

## **-Contact with scientists regarding specific technological issues/ suggestions**



**Prof. Xu Jianhe** is a well-respected professor in Biocatalysis and Bioprocessing State Key Laboratory of Bioreactor Engineering in East China University of Science and Technology.

With many questions regarding to complex bioprocessing and enzyme catalysis, we write to Prof. Xu, a very famous professor in China and also expert to get further instructions and professional help. At the beginning of our experiment, we decided to employ a two enzyme in one pot catalyzed reaction(see figure.1). However, after our initial attempt, we found out that the reverse reaction was more prevalent than the forward reaction. Thus because of this, the product was actually CDCA, the initial reactant, instead of UDCA, our expected product. This conundrum stopped us from reaching any further into the experiment. At this time, Prof. Xu suggested us to separate the two enzymes into two steps. (see figure 2) After listening to his suggestion, our team worked together and produced our new experiment plan with a two step reaction instead of one. In this way, the end product will not be transformed back into CDCA, and the mass production of USCA proves to be successful. As well as enhancing the biopharmaceutical effect of UDCA, we also aims to reduce the production cost. When we were designing the experiment, we included the usage of cofactors: NADH and NADP<sup>+</sup>. However, the cost of cofactors can be immense if they are not regenerated. After hearing about our problem, Prof. Xu suggested us finding enzymes to help with the regeneration of cofactors. With his suggestion in mind, we eventually employed GDH(Glutamate Dehydrogenase) to regenerate the cofactor NADP<sup>+</sup>, and LDH(Lactate Dehydrogenase) to regenerate the cofactor NADH. Carefully answering our questions and giving us other valuable information and cases about our topic, Prof. Xu used his actions to encourage us in refining our experiment and to give it a try.

Figure 1:

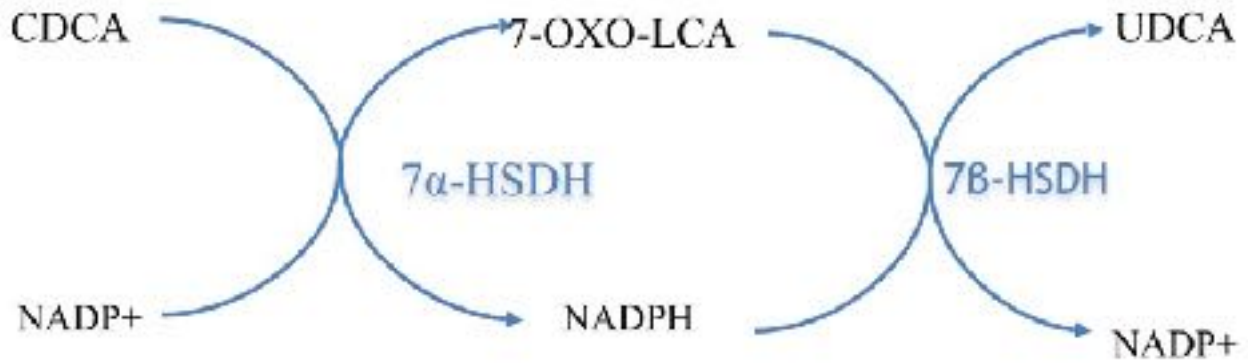


Figure 2:

