**CHEM 109, Lecture 10**

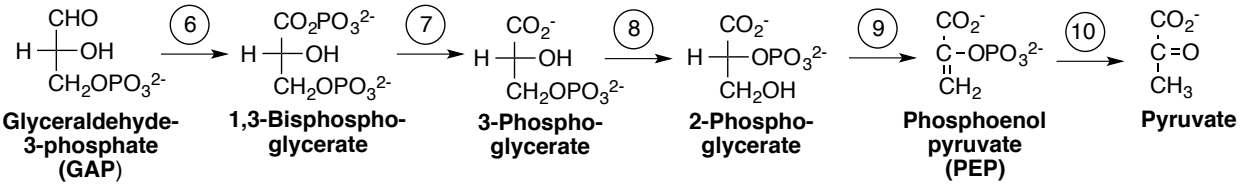
Glycolysis Phase 2

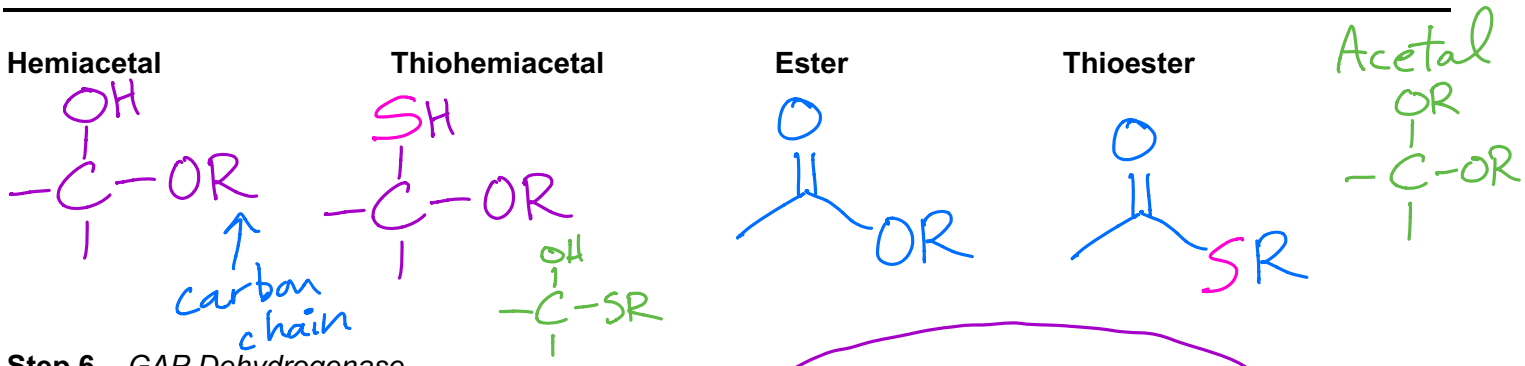
Decarboxylation Overview

Lecture 10 HW = re-print lecture blanks, fill in missing intermediates and mechanisms – these notes are your answer key (check webcast too)

