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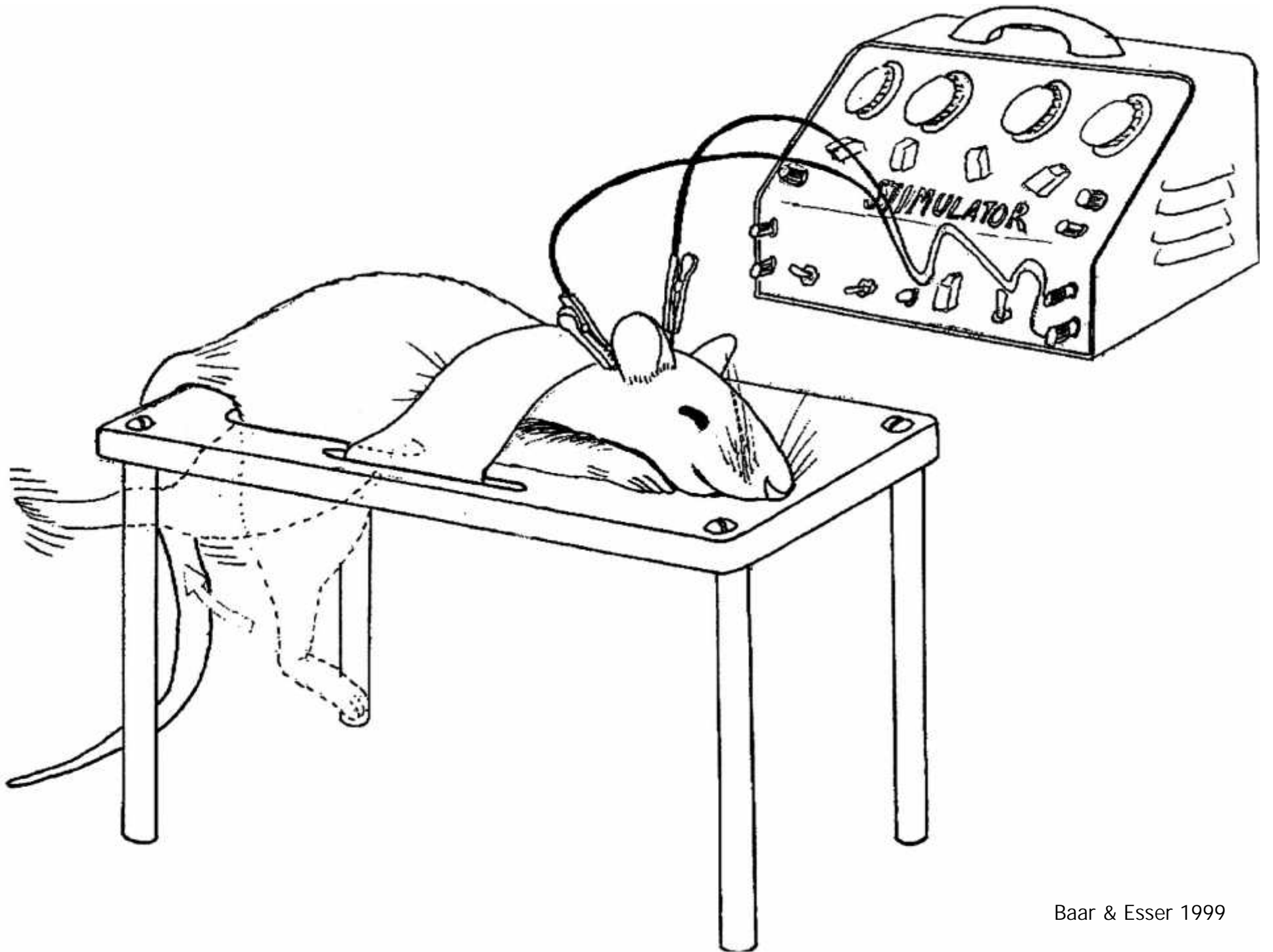
