Short Communication

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Enzymes for green and sustainable industrial processes: Example of the development of enzymatic cascades involving Transketolase for the synthesis of rare valuable (3S)-ketoses

Marion Lorillière

University of Clermont Auvergne, Institute of Chemistry of Clermont-Ferrand, France

Abstract

Over 70% of women with breast cancer are with hormone receptor positive disease [1], and most of them are treated with an adjuvant endocrine therapy. Five years tamoxifen used to be a standard adjuvant endocrine treatment of breast cancer. It was shown by a metaanalysis that tamoxifen reduced about 40% of recurrence rates in both premenopausal and postmenopausal women with breast cancer [2]. Third generation Aromatase Inhibitors (AIs), exemestane (steroidal), anastrozole (non-steroidal), and letrozole (non-steroidal) began to be used in late 90's as an adjuvant endocrine therapy in postmenopausal women with breast cancer. A randomized controlled trial showed that 5 years adjuvant anastrozole was superior to 5 years adjuvant tamoxifen in terms of disease-free survival (DFS) rates [3]. In addition another randomized controlled trial showed that 5 years of adjuvant letrozole was superior to 5 years adjuvant tamoxifen in terms of DFS rates and overall survival (OS) rates [4]. .

Biography:

Marion Lorillière completed her PhD in 2017 at the Institute of Chemistry of Clermont-Ferrand in France, in Pr. L. Hecquet's group, in the field of Biocatalysis. Her research focused on the enzymatic synthesis of chiral compounds by stereoselective carboligation catalyzed by a novel thermostable transketolase (TKgst), a robust thiamine diphosphate (ThDP) dependent enzyme, expressed from Geobacillus stearothermophilus. Her main objectives were to broaden TKgst substrate spectrum by Directed Evolution, while improving TKgst reaction process, through the development of one-pot enzymatic cascades. From 2018 to 2019, she completed postdoctoral research in the French pharmaceutical group Servier, in Croissy-sur-Seine, in France. She aimed at developing biocatalytic reactions catalyzed by isolated enzymes and whole cells, as well as the screening of fungal strains, for the discovery of new chemical entities. Since 2019, she is currently working in the international group PMC Isochem, in Vert-le-Petit, in France, in the field of protein engineering, fermentation and biocatalysis.

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