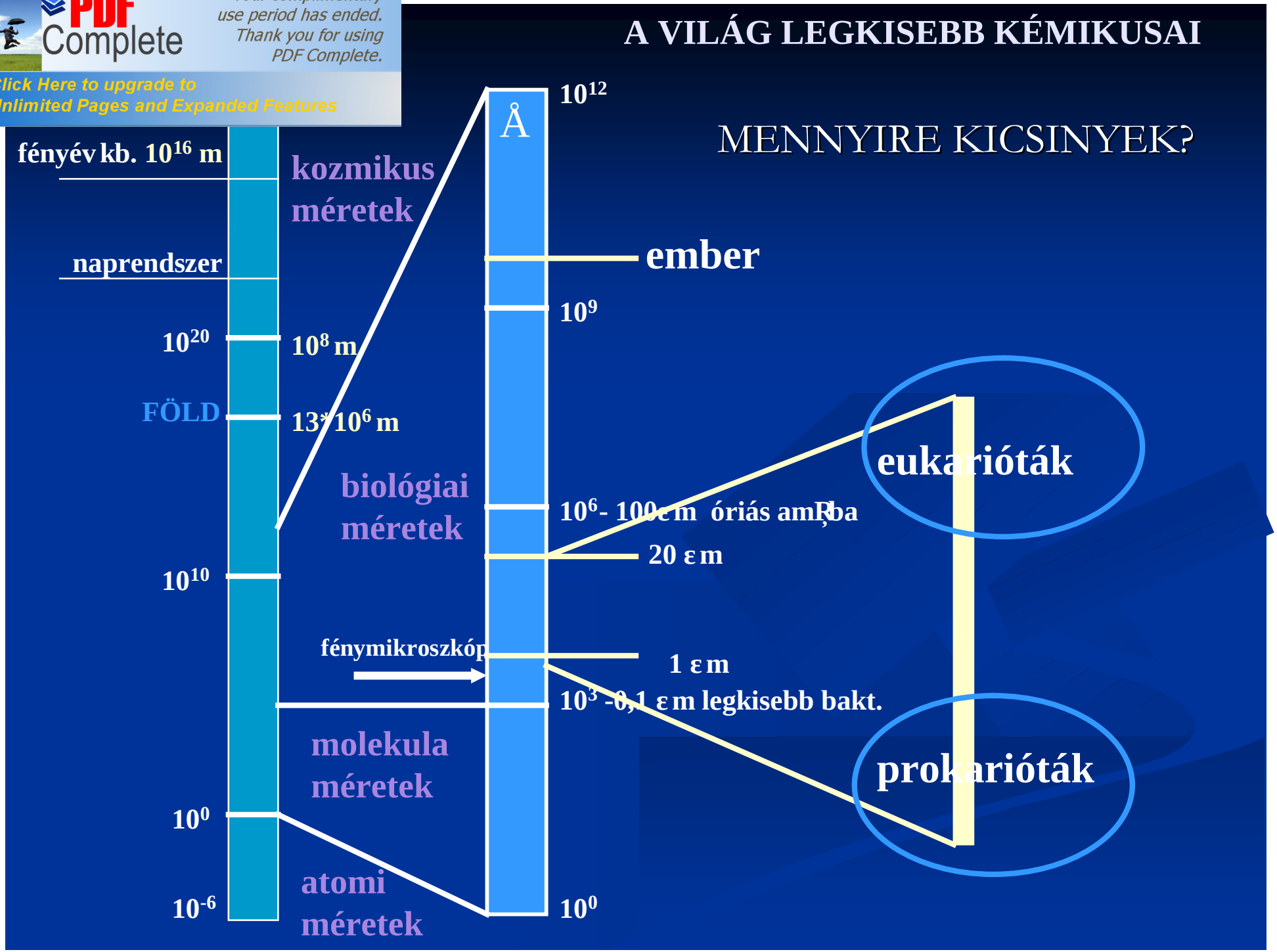
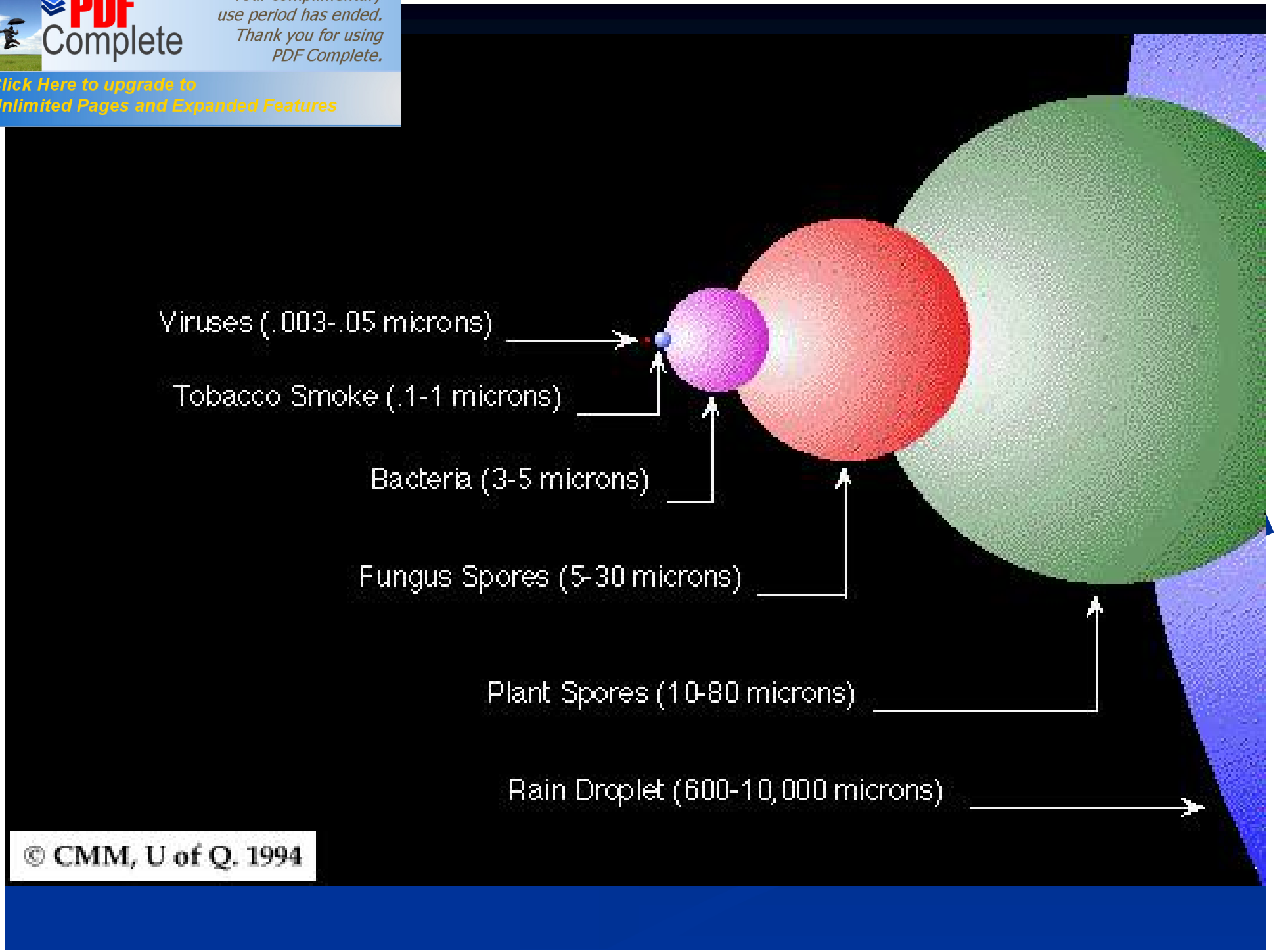
MIKROBIOLÓGIAI, BIOKÉMIAI ALAPOK

A VILÁG LEGKISEBB KÉMIKUSAI

MENNYIRE KICSINYEK?



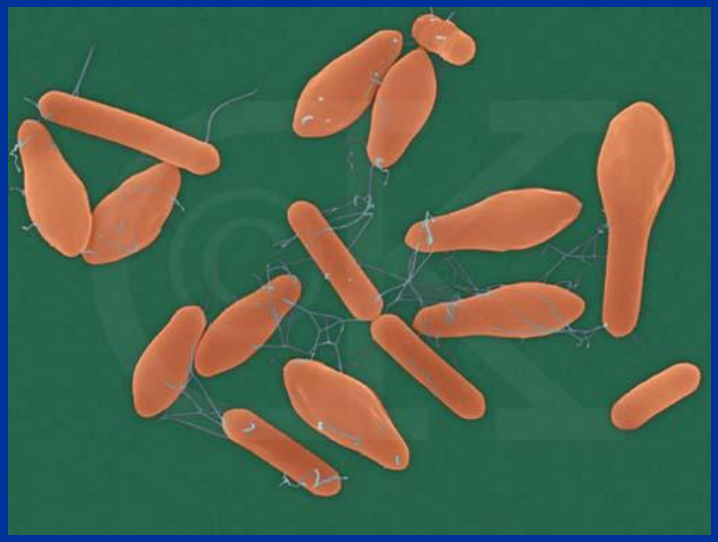


AGY ELLENSÉGEK????