μ

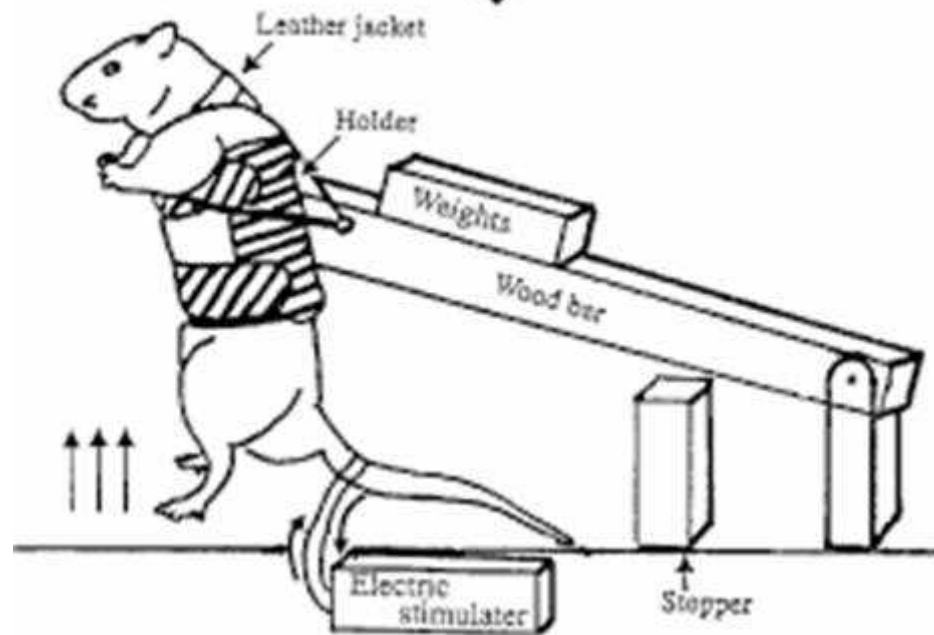