*Last time…Phase 1 left us with 2 x GAP*

***This time…Phase 2 – Profit!***



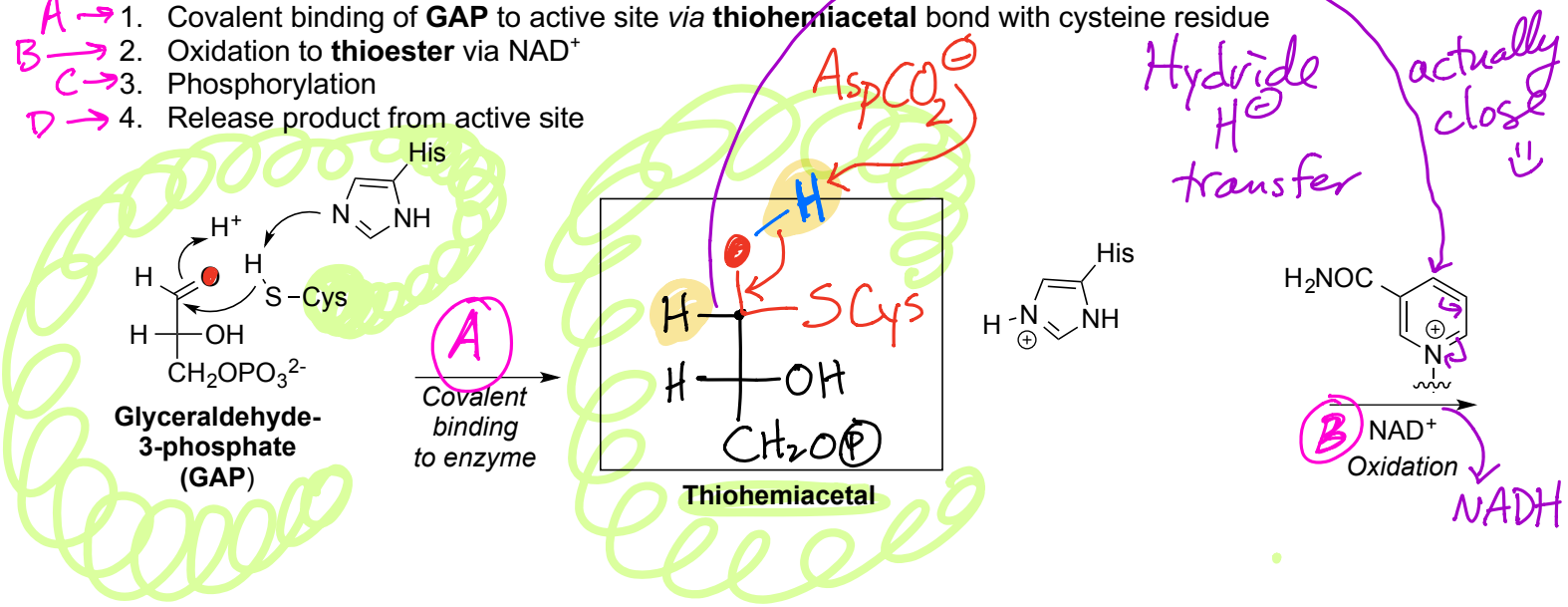

**Step 6** – *GAP Dehydrogenase*

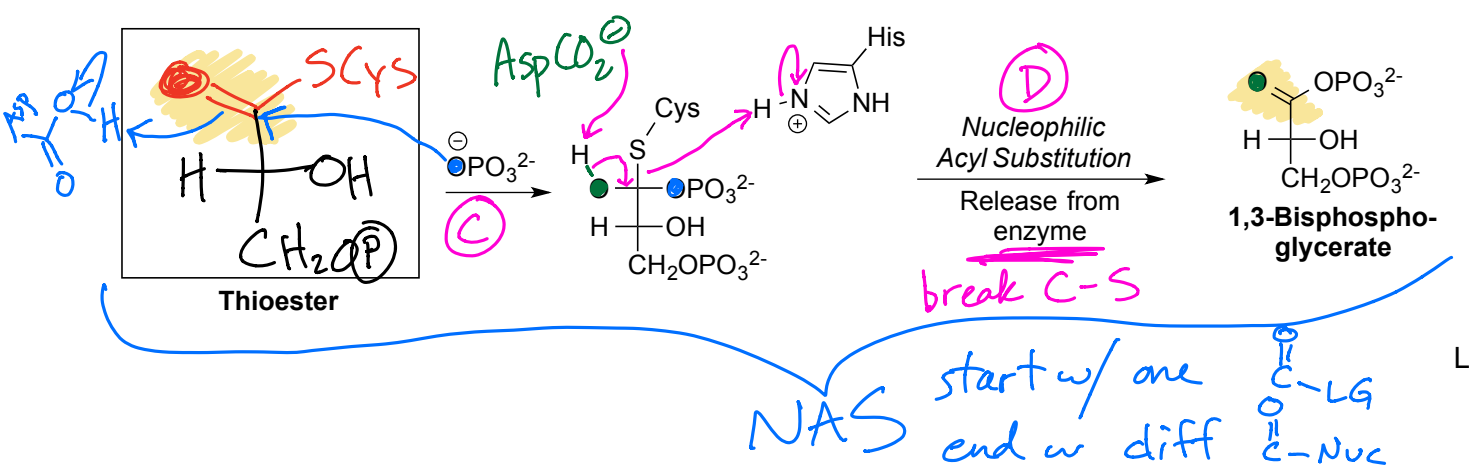
A → 1. Covalent binding of **GAP** to active site *via* **thiohemiacetal** bond with cysteine residue