99 **ZÖME** **TÖREDÉKE** **1**

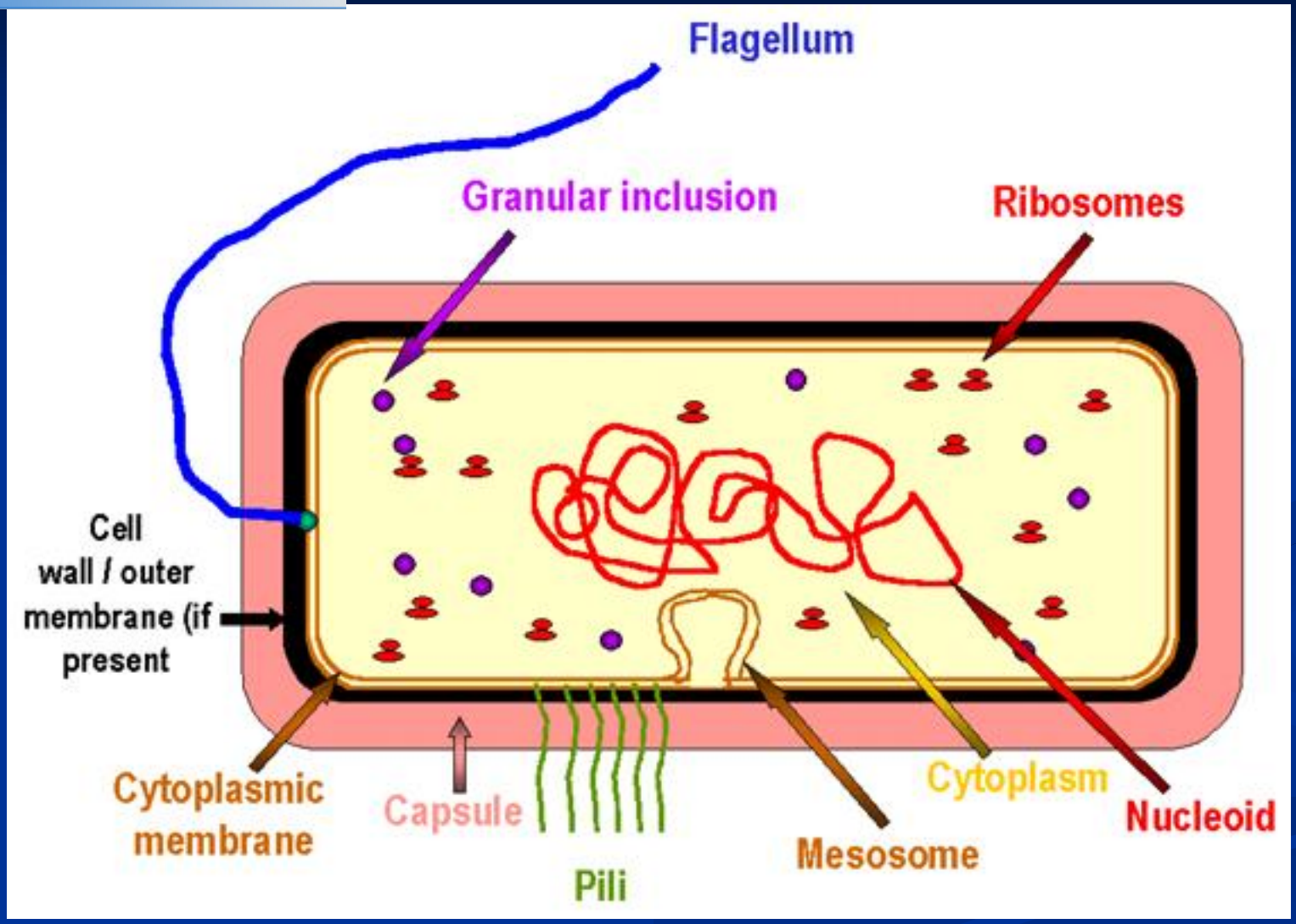
~40000 species

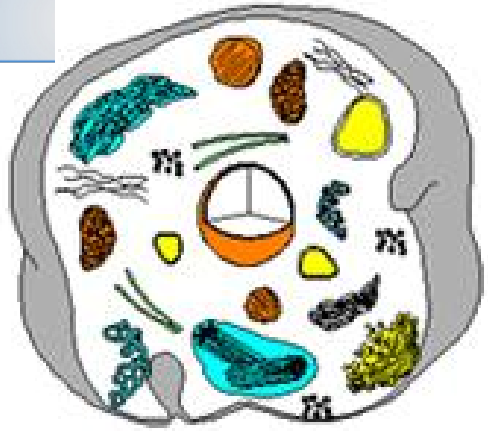
400 millió.....4000 millió



Clostridium botulinum

Vibrio cholerae



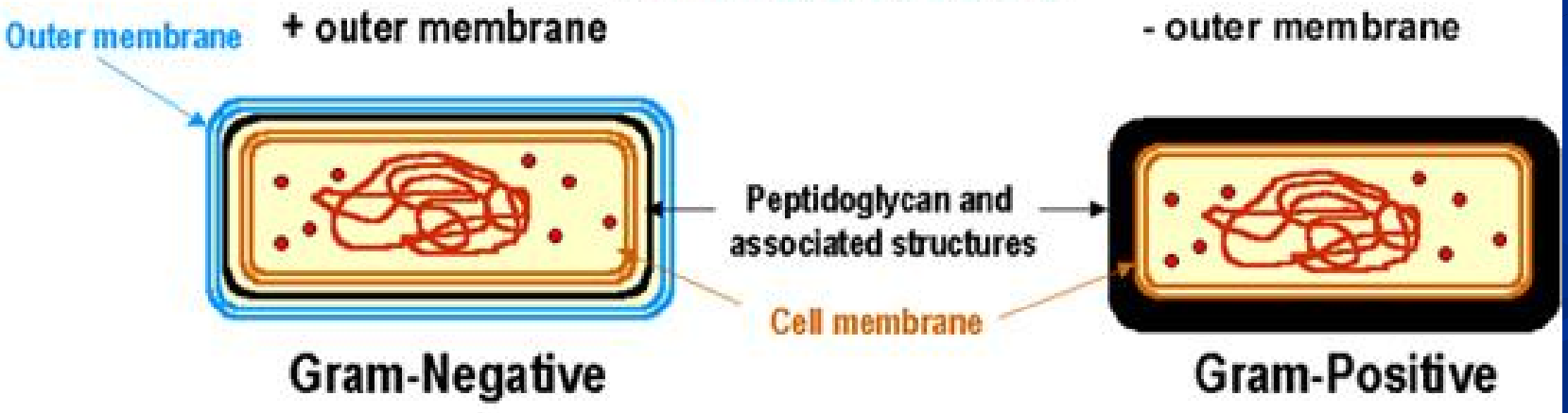


Animal Cell

Compartmentalized interior
No cell wall

Bacterial Cell

Non-compartmentalized interior
Cell wall (peptidoglycan)



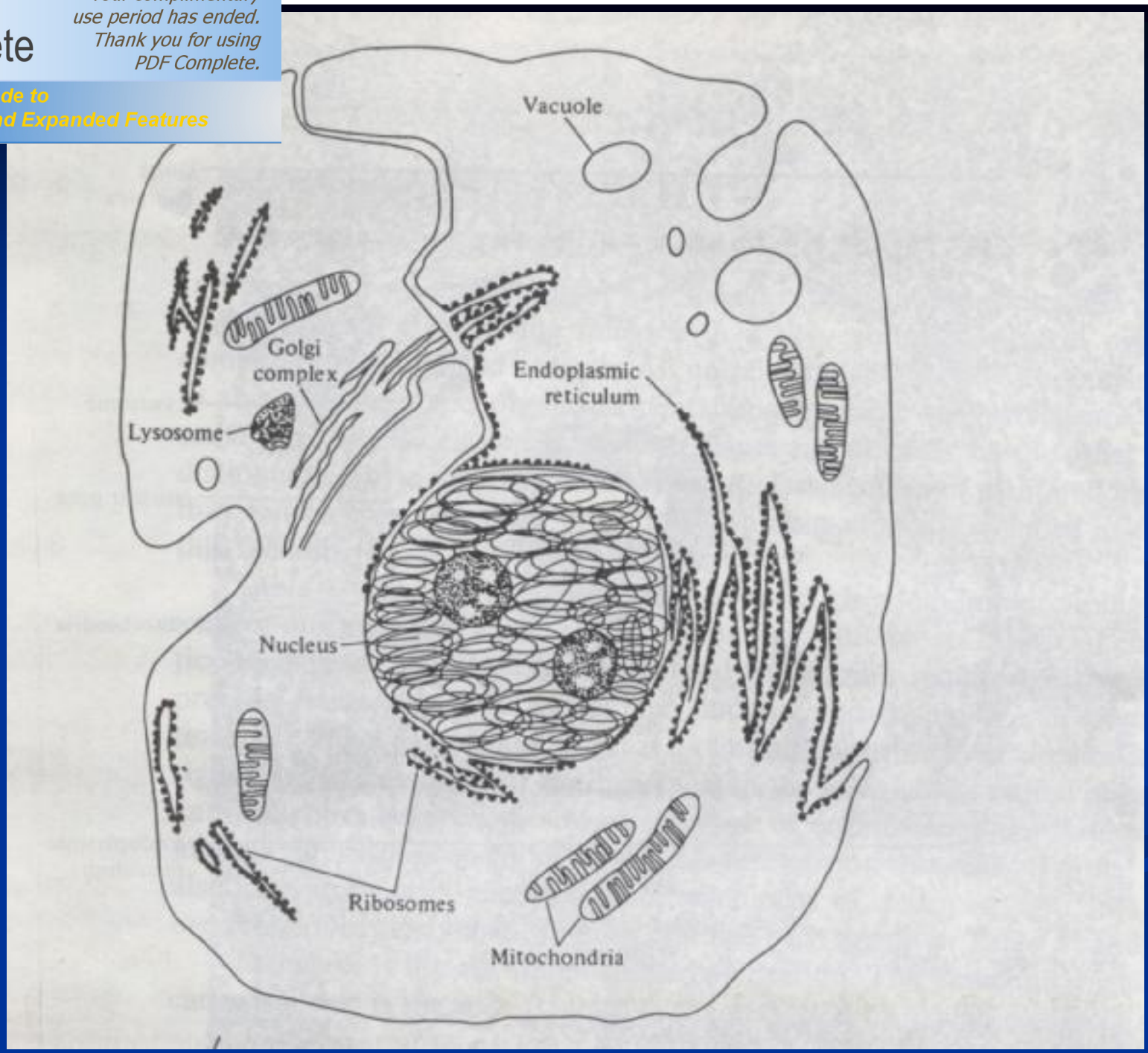
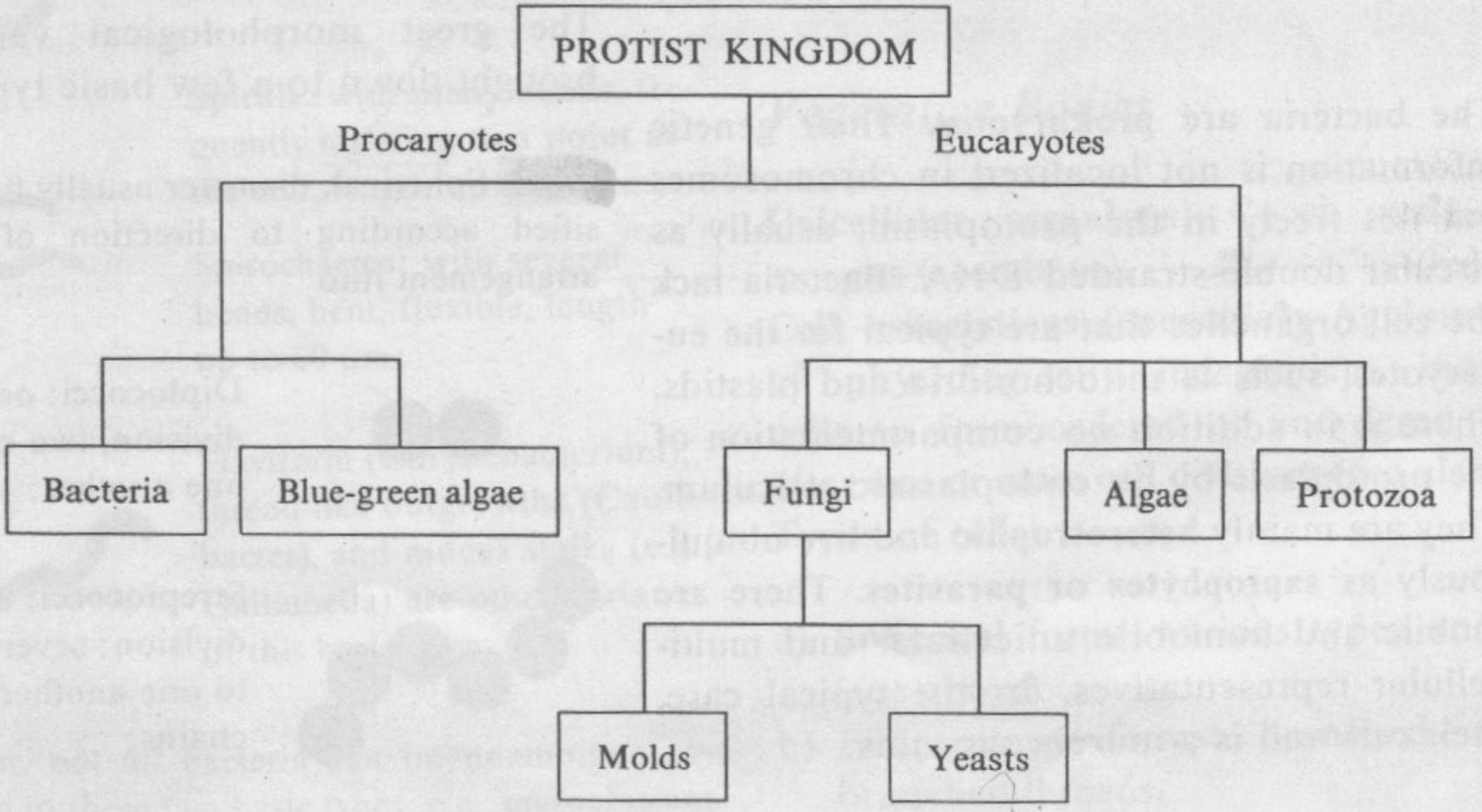
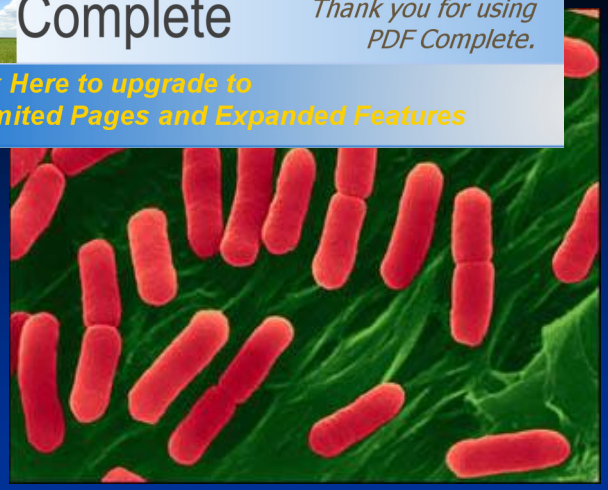


