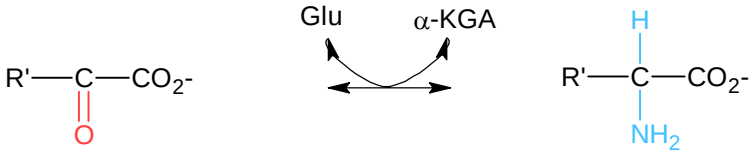
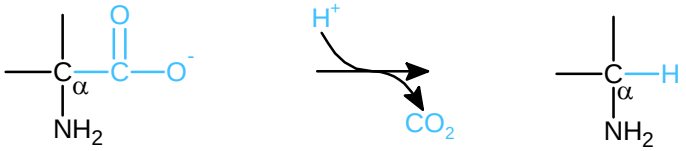
Pyridoxal-P (PLP)

Generalized Reactions

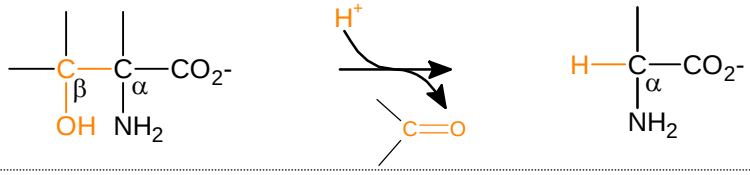
Transamination



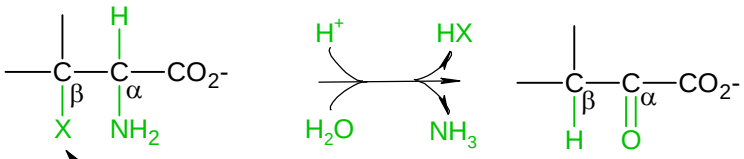
α-decarboxylation



Aldolase-like reaction (α-elimination)