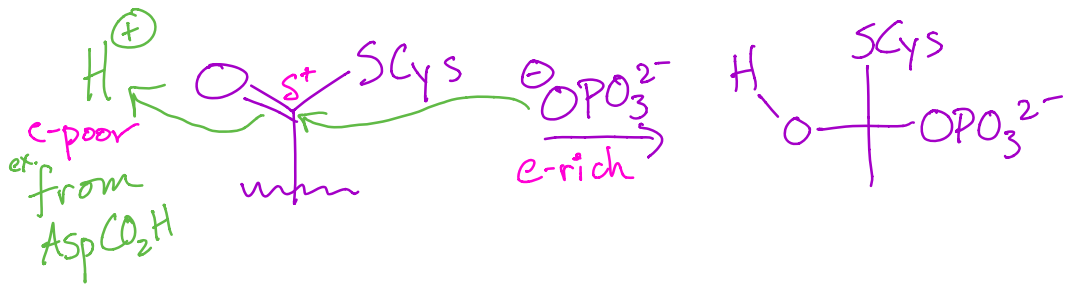
B → 2. Oxidation to **thioester** via $NAD^+$

C → 3. Phosphorylation

D → 4. Release product from active site



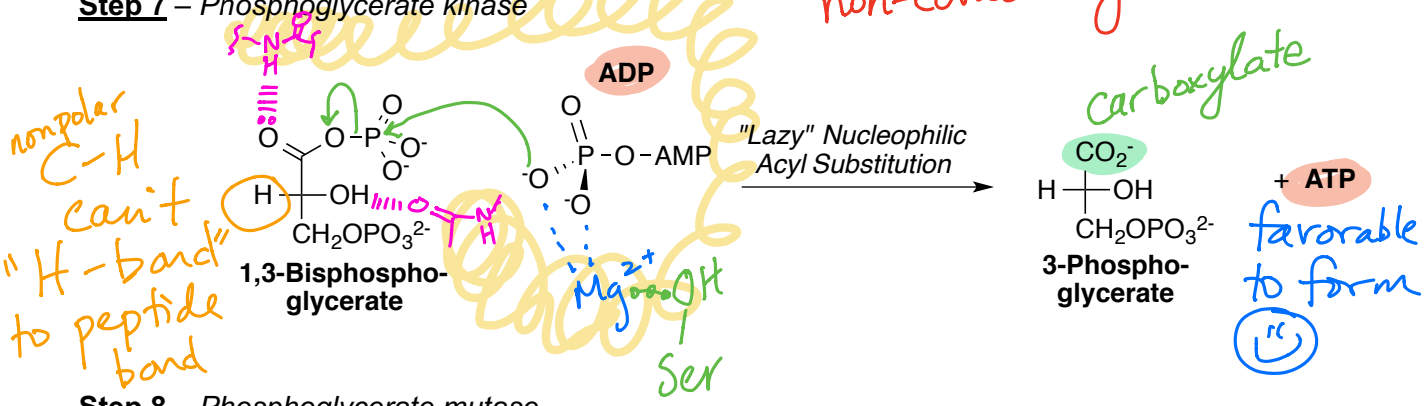




H⊕
e-poor
ex. from AspCO2H
O
δ+
SCys
⊖OPO3 2−
e-rich
H
O
SCys
OPO3 2−

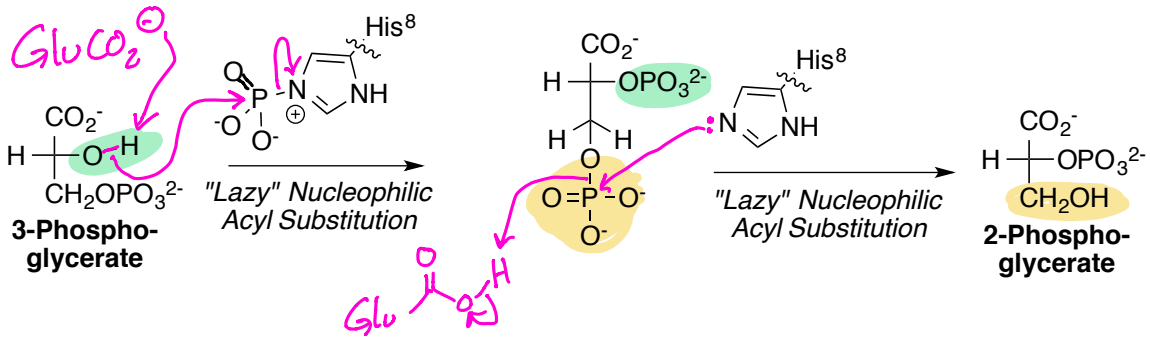
stabilizing factors hold substrate in place within active site non-covalently



