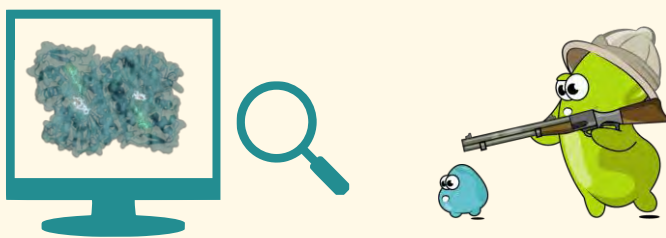


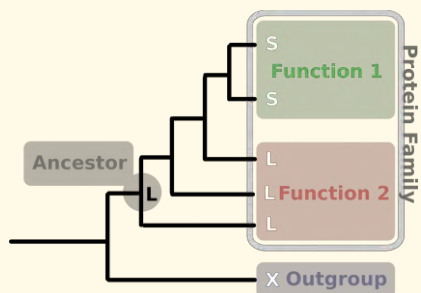


1) Target the right prey



Template selection and characterization
to identify the best starting point

3) Consult the ancestors



Ancestral protein reconstruction provides
evolutionary hotspots

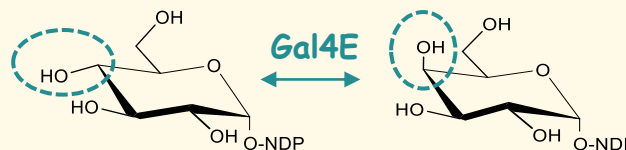
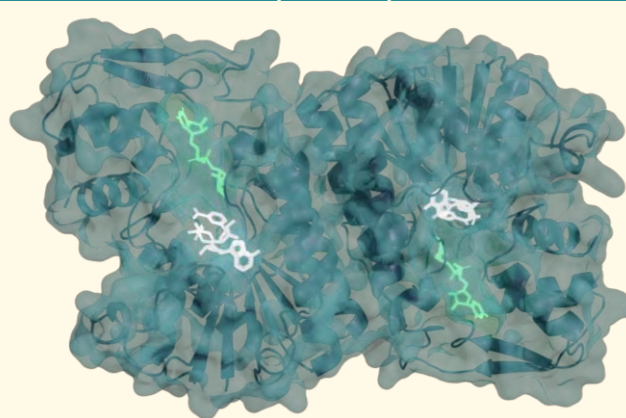
CEP 1

Carbohydrate
epimerases

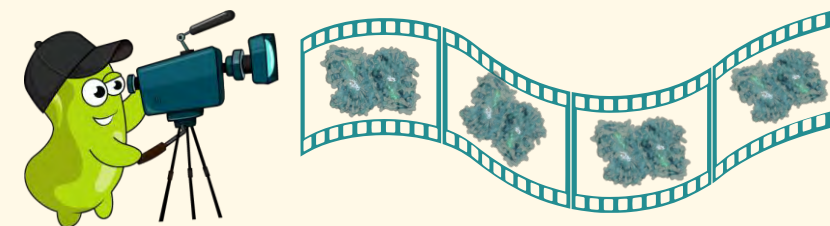
GDP-mannose 3,5-epimerase
(GM35E)

CDP-paratose 2-epimerase
(CPa2E)

UDP-glucose 4-epimerase
(Gal4E)



2) Analyze every move



Molecular dynamics simulations and QM/MM
give insight on enzyme motions

4) Unlock the secret



Design tailormade epimerases for
rare sugar production