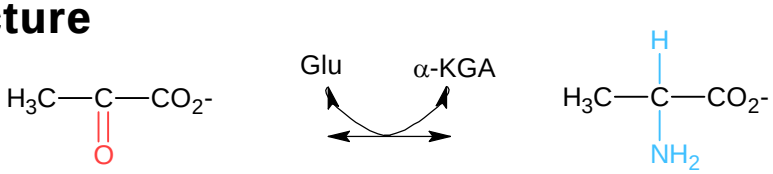
β-elimination



X= good leaving group, such as OH, OP, SH

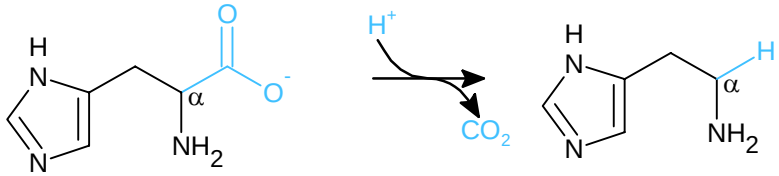
Examples presented in lecture

Transamination



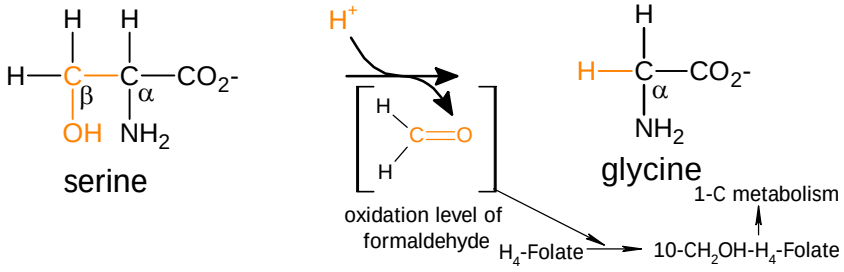
pyruvate — alanine

α-decarboxylation histidine decarboxylase