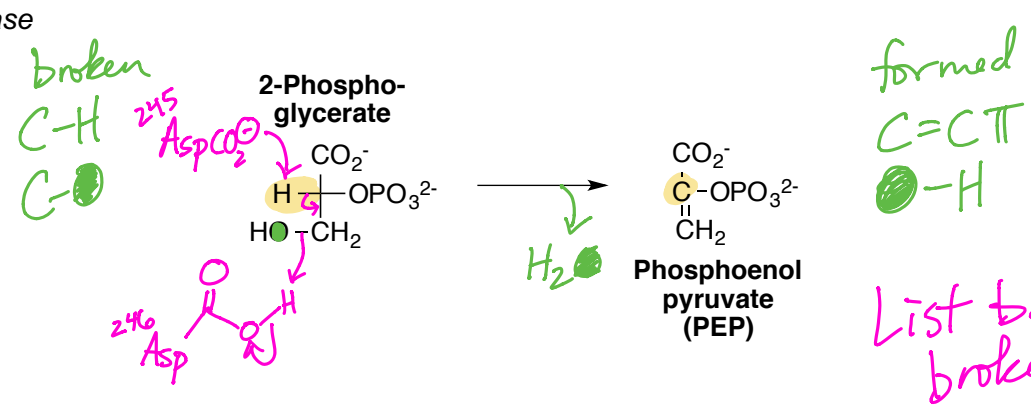
**Step 7** – *Phosphoglycerate kinase*




**Step 8** – *Phosphoglycerate mutase*

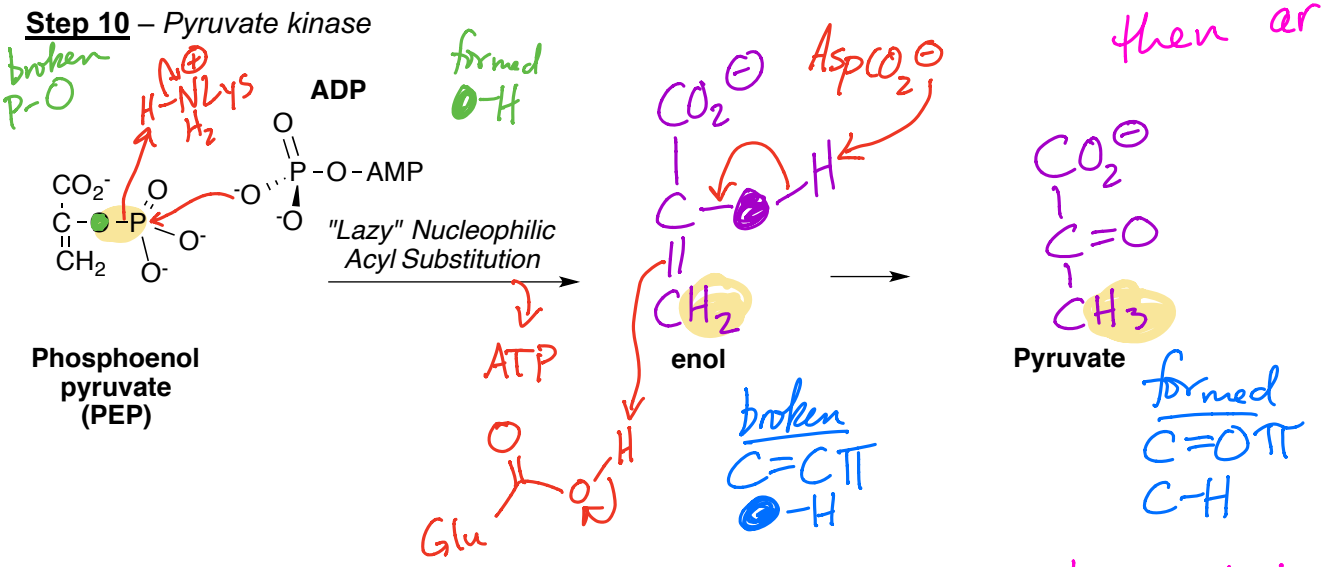



**Step 9** – *Enolase*




List bonds broken/formed then arrows