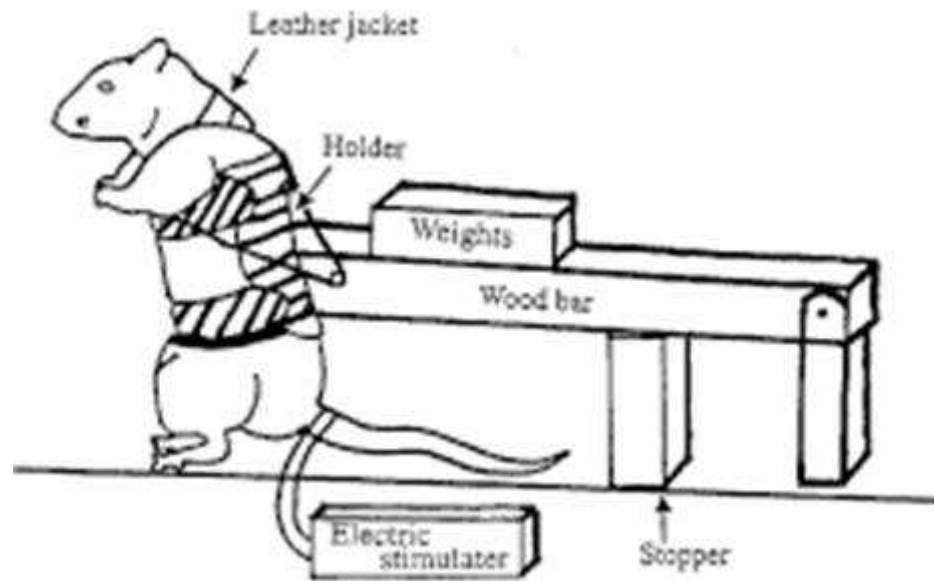
μ

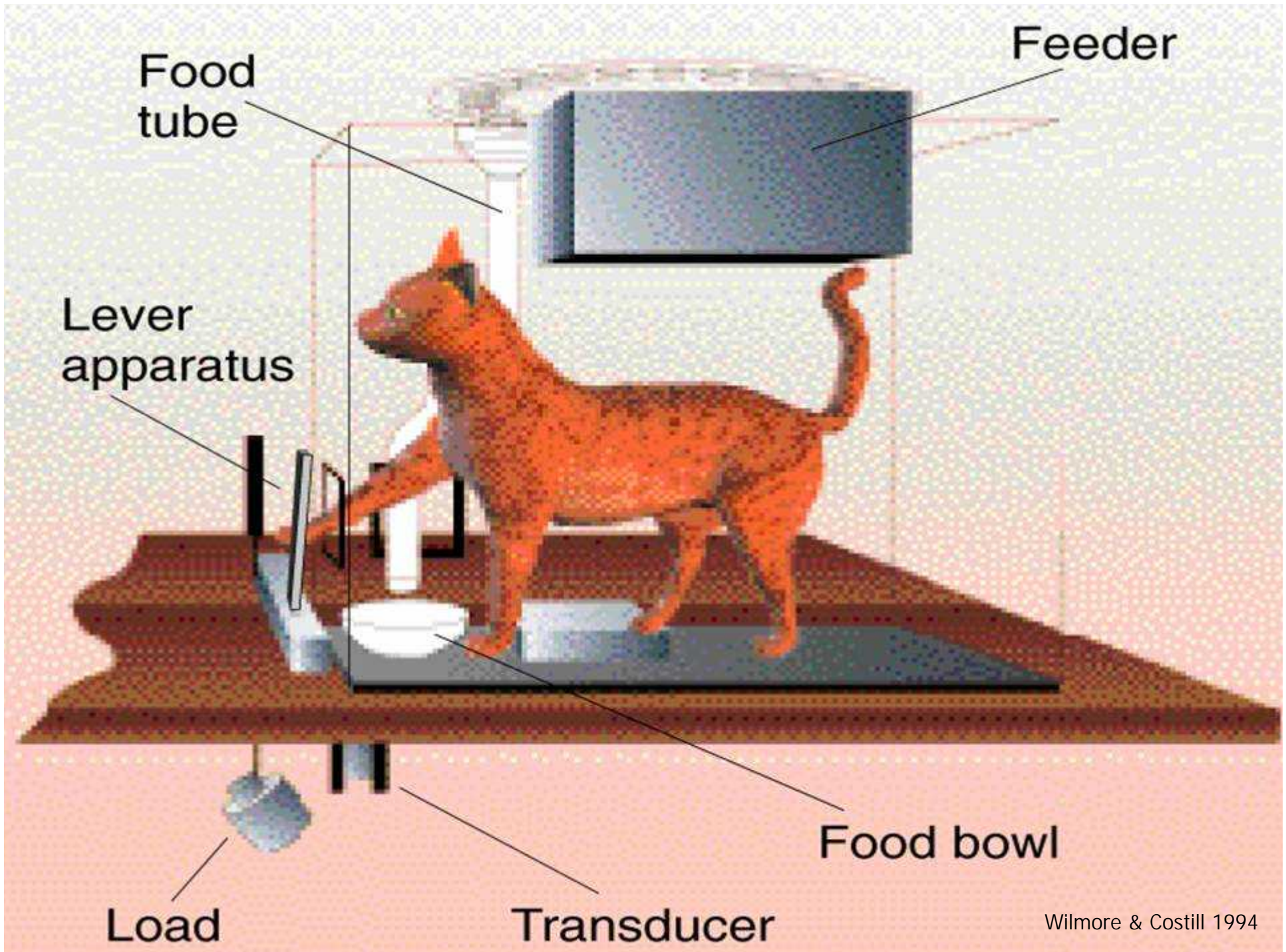