Table 3. Classifications of microorganisms belonging to the kingdom of protists

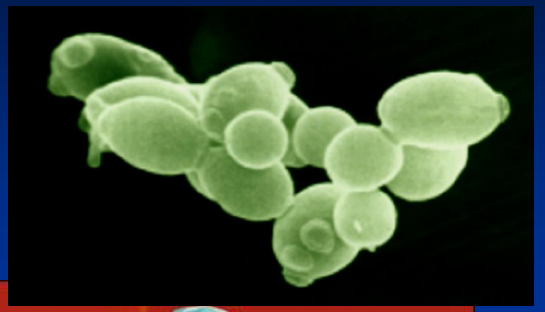


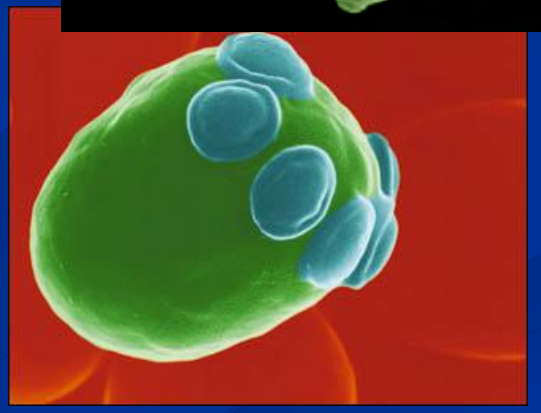


E.coli

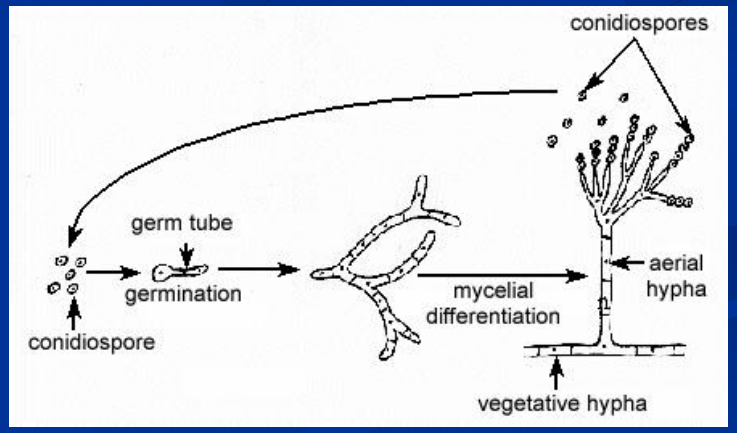
Vibrio cholerae

Saccharomyces cerevisiae

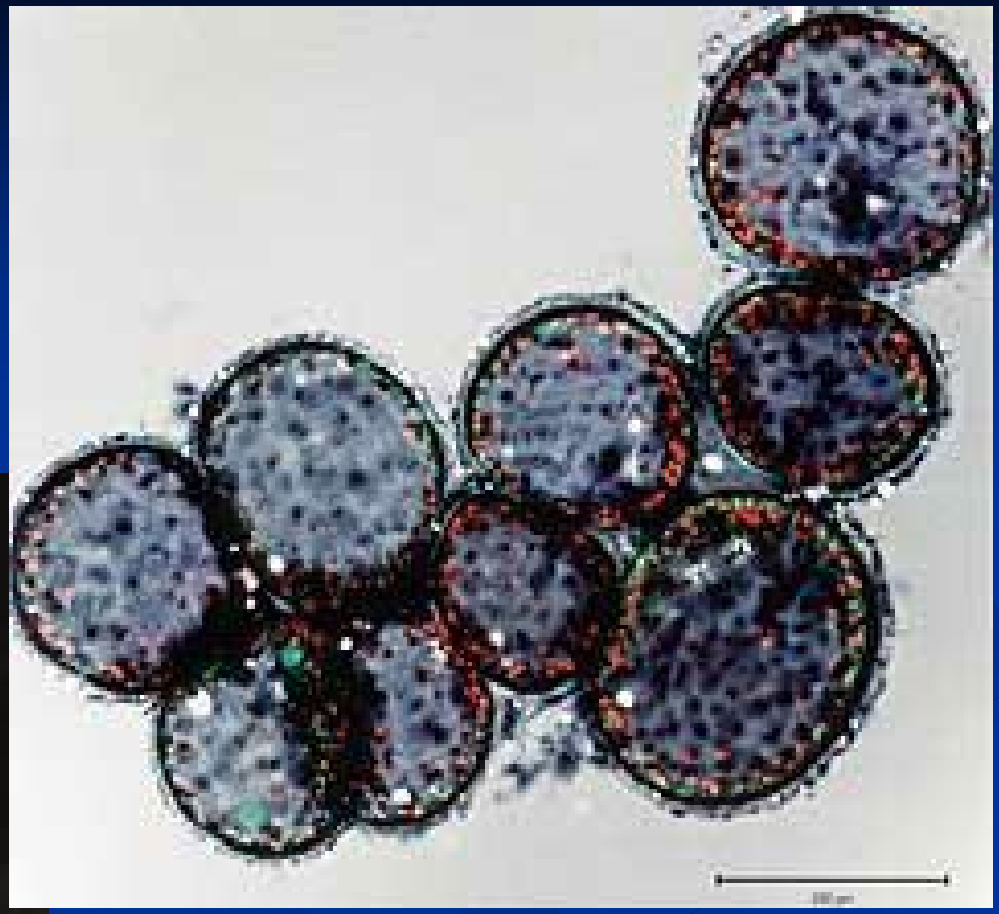




Mucor circenelloides



Aszexuális gombanövekedés



Thiomargarita namibiensis

Anyagcsere

TÁPANYAGOK

SEJTALKOTÓRÉSZEK, SEJT

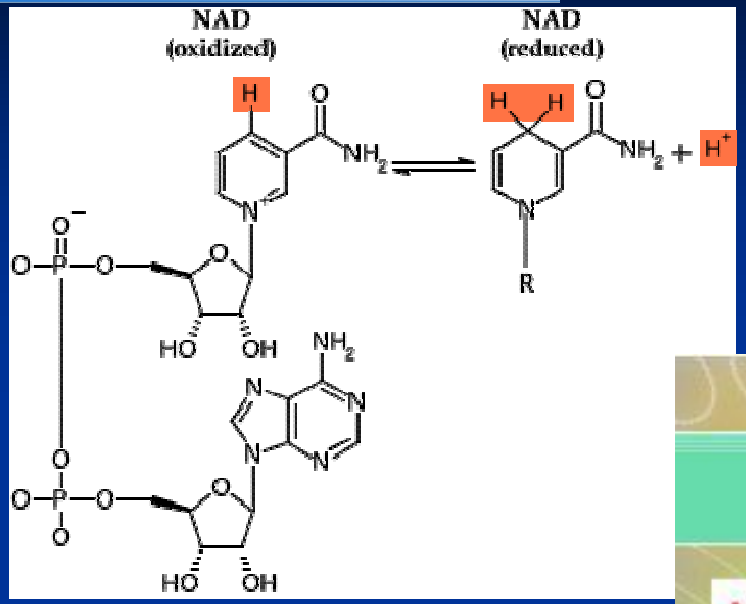