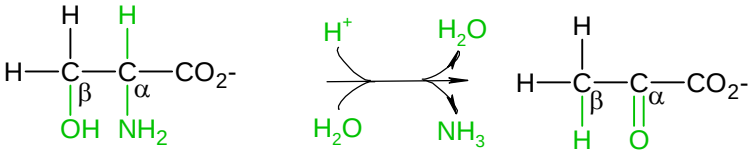
histidine — histamine

Aldolase-like rxn (α-elimination) serine hydroxymethylase



serine — glycine

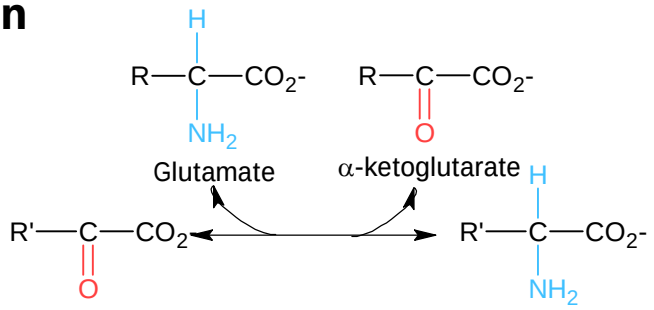
β-elimination serine dehydrase



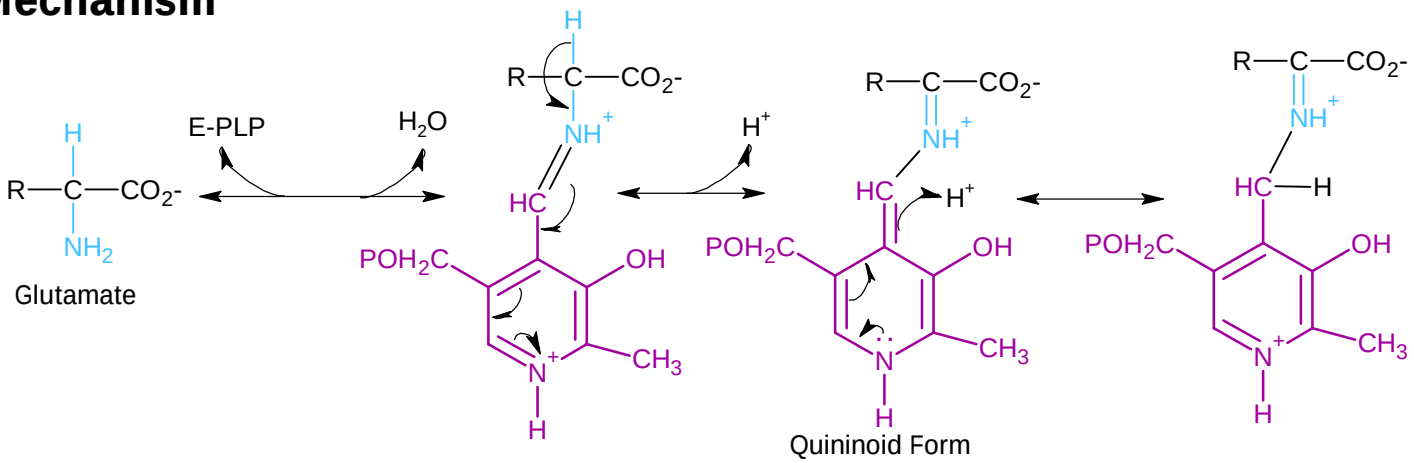
serine — pyruvate

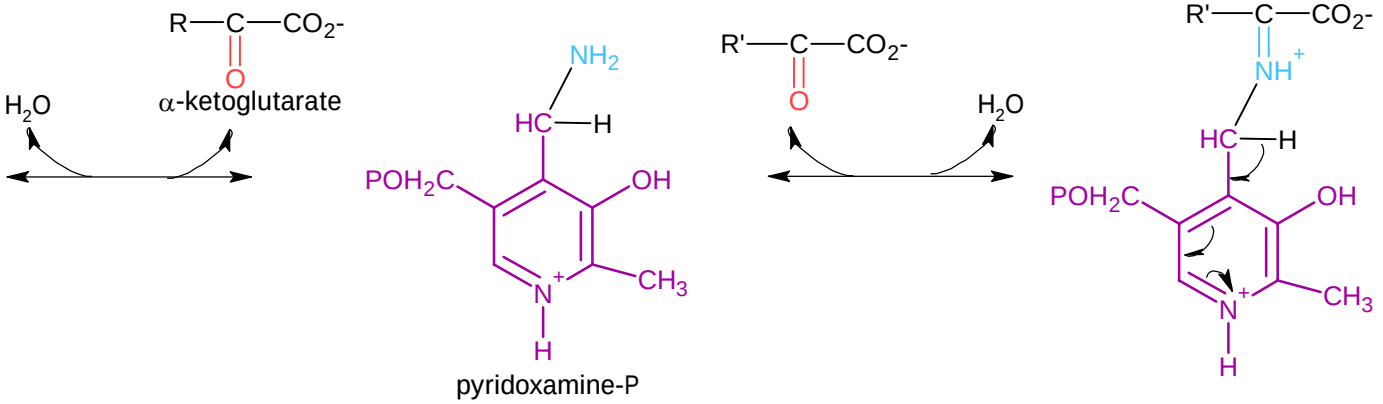
