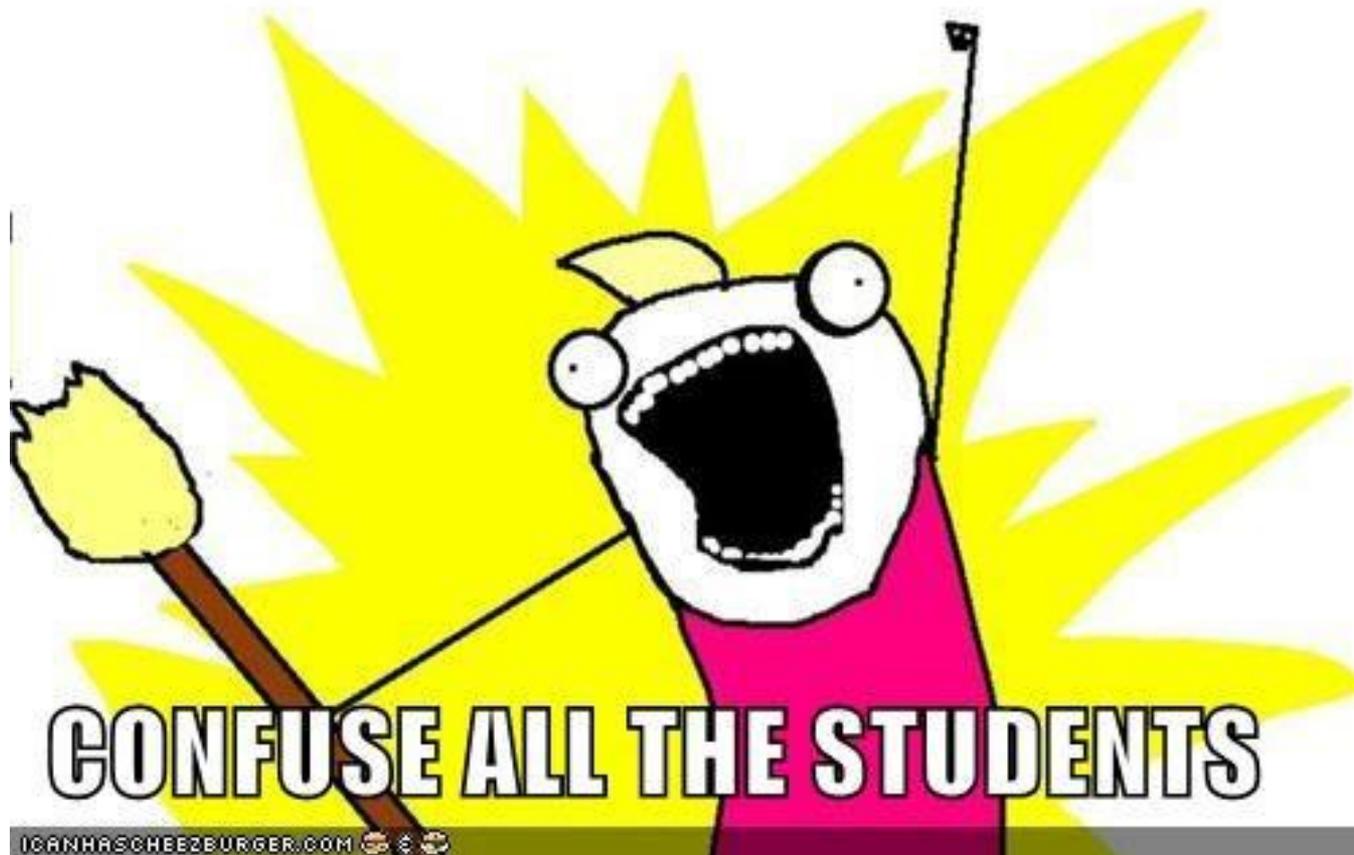


**Гликолиз.**

**Глюконеогенез.**

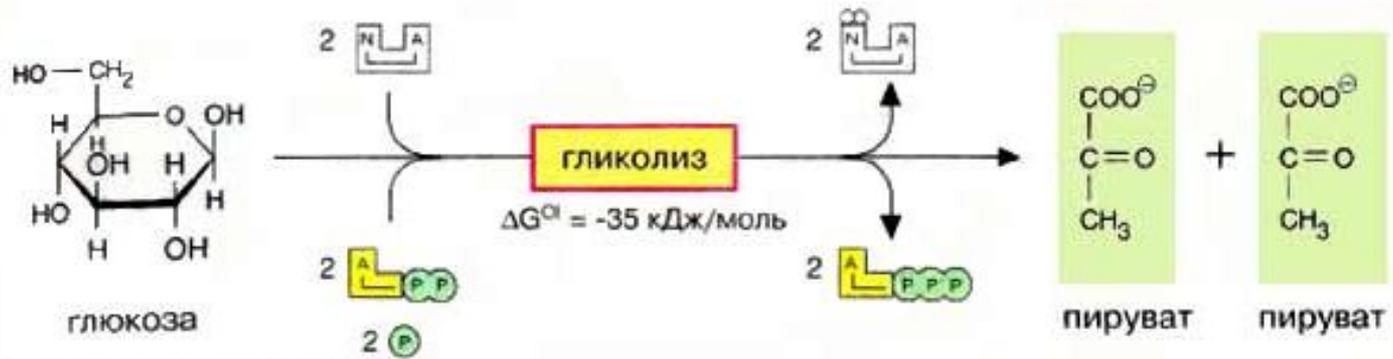
**Пентозофосфатный путь.**

**Glycolysis:**



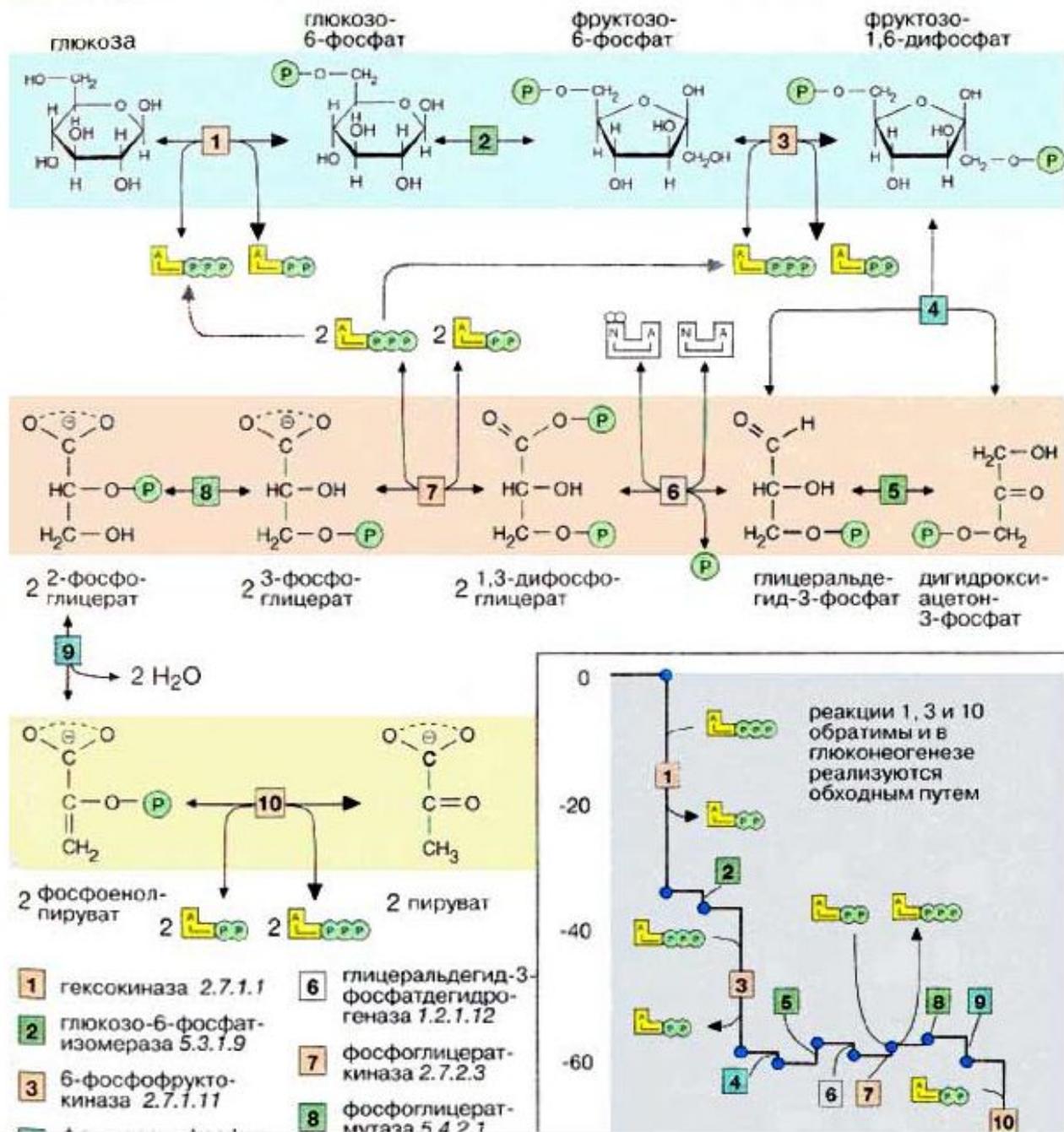
**CONFUSE ALL THE STUDENTS**

# Гликолиз



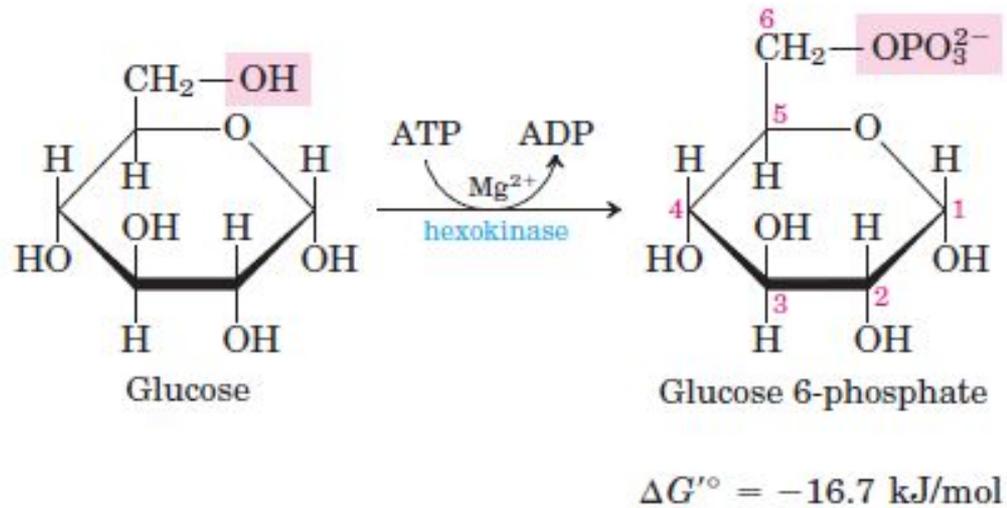
