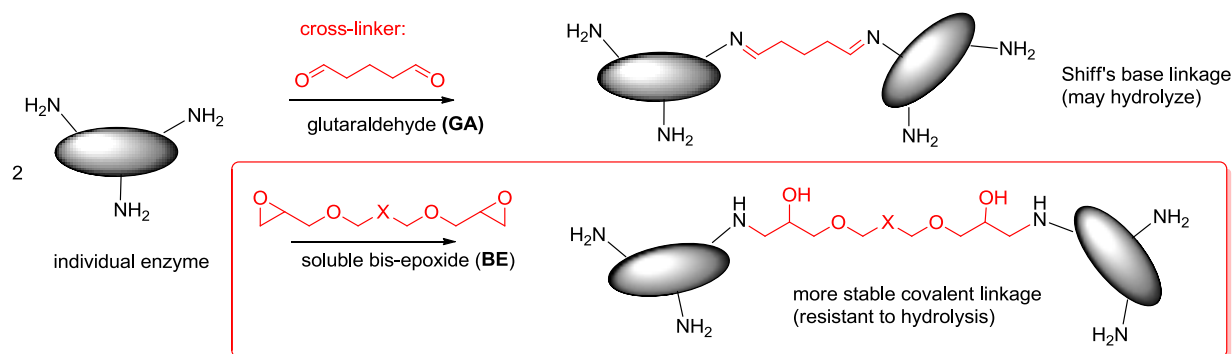
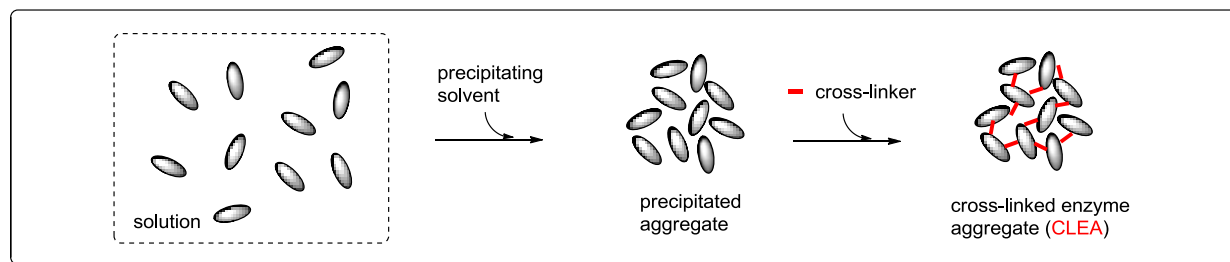


Novel methods for PAL immobilization

Bis-epoxide type cross-linker for stable CLEAs



CLEAs of *PcPAL* and *RtPAL* crosslinked with GA or BE were practically inactive. The GA or BE based CLEAs prepared in the presence of sugars were active **even in the ammonia addition reaction performed in 6 M NH_3 / $(\text{NH}_4)_2\text{CO}_3$** . **The BE / sugar CLEA of *PcPAL* retained most of the initial activity after 3 times recycling** (3 days reaction at RT, ~20% conversion to L-Phe).