NAD(P)H

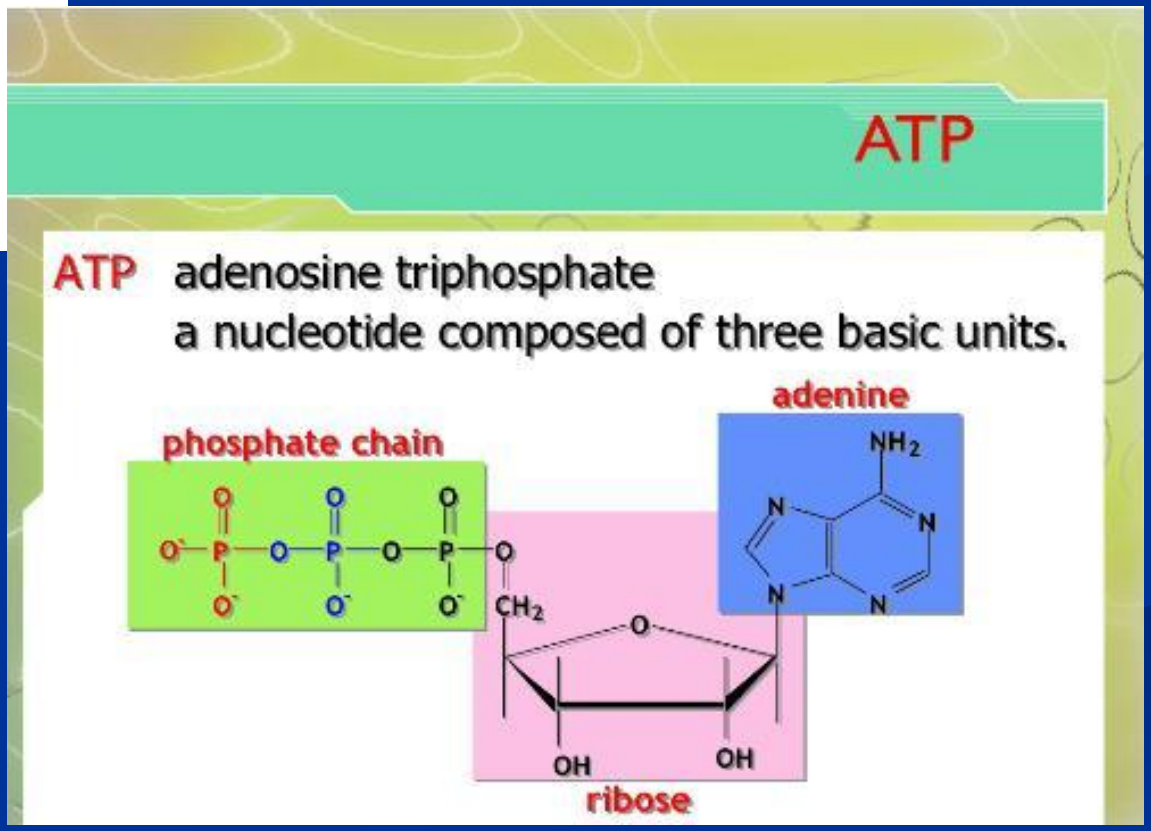
KATABOLIZ-MUS

ATP

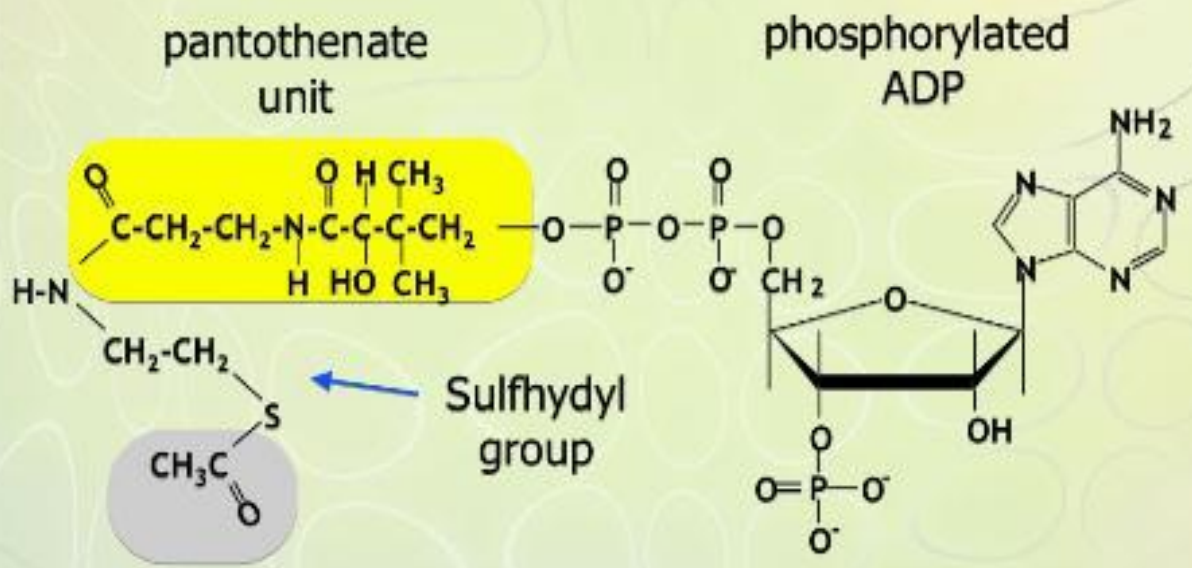
ANABOLIZ-MUS

PREKURZOROK
ÉPÍTŐELEMEK





Acetyl - coenzyme A

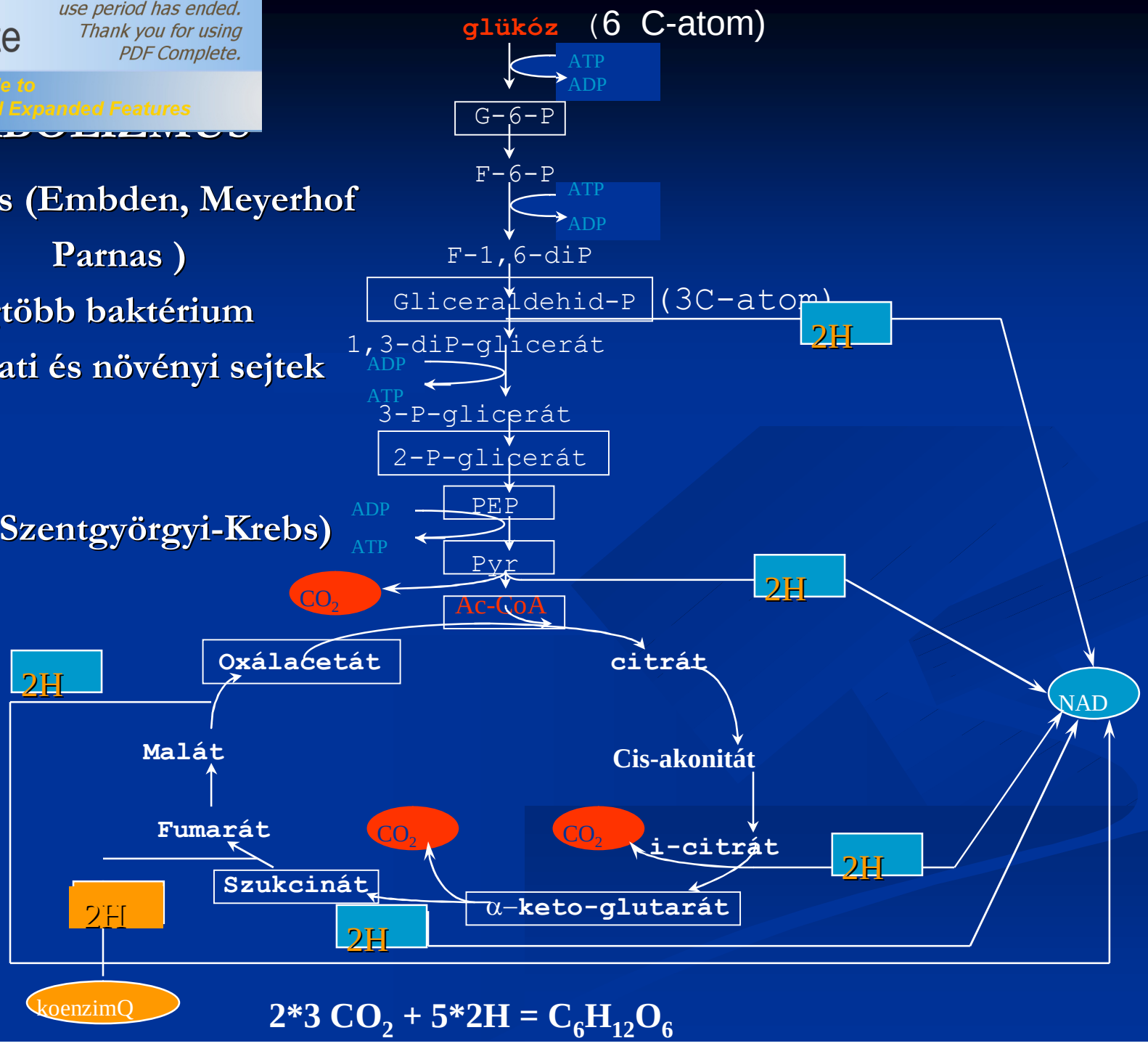


This molecule serves as the carrier for the small molecules from digestion.

Glikolízis (Embden, Meyerhof Parnas)

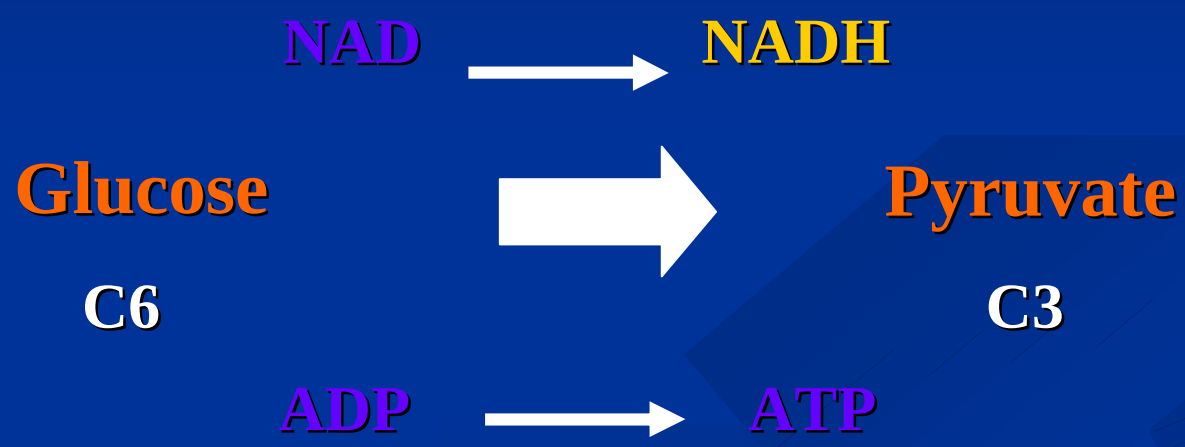
- legtöbb baktérium
- Állati és növényi sejtek

Citrátkör(Szentgyörgyi-Krebs)