**А. Гликолиз: баланс**

# Гликолиз



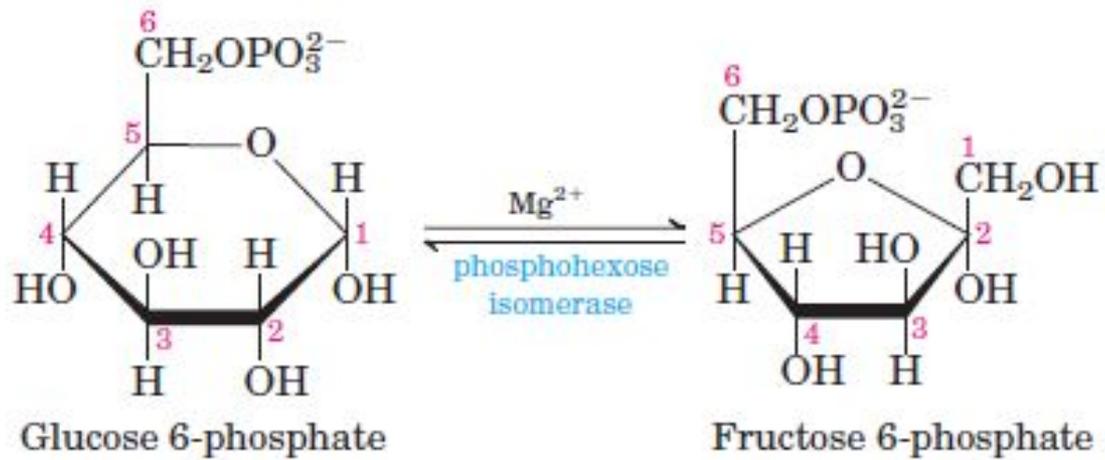
# Подготовительный этап

1

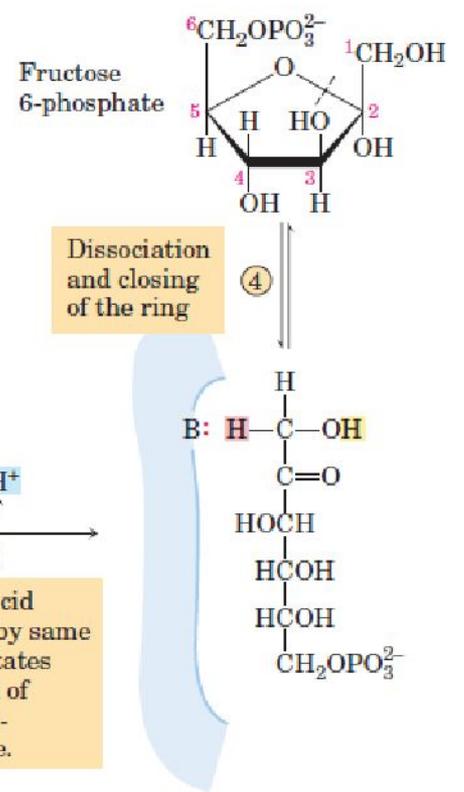
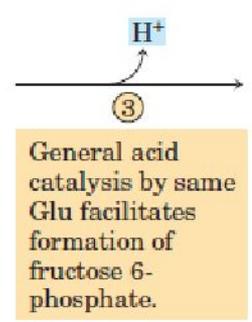
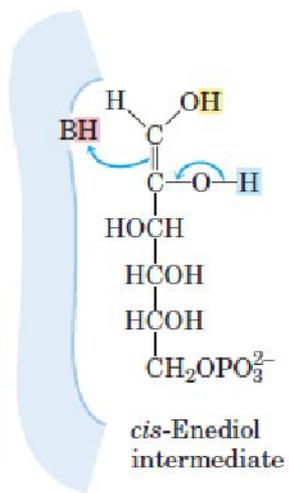
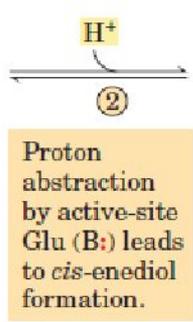
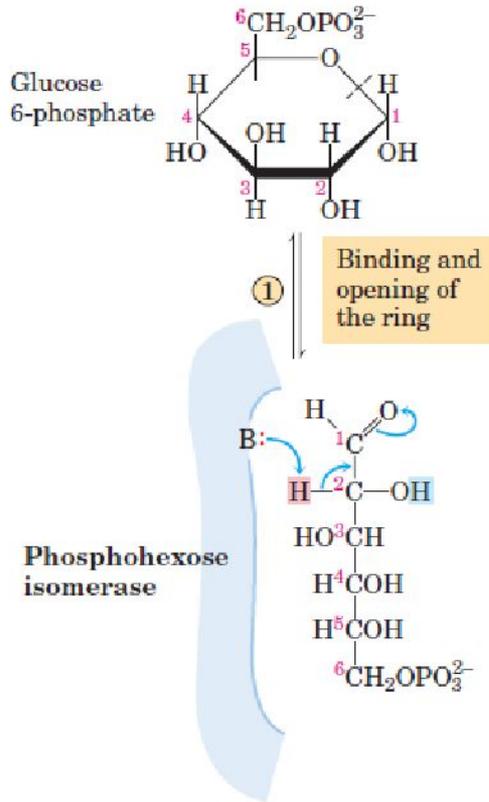


