we were able to get the corresponding acyl hydrazide and eventually synthesize Vorinostat. Starting from suberic acid, after 5 steps, a total yield of 17% was obtained, leading to Vorinostat as the final product.[2]



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