$2*3\ CO_2 + 5*2H = C_6H_{12}O_6$

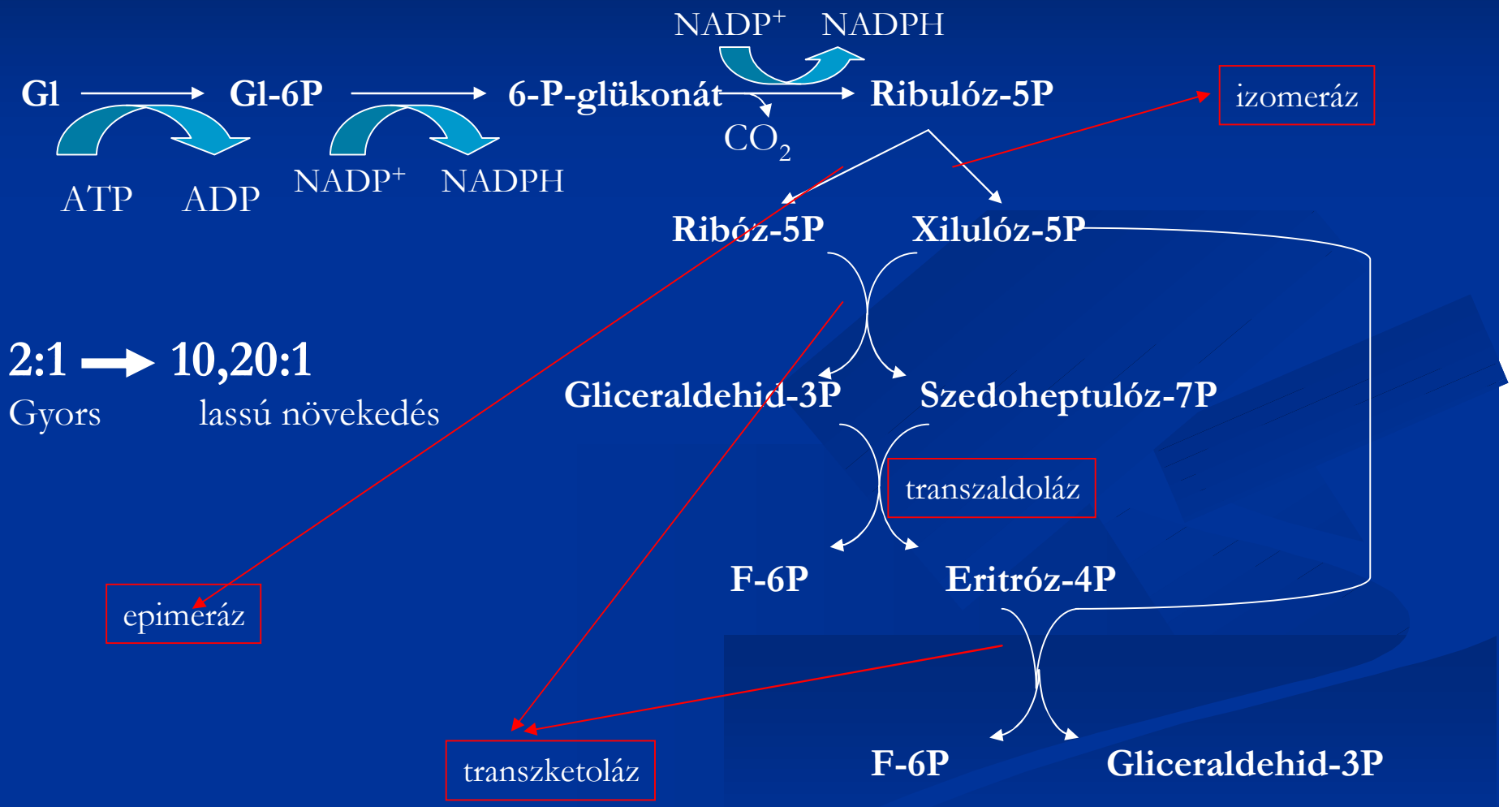
Glikolízis



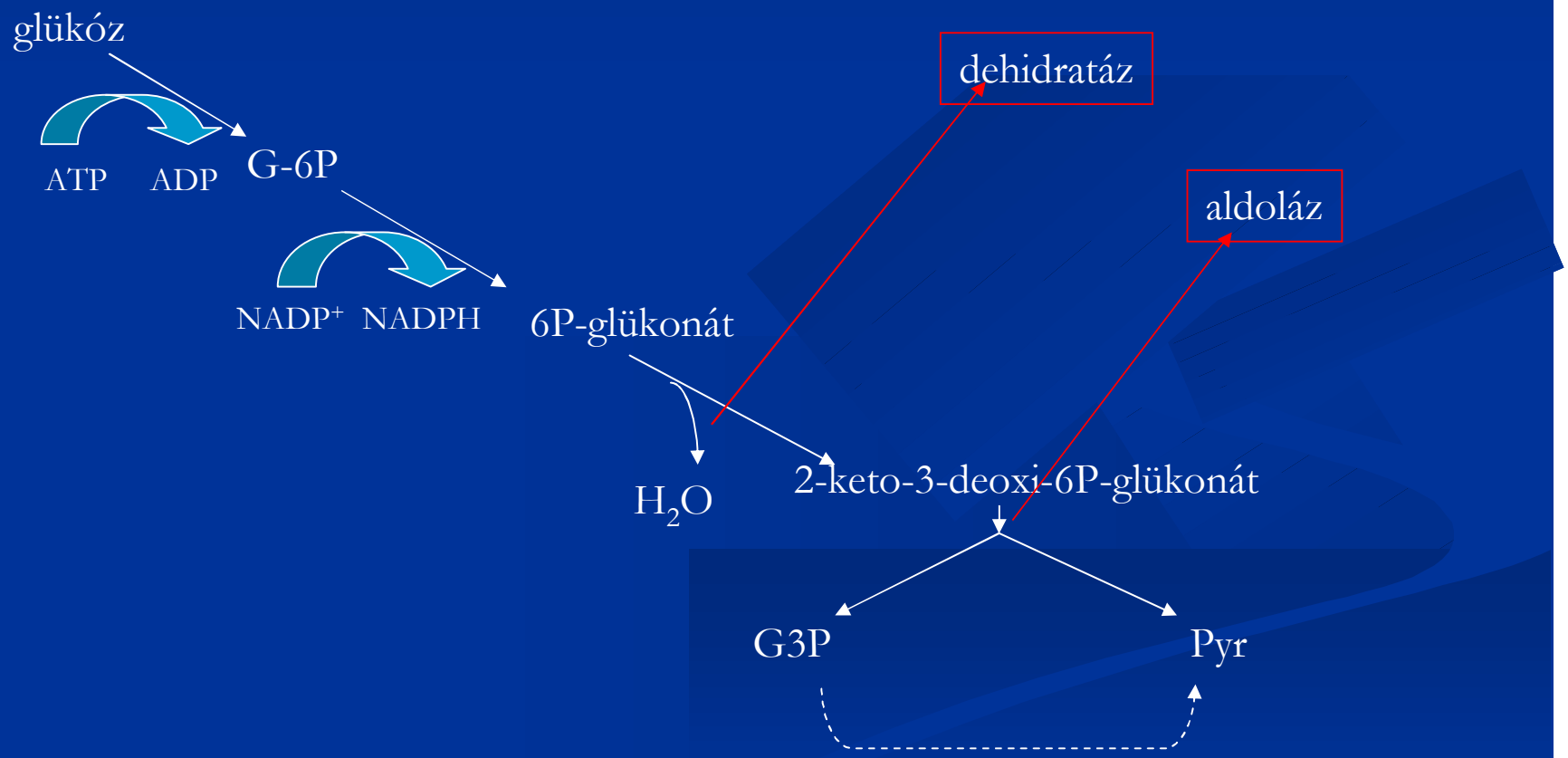
yéb cukor katabolizmus utak

út (hexose monophosphate sönt)

NADPH termelés,általános növ. és állati sejtekben



mban -EMP helyett



Krebs Cycle (C4-C6 intermediate compounds)

NAD → NADH

Pyruvate → $3CO_2$

(C3) (C1)