Подготовительный  
этап

2

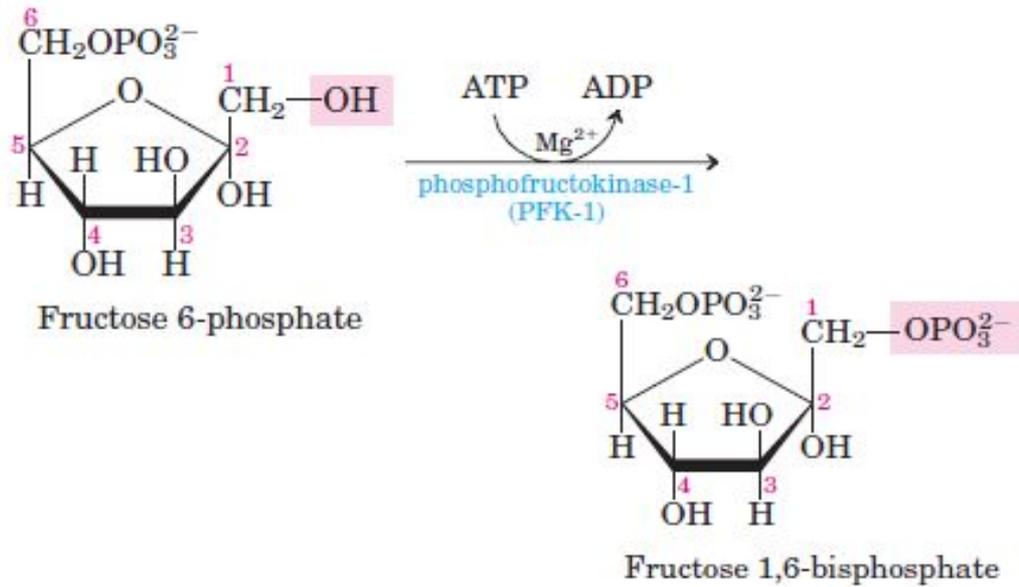


$$\Delta G'^{\circ} = 1.7 \text{ kJ/mol}$$



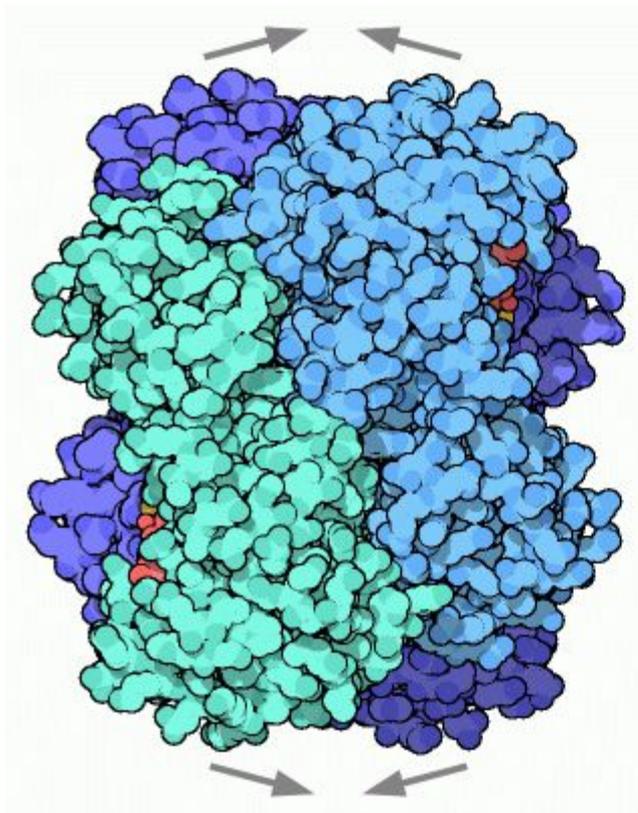
# Подготовительный этап

3

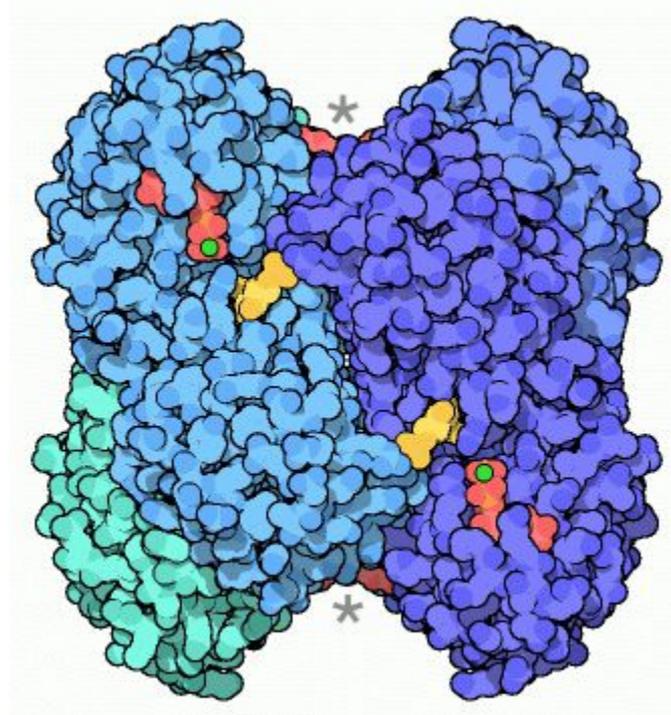
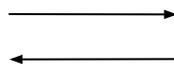


