

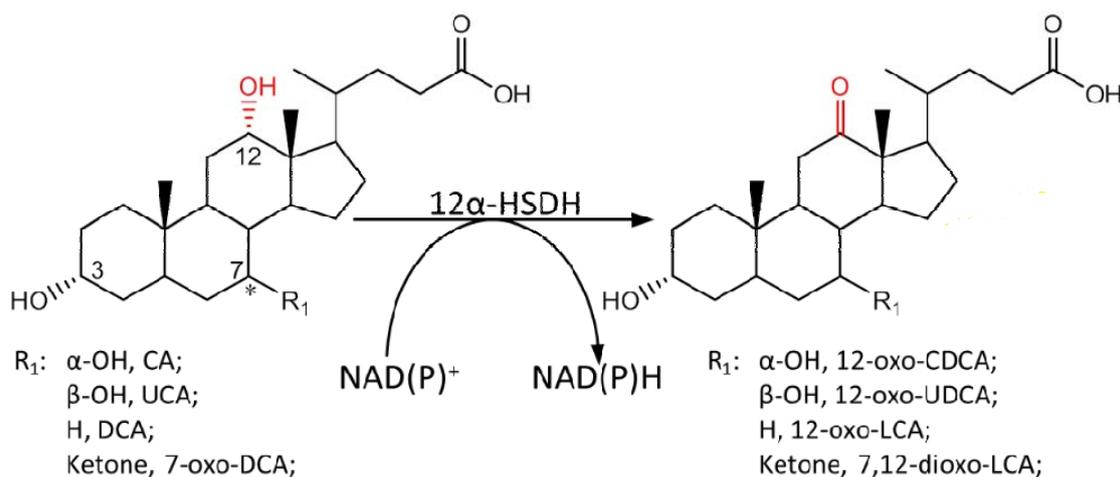
REPLACING Cr(VI) WITH AN ENZYME: CLEAN OXIDATIONS

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Oxidation chemistry is still based on toxic reagents that are used in stoichiometric quantities. In the oxidation of cholic acid derivatives Cr(VI) is still applied industrially and urgently needs to be replaced. Here we describe a selective and mild oxidation of 12 α -hydroxysteroids to the corresponding ketones with oxygen as oxidizing reagent, catalyzed by an enzyme (Scheme 1). The only side product in water. The clean reaction and its engineering for applications in flow chemistry will be described.



Scheme 1: Cr(VI) is replaced by an enzyme and oxygen in the regioselective oxidation of cholic acid derivatives.

[1] Clean Enzymatic Oxidation of 12 α -Hydroxysteroids to 12-Oxo-Derivatives Catalyzed by Hydroxysteroid Dehydrogenase, Fabio Tonin, Natália Alvarenga, Jia Zheng Ye, Isabel W.C.E. Arends and Ulf Hanefeld, *Adv. Synth. Catal.* 10.1002/adsc.201900144