Pyridoxal-P (PLP): Transamination

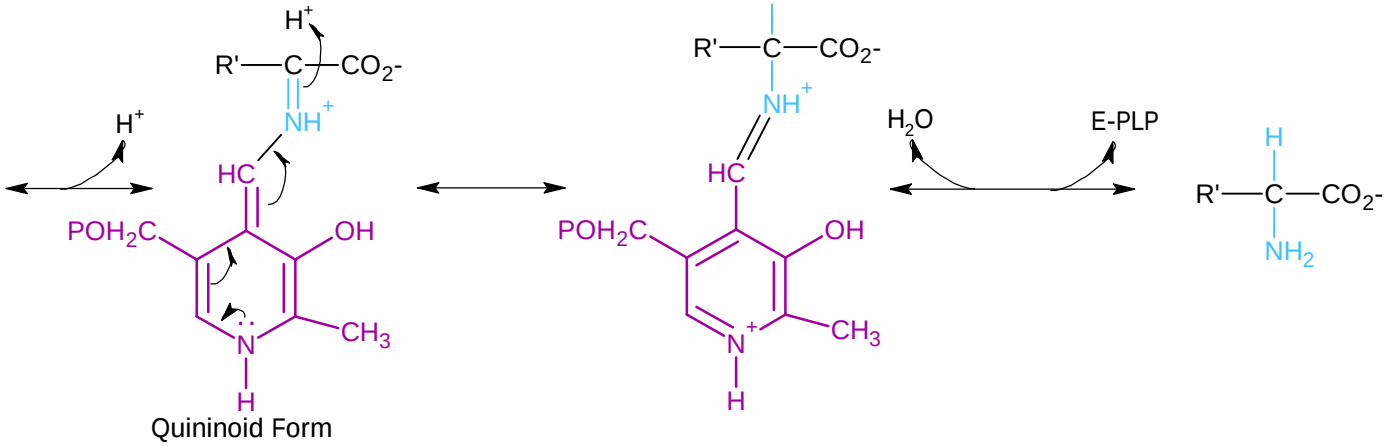
Summary of Reaction



Mechanism

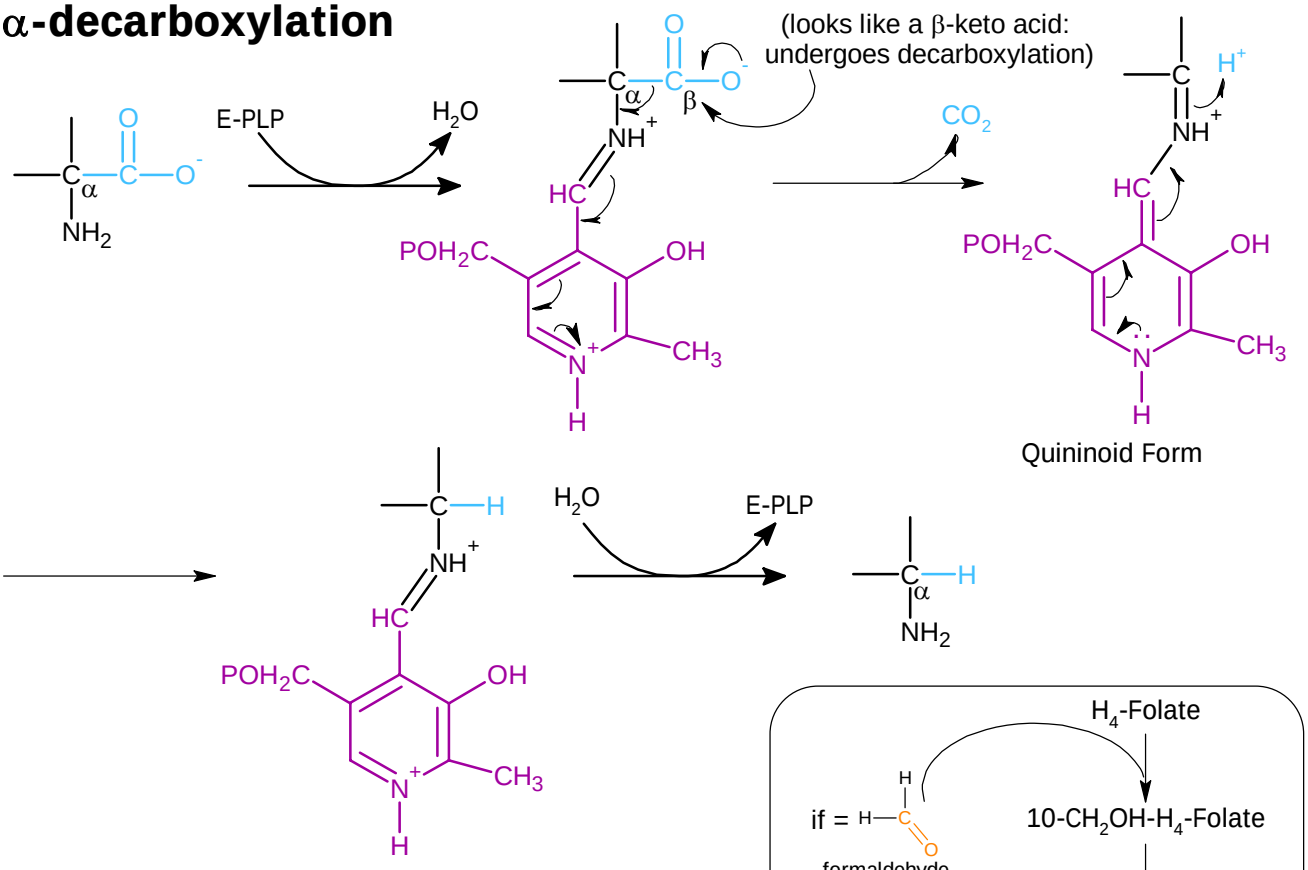




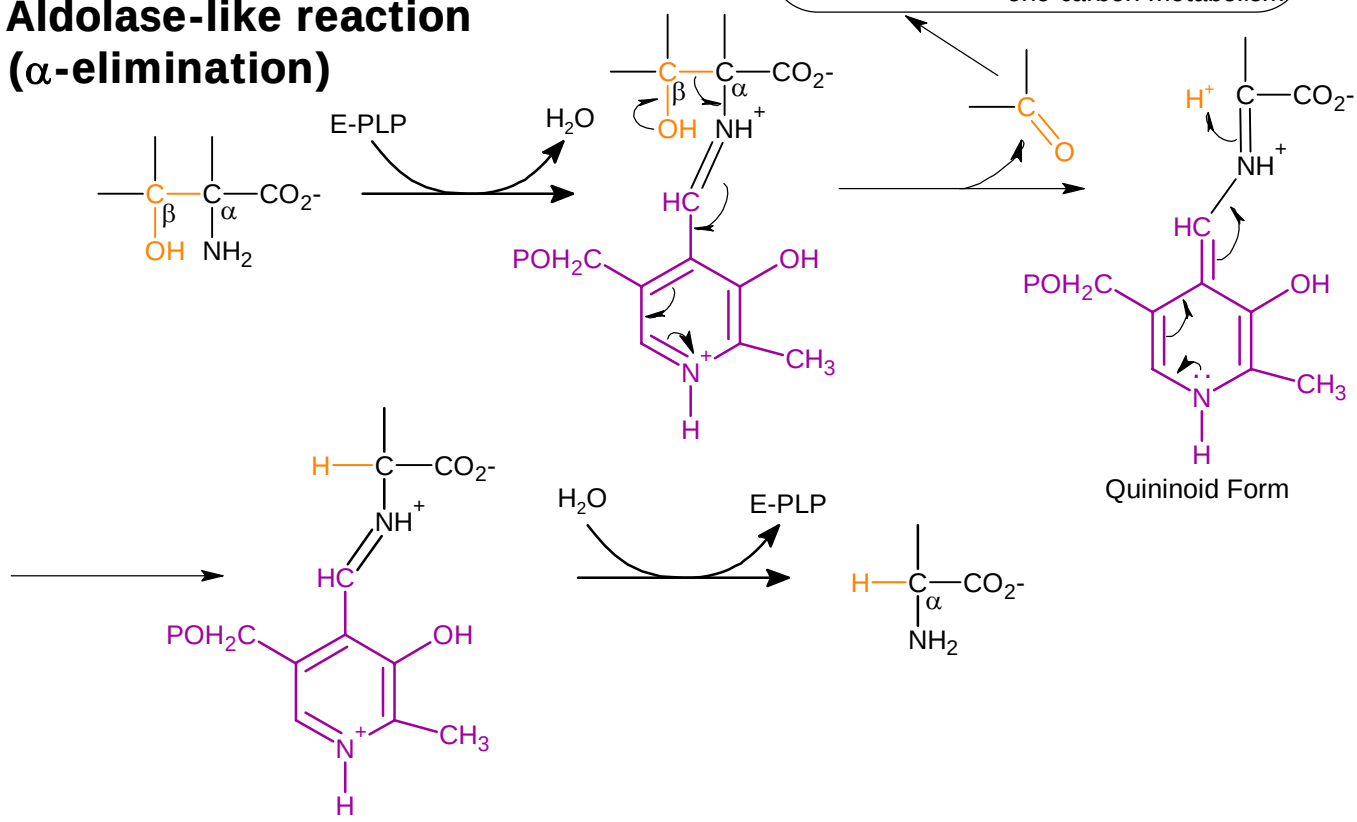


Pyridoxal-P (PLP): The α's

α-decarboxylation



Aldolase-like reaction (α-elimination)



Pyridoxal-P (PLP): The β

β-elimination