$$\Delta G'^{\circ} = -14.2 \text{ kJ/mol}$$

# Фосфофруктокиназа-1 (PFK1) (2.7.1.11)

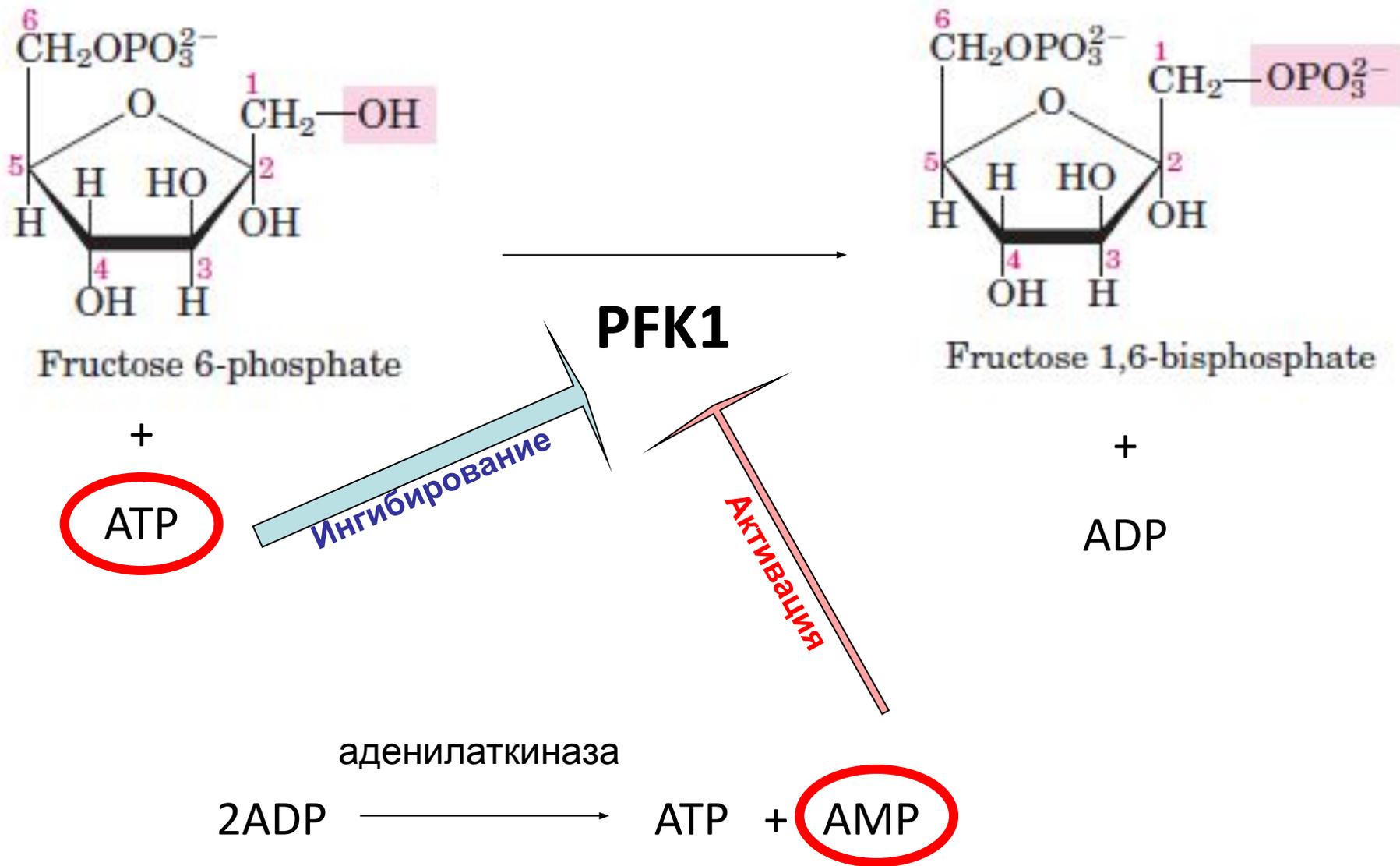


T



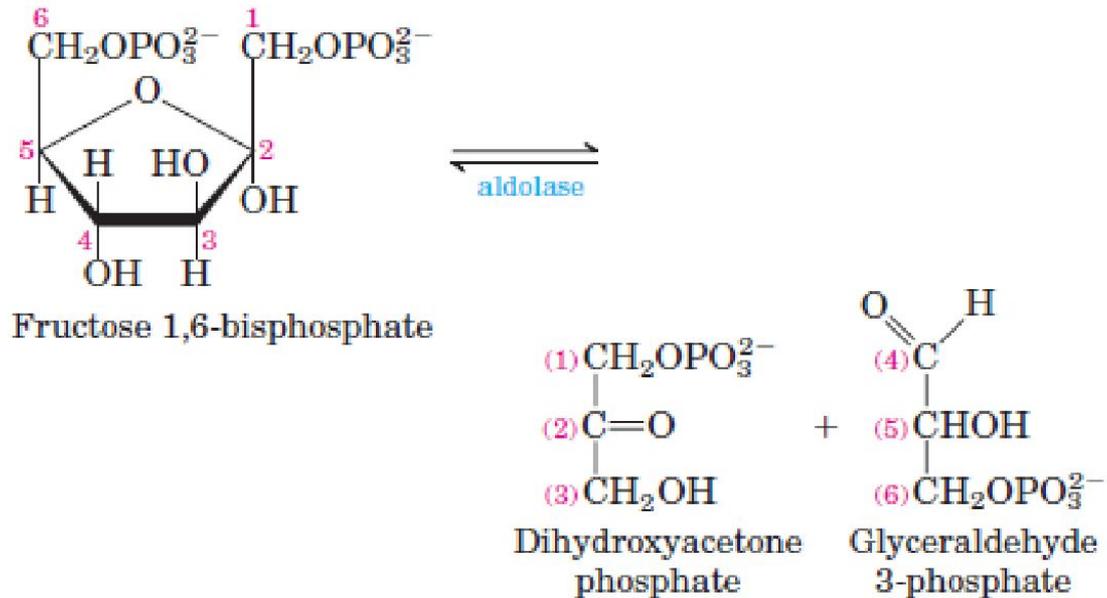
R

# Положительная обратная связь в работе PFK1



# Подготовительный этап

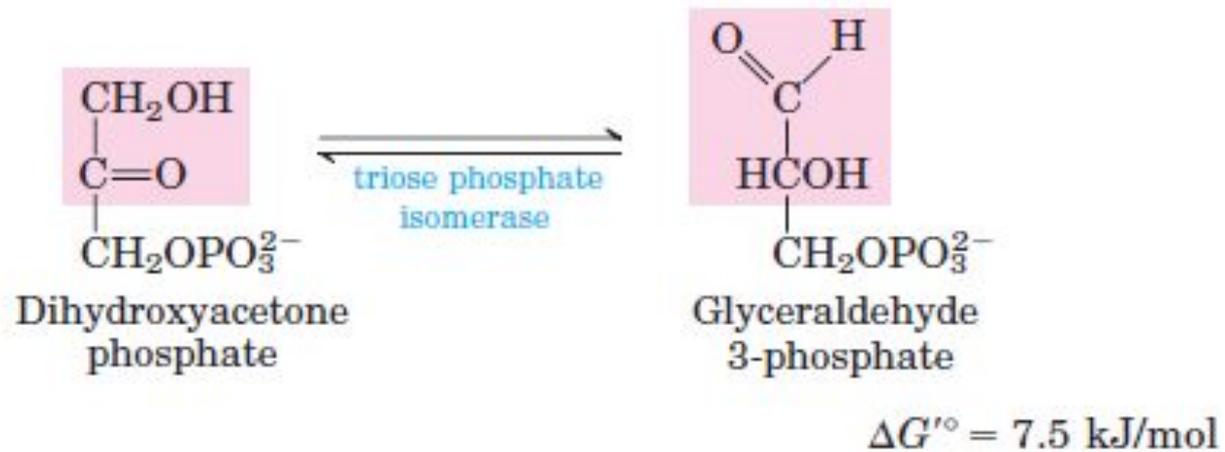
4



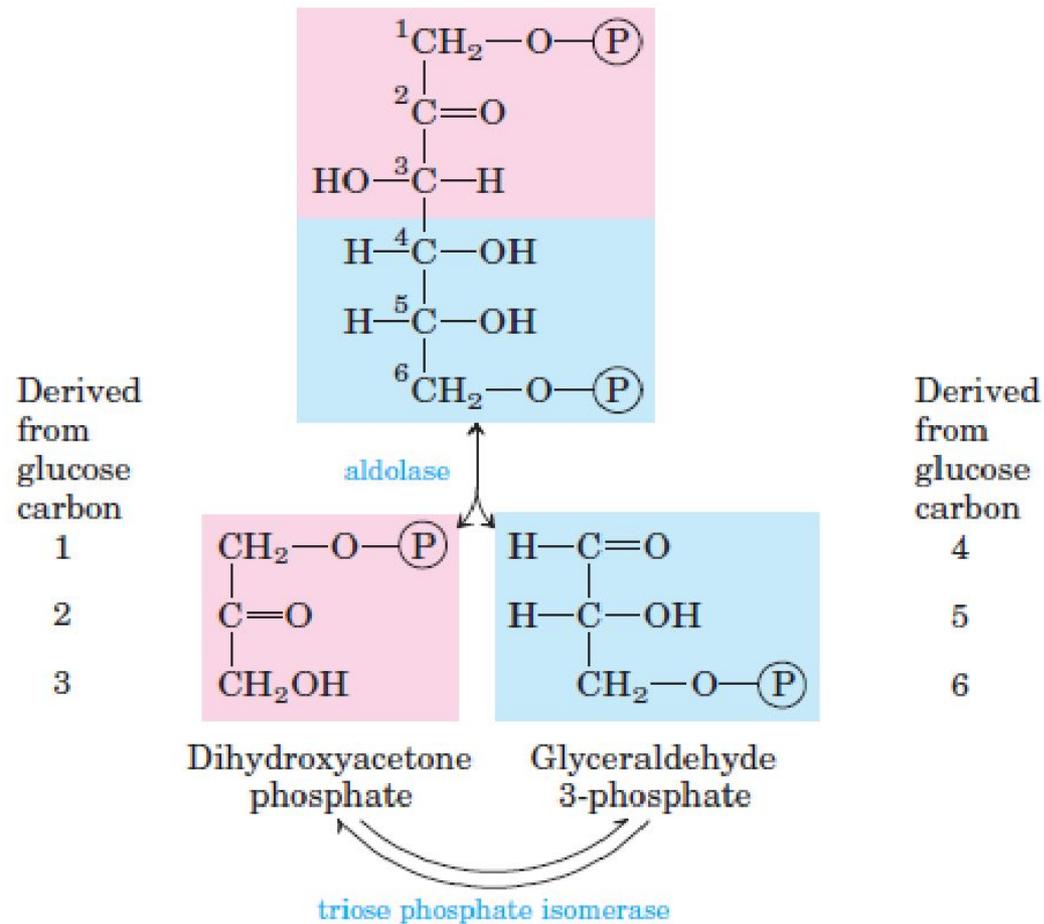
$$\Delta G'^{\circ} = 23.8 \text{ kJ/mol}$$