Oxidative phosphorylation

NADH → NAD

O_2 → H_2O

ADP → ATP

Szentgyörgyi-Krebs ciklus

Pyr+ CoA+NAD$^+$

Piruvát-dehirogenáz

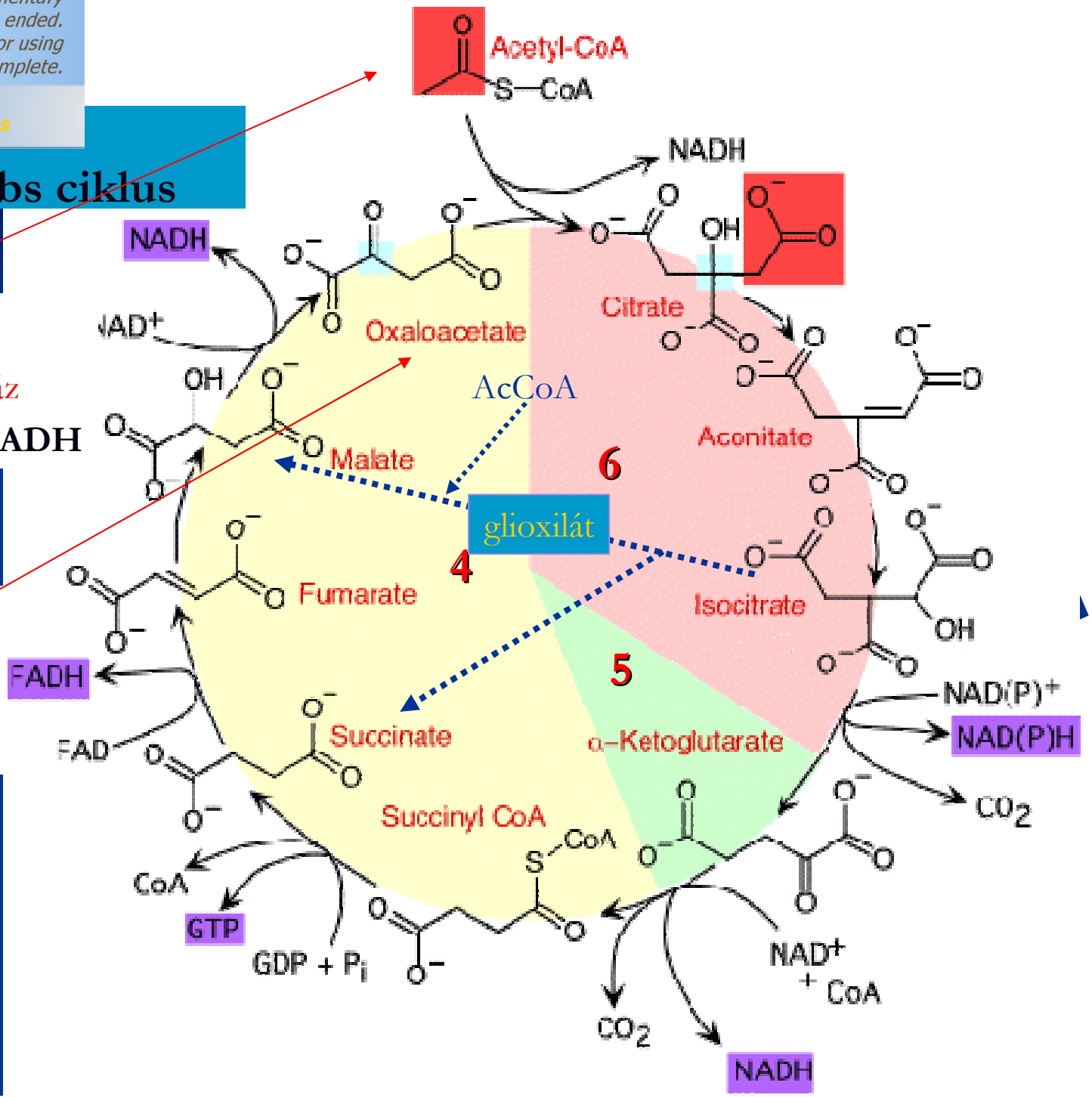
Acetil-CoA+ CO_2+ NADH

Pyr+ CO_2+ ATP

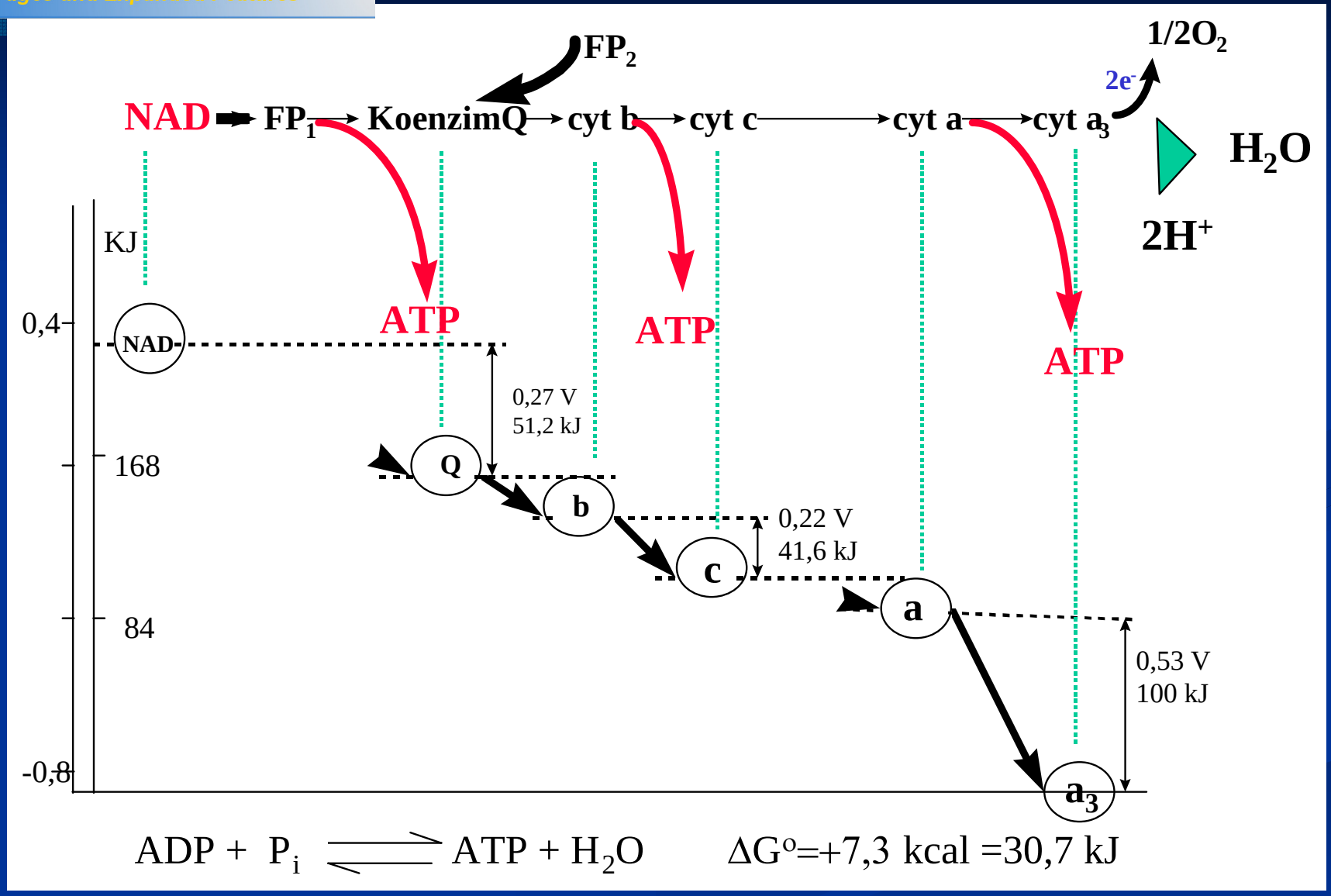
Piruvát-karboxiláz

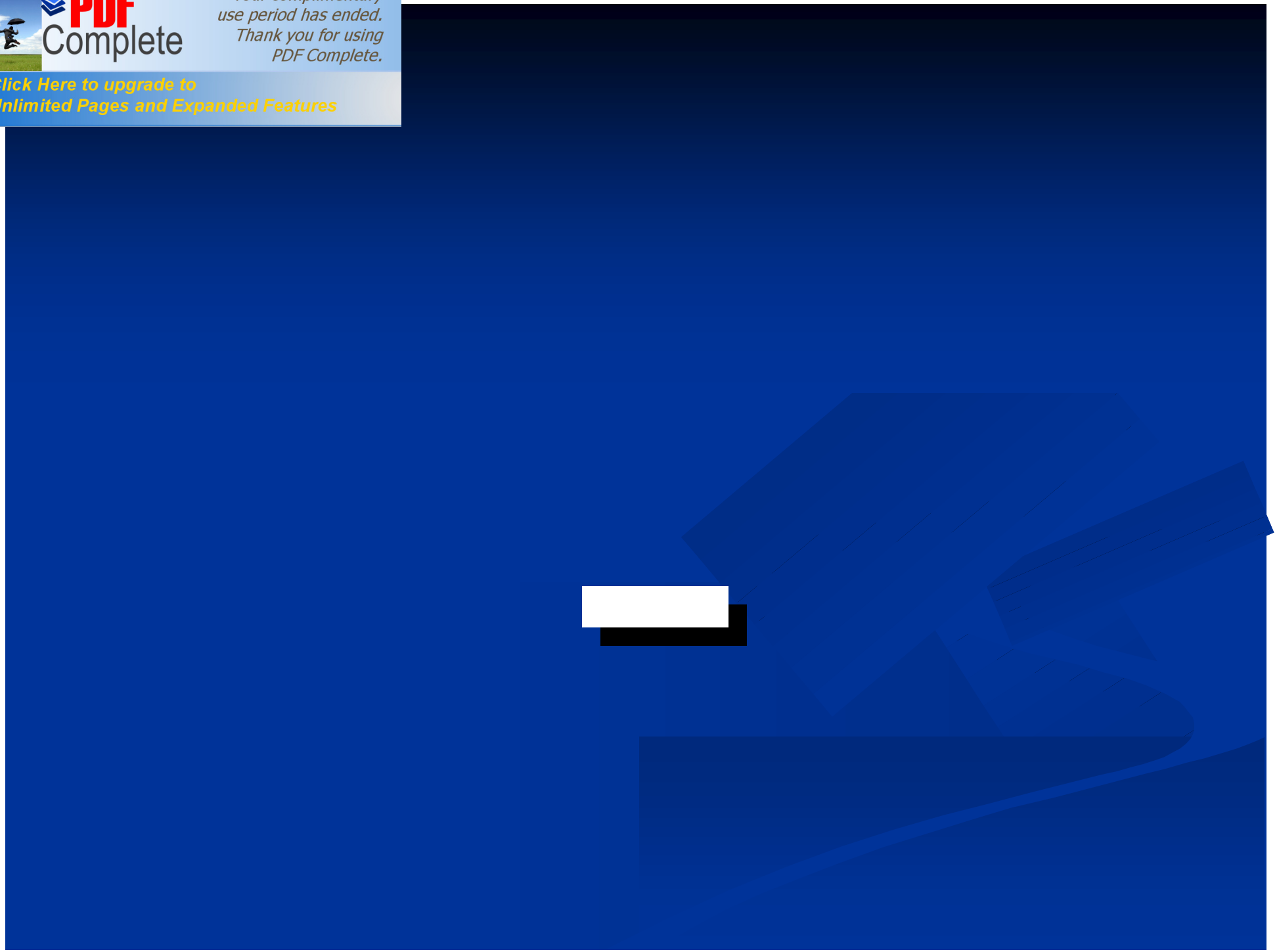
Oxaloacetát+ADP +Pi

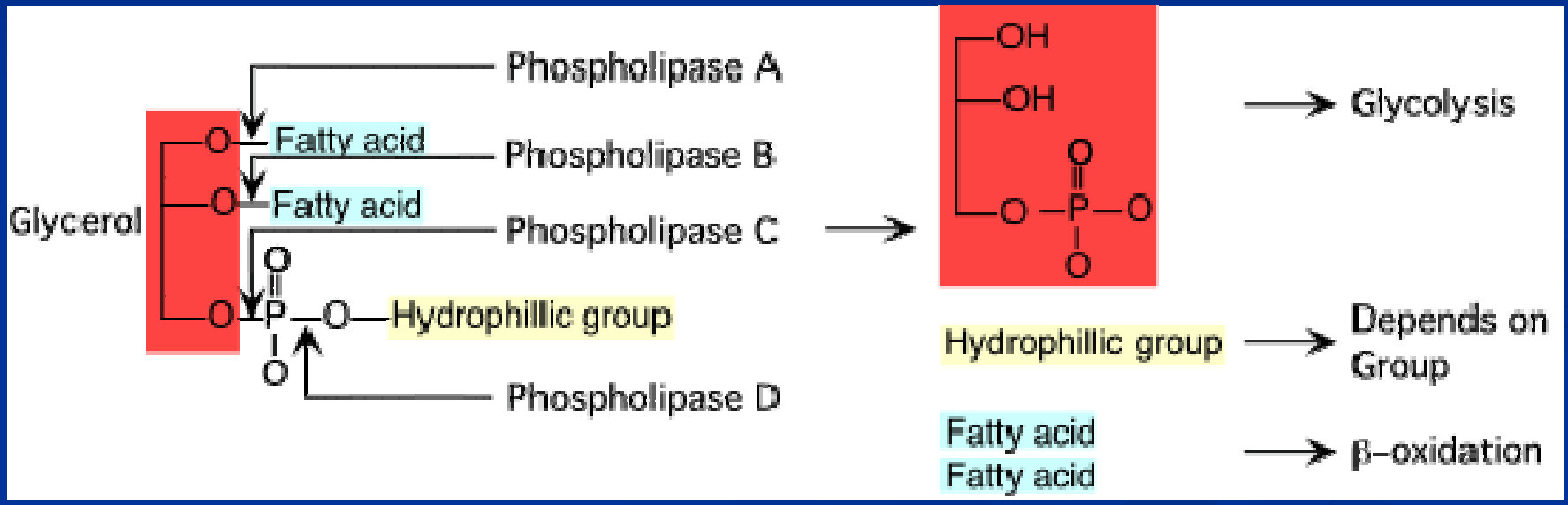
anaplerotikus



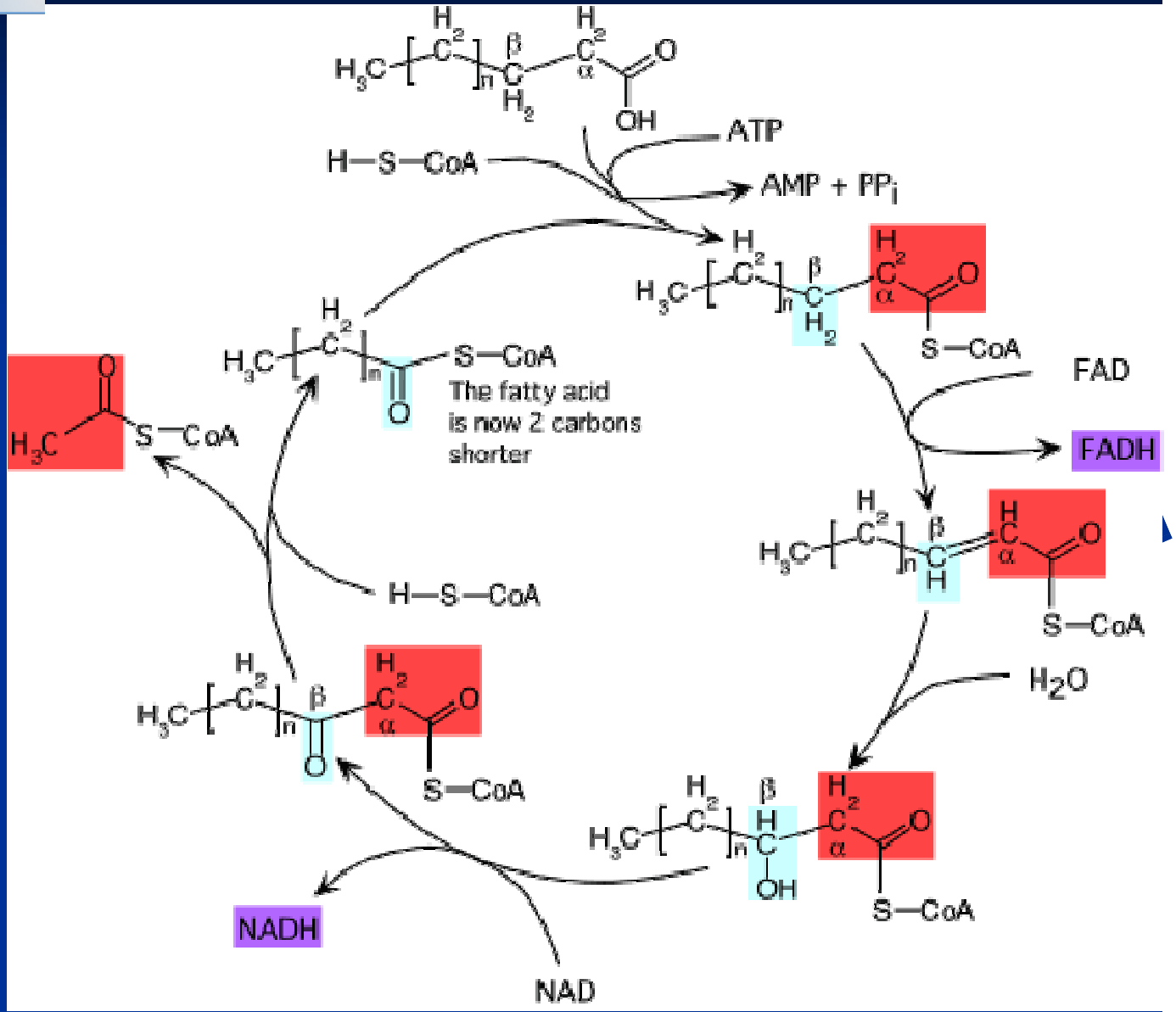
Az oxigén szerepe , légzés



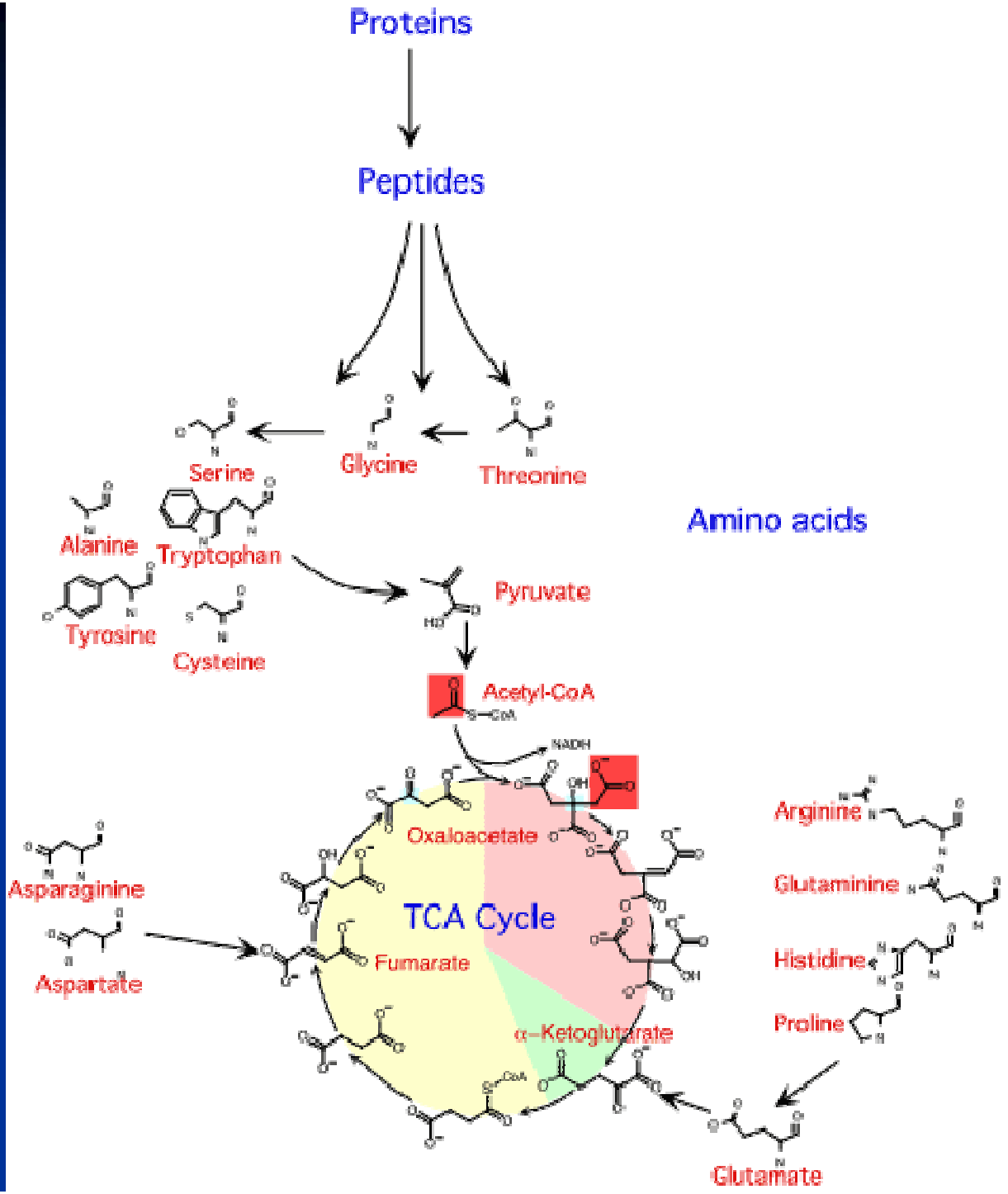




Zsírsaval lebontása
-oxidáció