**Step 10** – *Pyruvate kinase*

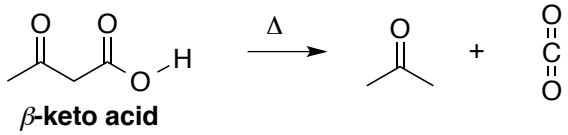


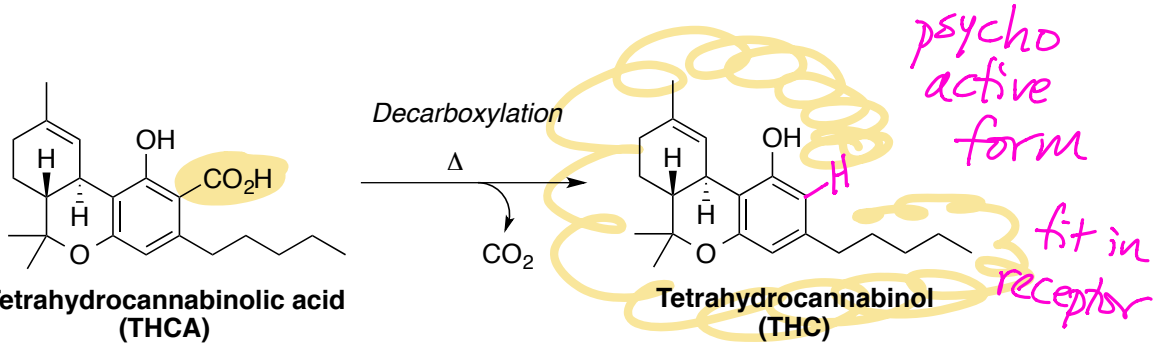

Quiz 4 due Fri

Exam 2 on 5/19 open book

*Preview to fates of Pyruvate…*

**<u>Decarboxylation</u>** → loss of $CO_2$




Have you ever made pot butter/oil/edibles?

(A) Yes (B) No