Подготовительный  
этап

5

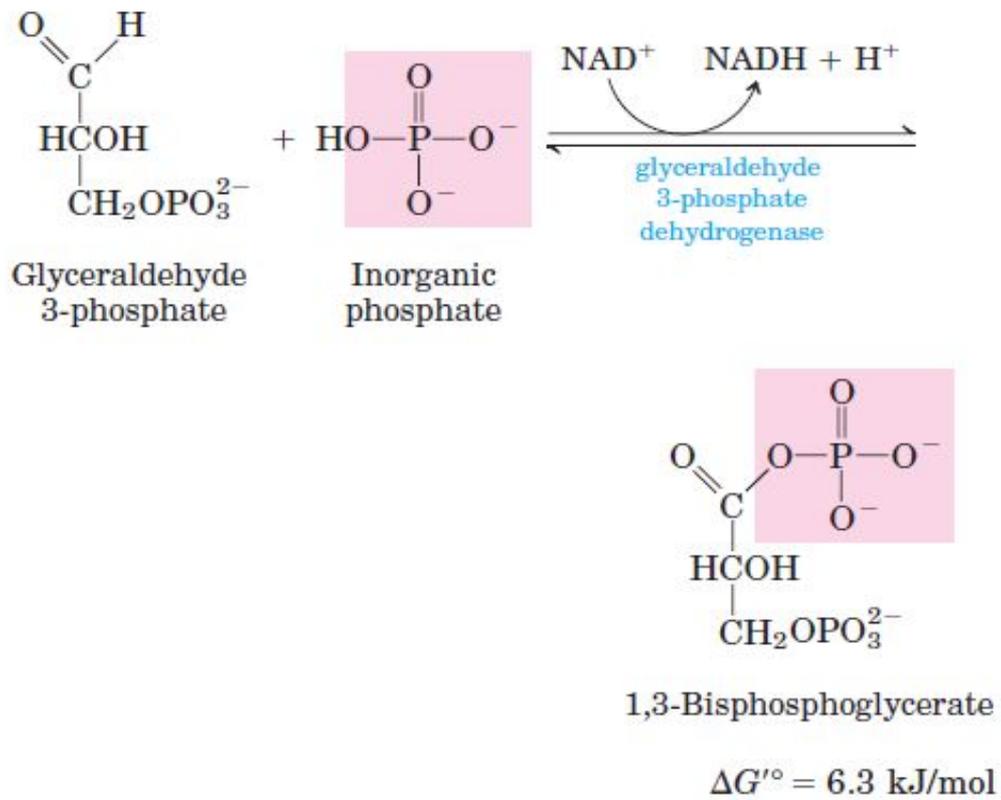


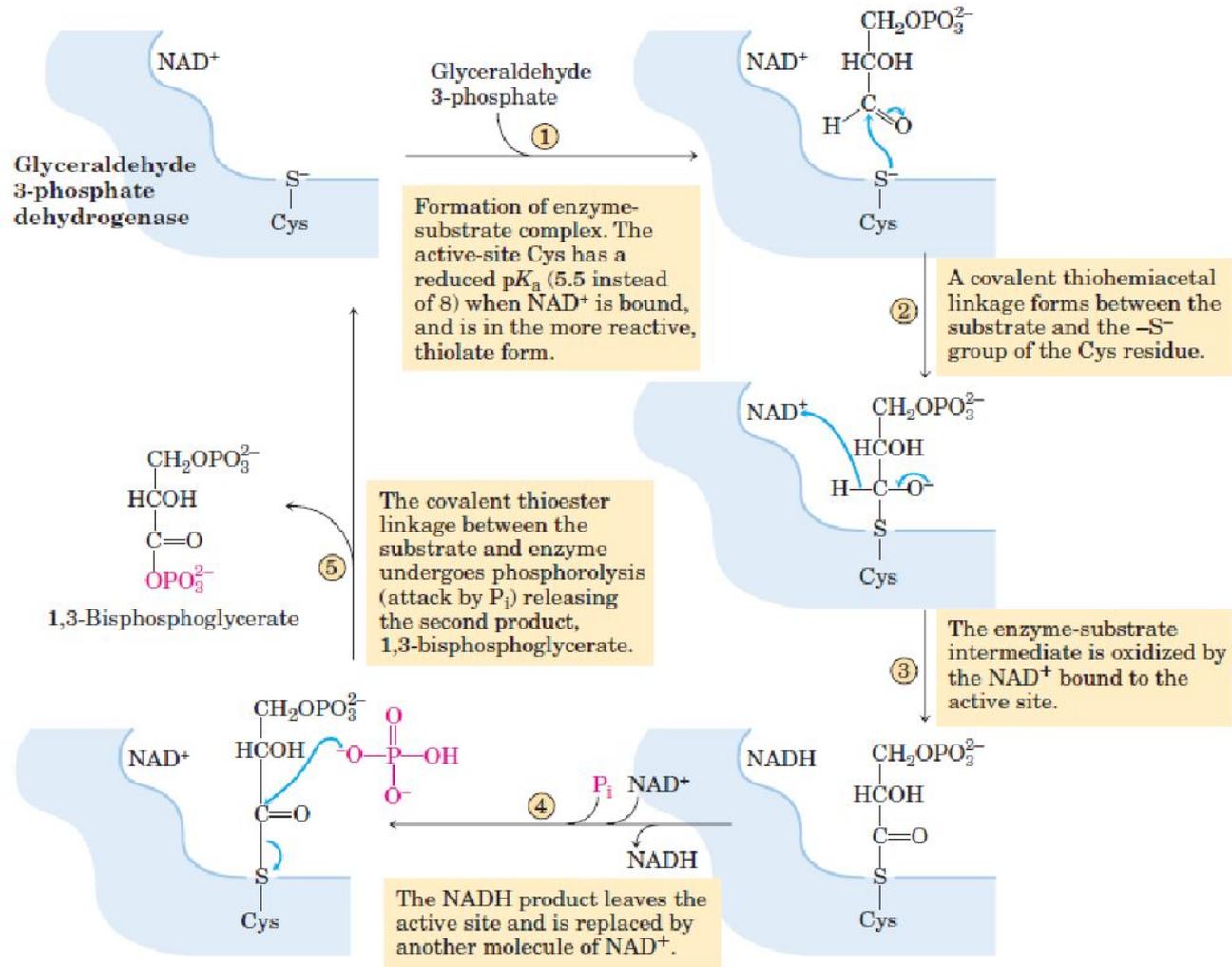
### Fructose 1,6-bisphosphate



## Основной этап

6

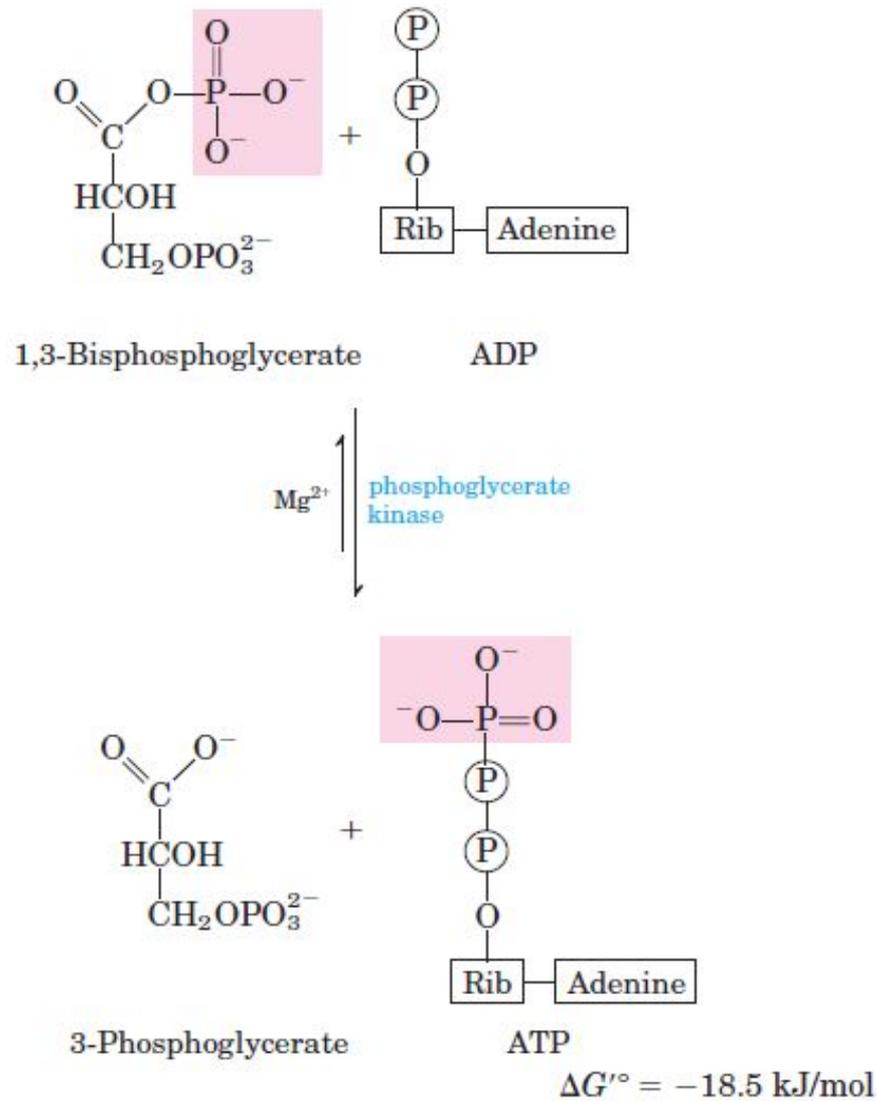




**HANISM FIGURE 14-7** The glyceraldehyde 3-phosphate dehydrogenase reaction.

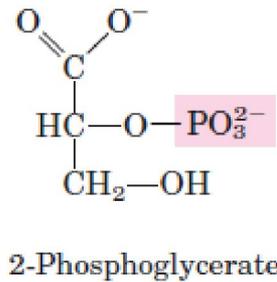
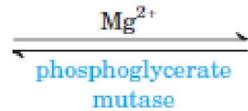
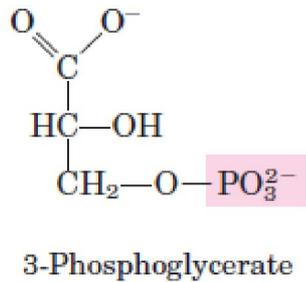
# Основной этап