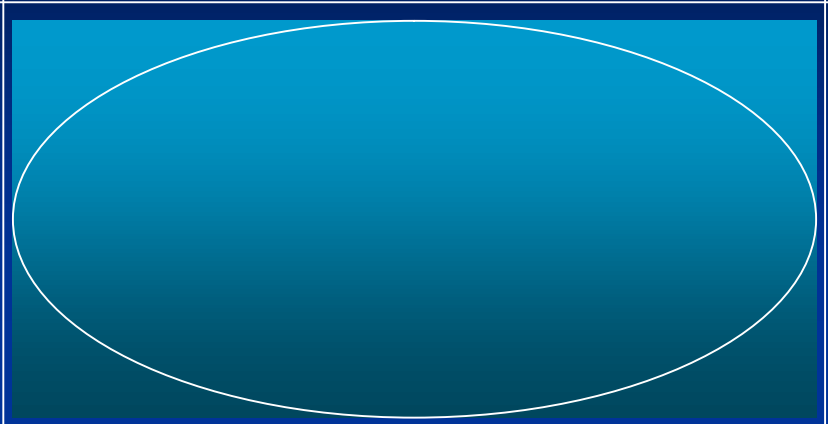


Aminosavak mint C/energiaforrások



Fermentációs tápoldatok

ENERGIAFORRÁS

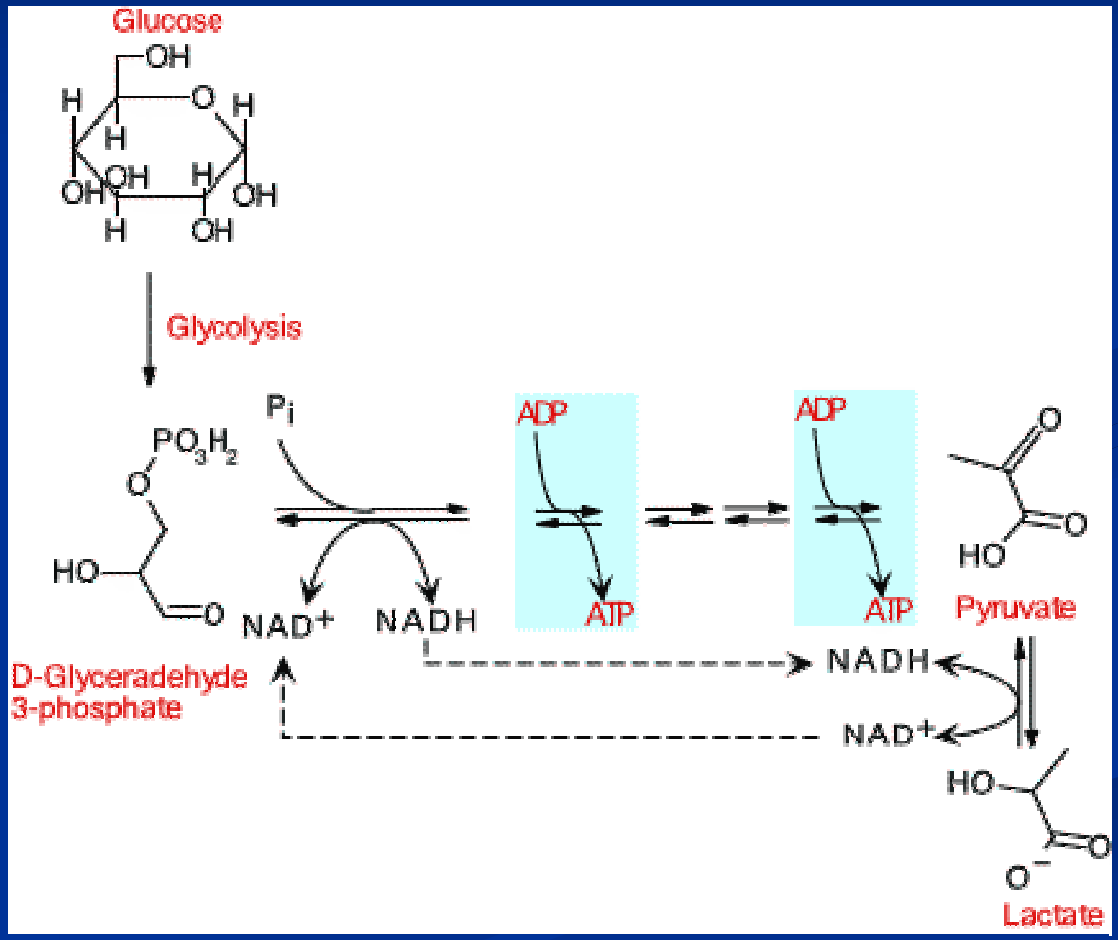
SZÉNFORRÁS	KÉMIAI	FÉNY
		FOTOOORGANOTRÓF **Bíbor baktérium.** **SZERVES** ← **ELEKTRON DONOR** ...glükóz...
SZÉNDIOXID AUTOTRÓFOK	KEMOLITOTRÓF **H-,S-,Fe-Denitrifikáló-baktériumok** **SZERVETLEN** Z H_2S, S, H_2, Fe(II), NH_3...	FOTOLITOTRÓF **Zöld növények (fényben)** **Cianobaktériumok** **Fotoszint.baktériumok** **SZERVETLEN** ← **ELEKTON DONOR** H_2O, H_2S, S...

(És mi az elektron akceptor??)