7



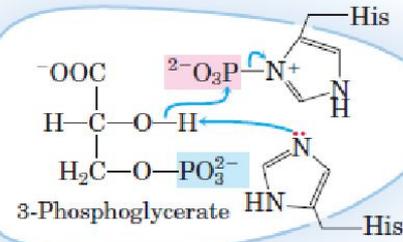
# Основной этап

8

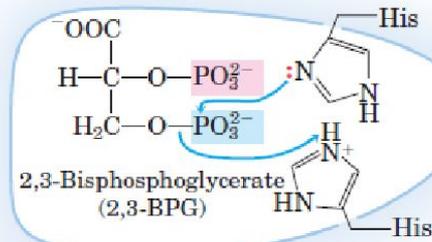


$$\Delta G'^{\circ} = 4.4 \text{ kJ/mol}$$

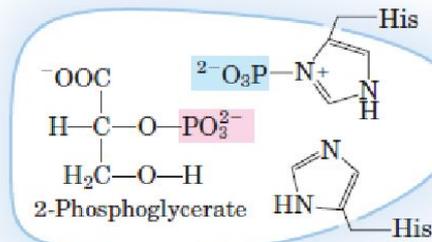
## Phosphoglycerate mutase



① Phosphoryl transfer occurs between an active-site His and C-2 (OH) of the substrate. A second active-site His acts as general base catalyst.

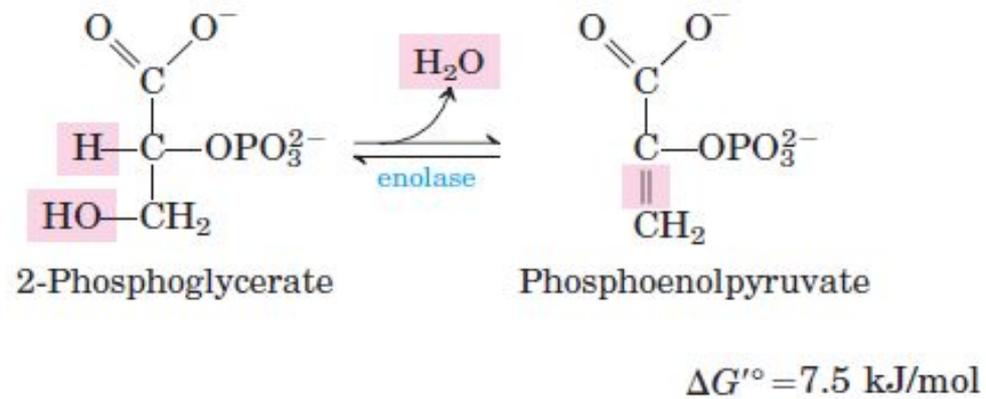


② Phosphoryl transfer from C-3 of the substrate to the first active-site His. The second active-site His acts as general acid catalyst.



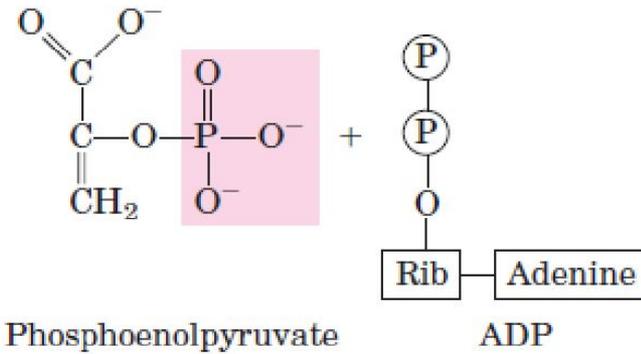
## Основной этап

9

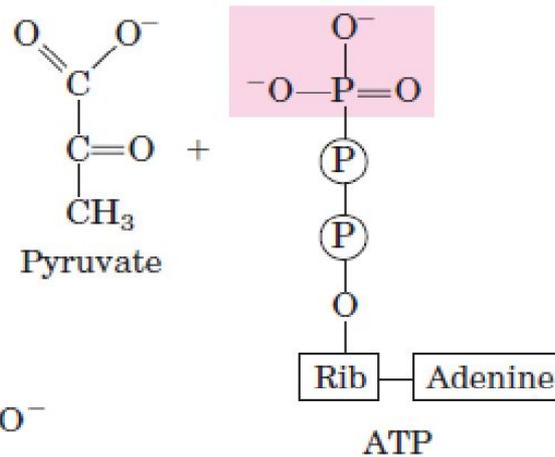


# Основной этап

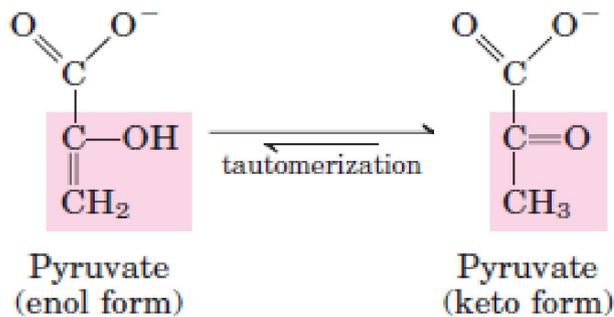
10

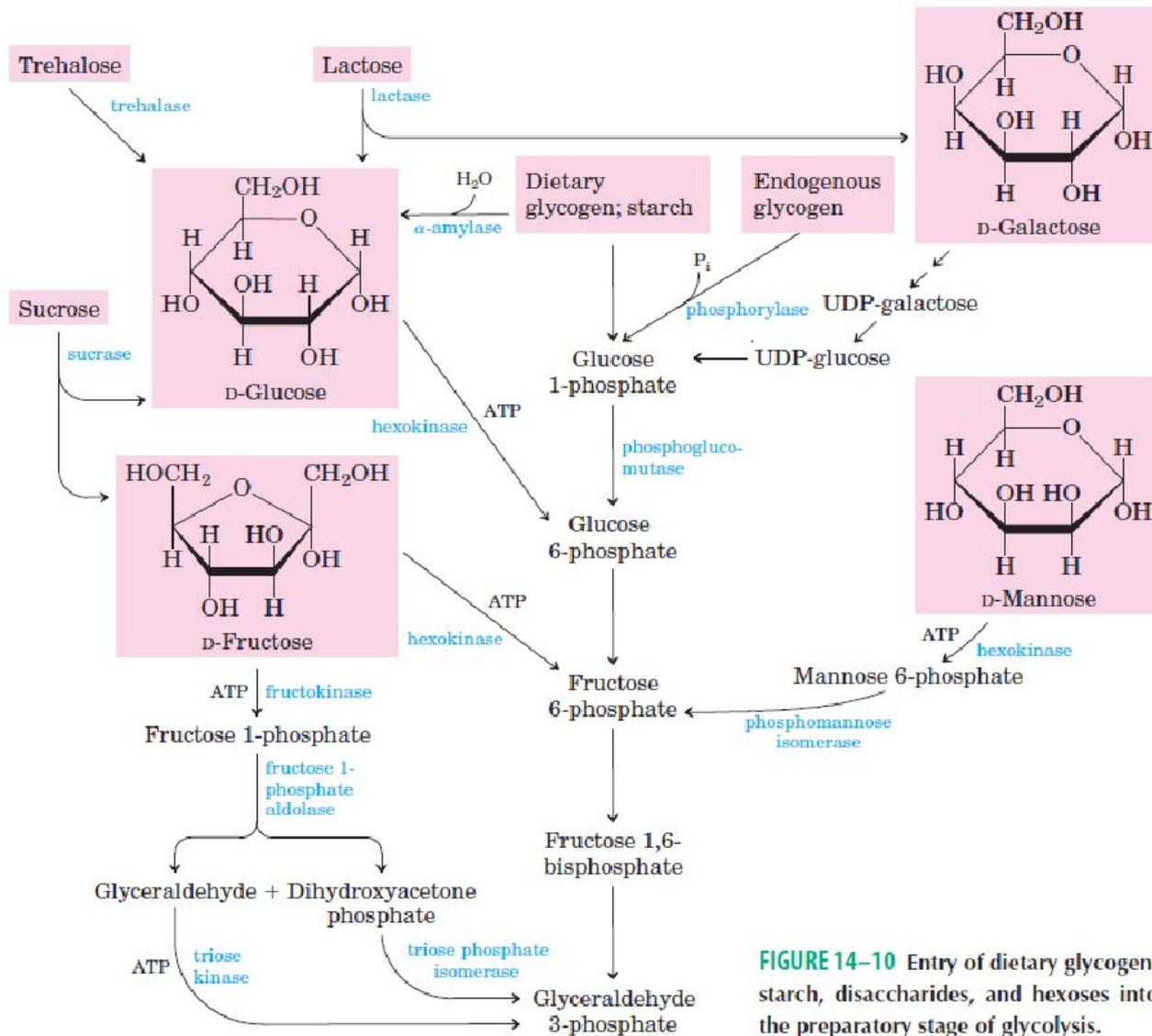


$Mg^{2+}, K^{+}$  pyruvate kinase

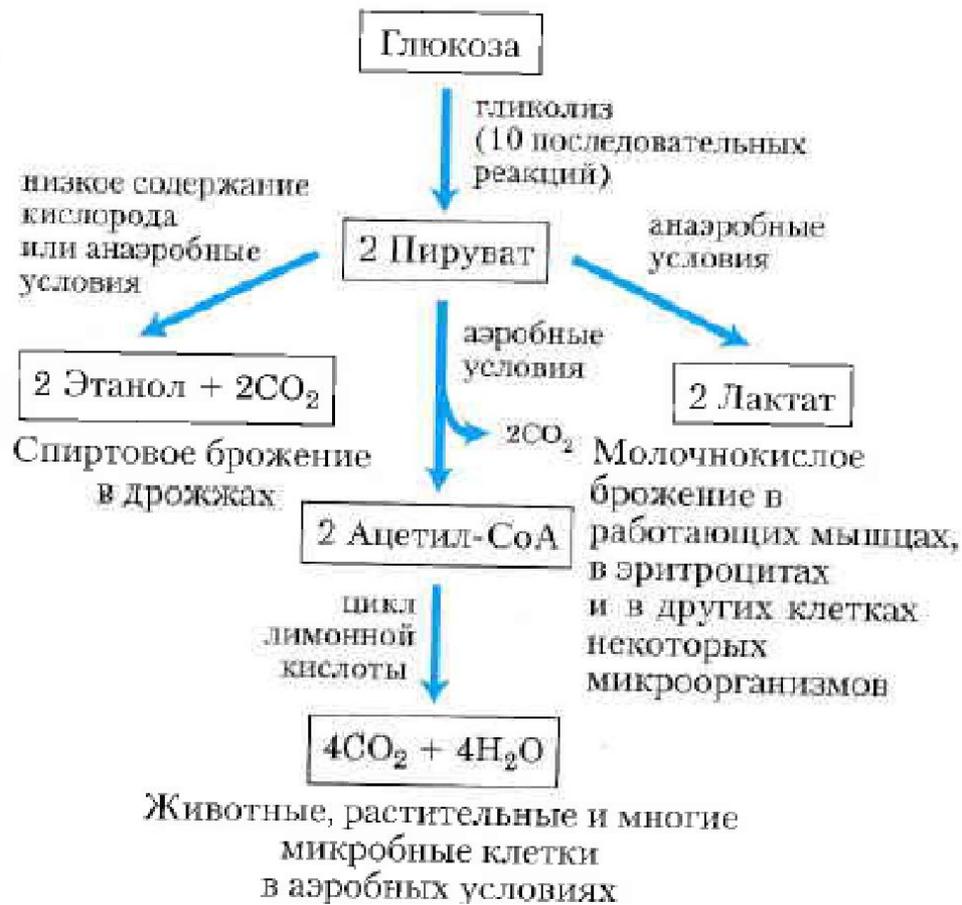


$\Delta G'^{\circ} = -31.4 \text{ kJ/mol}$

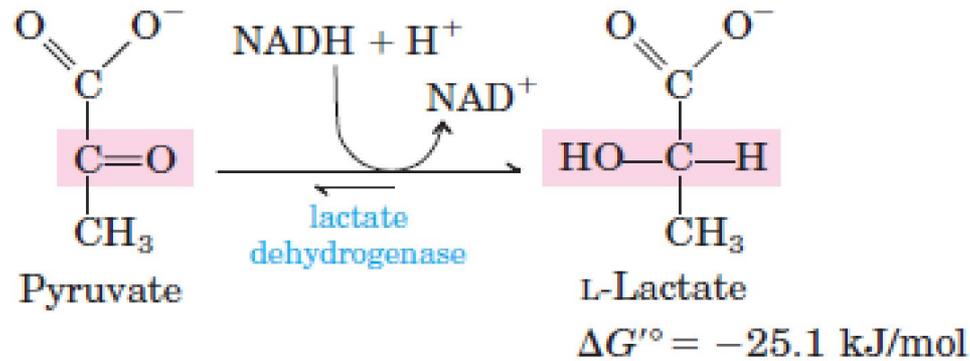




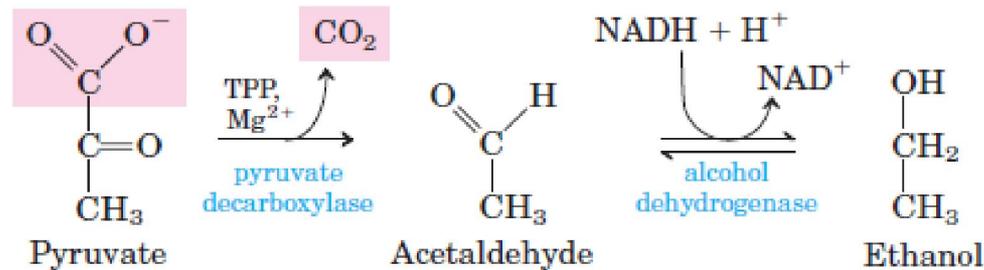
**FIGURE 14-10** Entry of dietary glycogen, starch, disaccharides, and hexoses into the preparatory stage of glycolysis.