CSERE

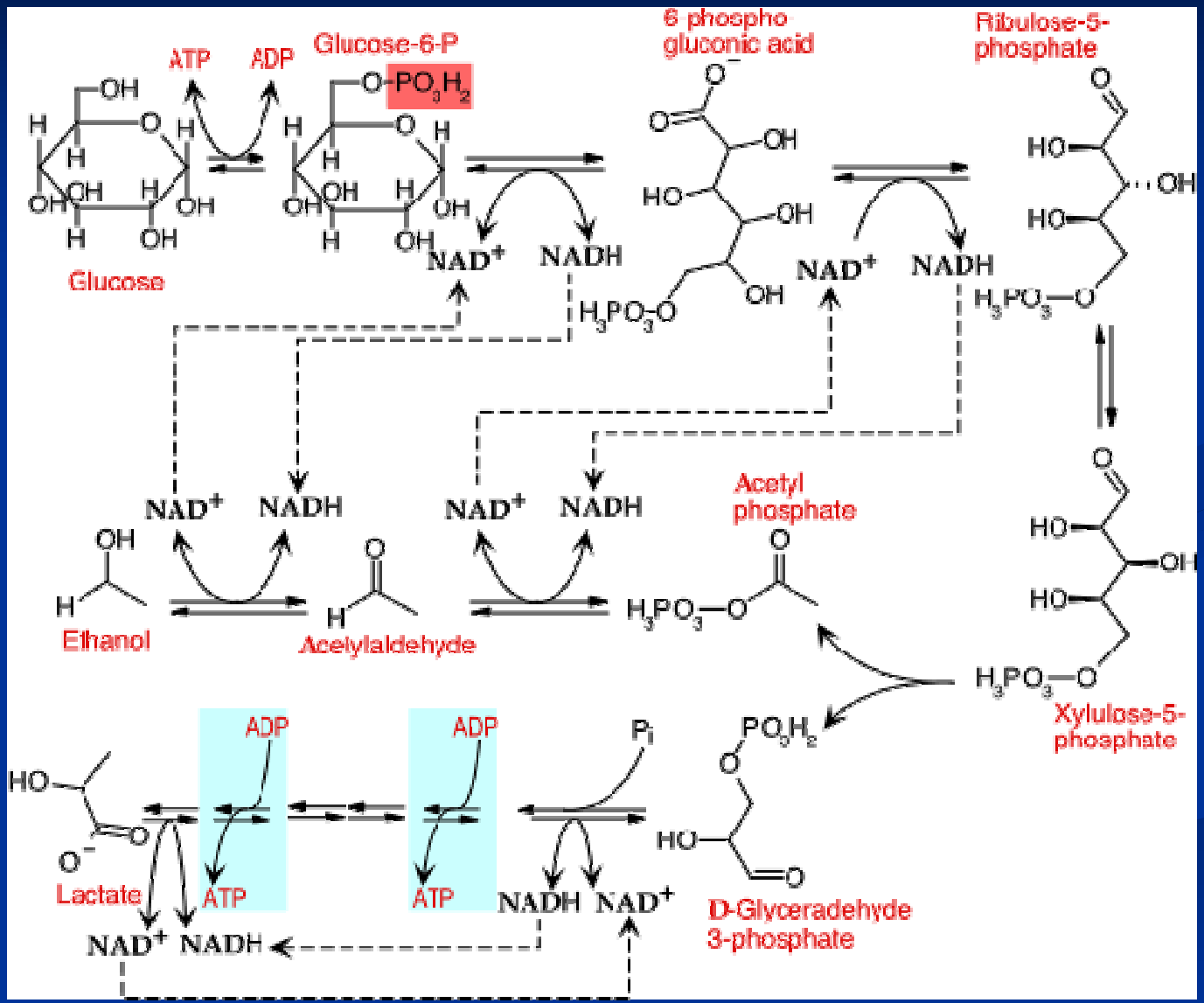
SZUBSZTRÁT SZINTŰ FOSZFORILEZÉS (GIKOLÍZIS, TCA)

NEMCSAK MIKROBÁKBAN: TEJSAV (homolaktikus fementáció

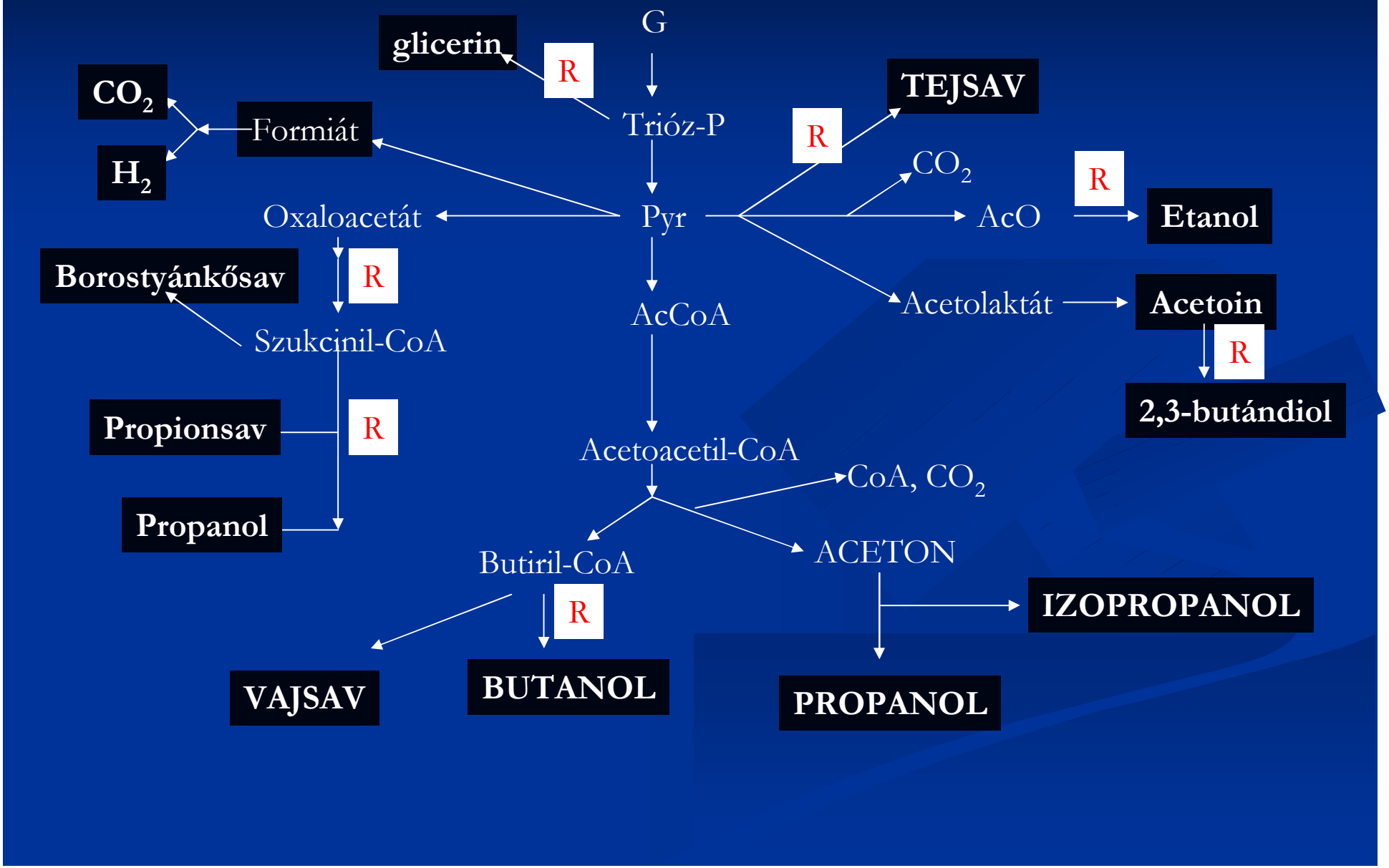


sor anyagcseretermék, más elektronakceptorok

k: heterolaktikus fermentáció



k: anaerob NADH regeneráló anyagcsereutak, végtermékek



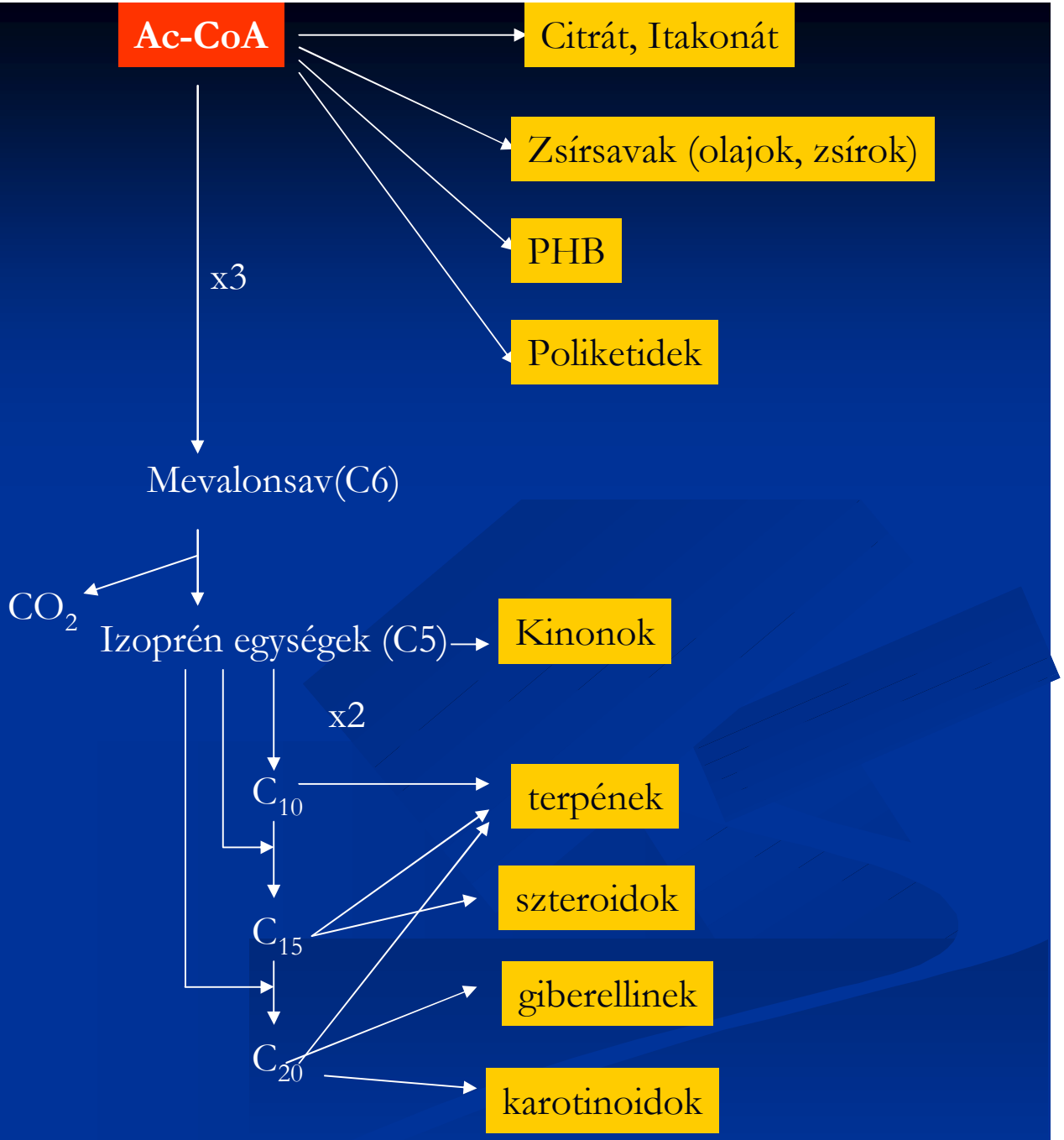
s elektronakceptorok

Energiaforrás (redukáló=oxidálódó vegyület)	Oxidáns (terminális elektron akceptor)	Respiráció termékei	Példa
*H_2	SO_4^{2-}	H_2O+S^{2-}	*Desulfovibrio*
*Szerves vegyület	NO^{3-}	N_2+CO_2	Denitrifikáló baktérium
S^{2-} +	NO_3^-	N_2 +elemi S	Thiomargarita

BIOSZINTÉZIS

Primer anyagcsere	TROPOFÁZIS	kiegyensúlyozott növekedés balanced growth
Szekunder anyagcsere	IDIOFÁZIS	kiegyensúlyozatlan növ, fenntartás: folyik a primer anyagcsere részben: m á s f e l é

Szekunder a.csere termékek Acetil-koenzim-A-ból



HIA