## Молочнокислое брожение



## Спиртовое брожение



## Ацетобутановое брожение *Clostridium*

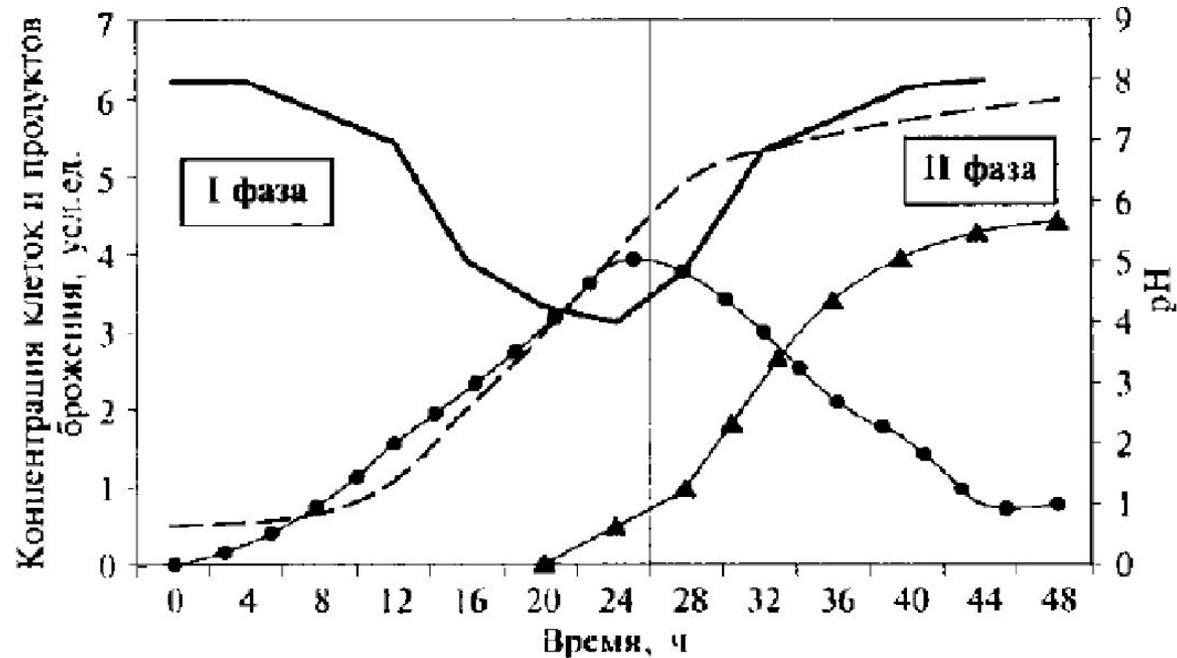
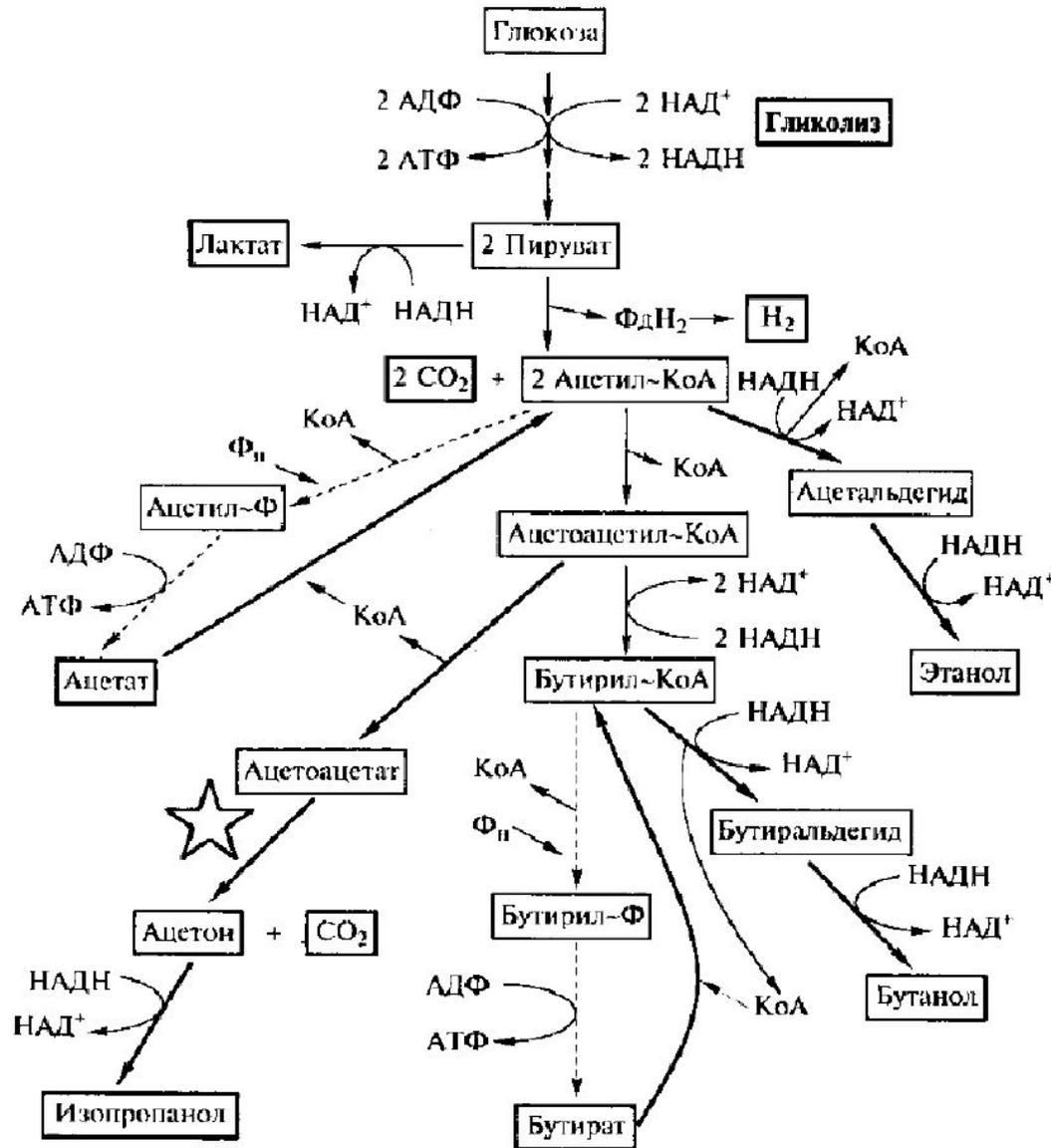


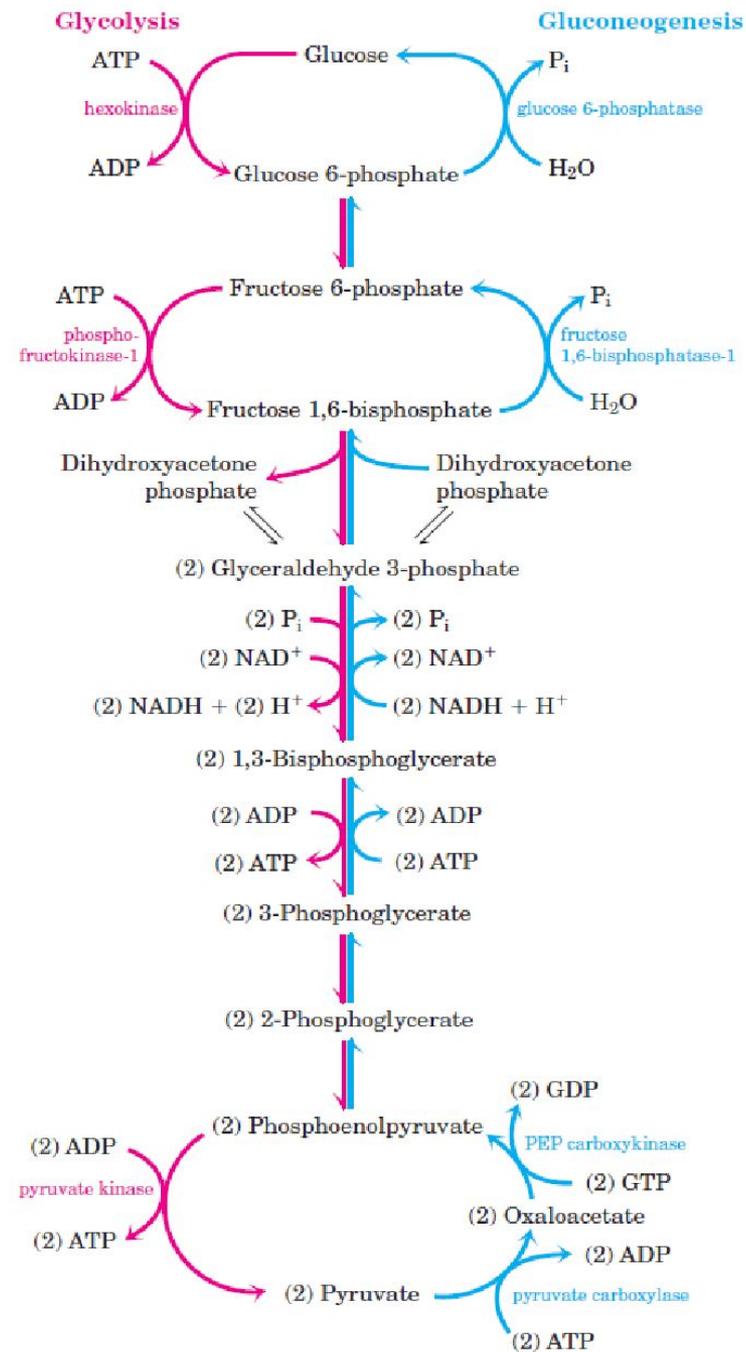
Рис. 95. Двухфазное маслянокислое и ацетобутиловое брожение клостридий (— — биомасса; ▲▲ — нейтральные продукты; ●● — кислоты; — — pH)

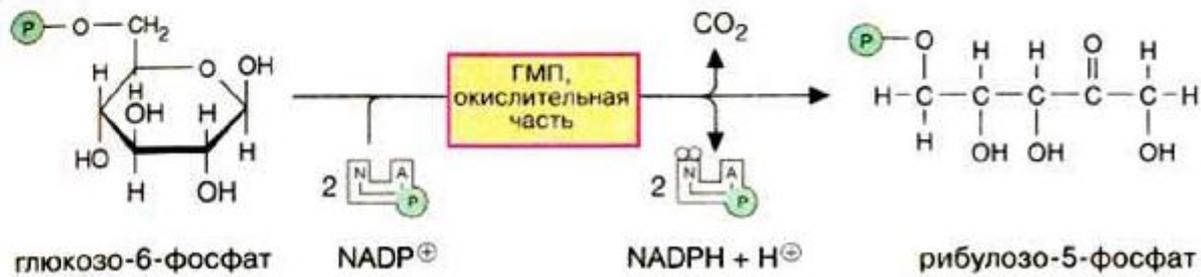
# Ацетобутановое брожение *Clostridium*











**А. Гексозомонофосфатный путь: окисление**