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μ

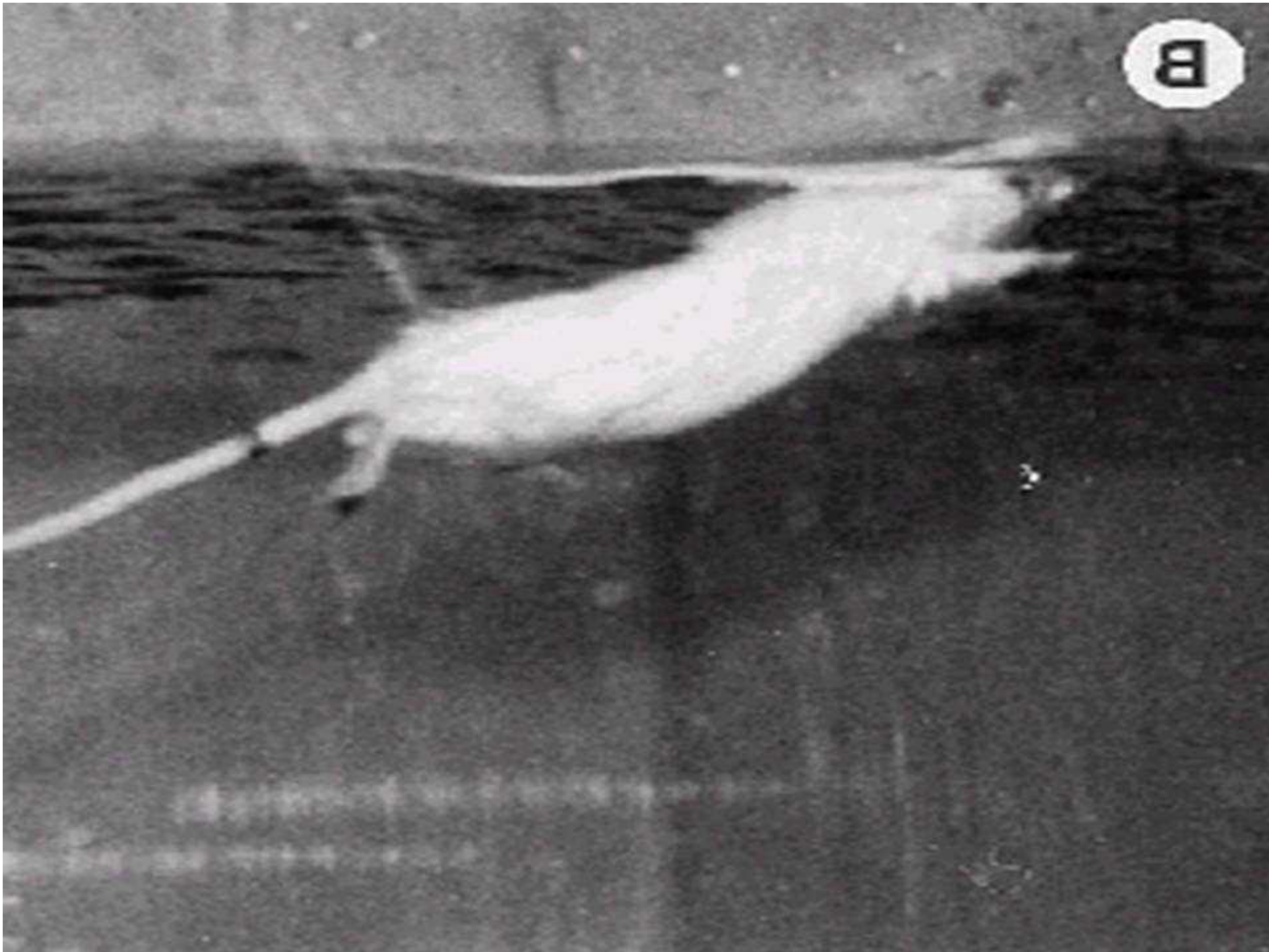
μ



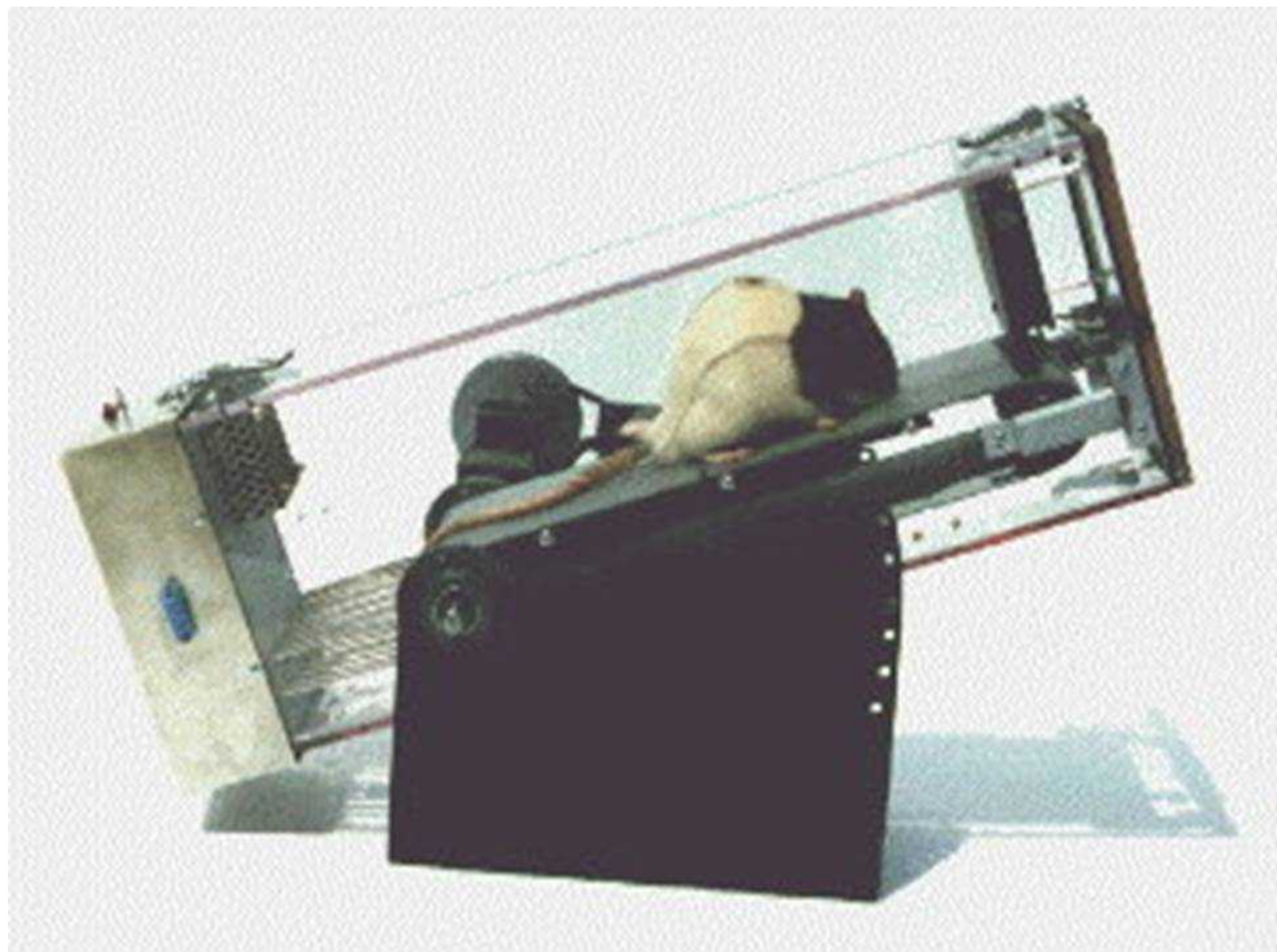




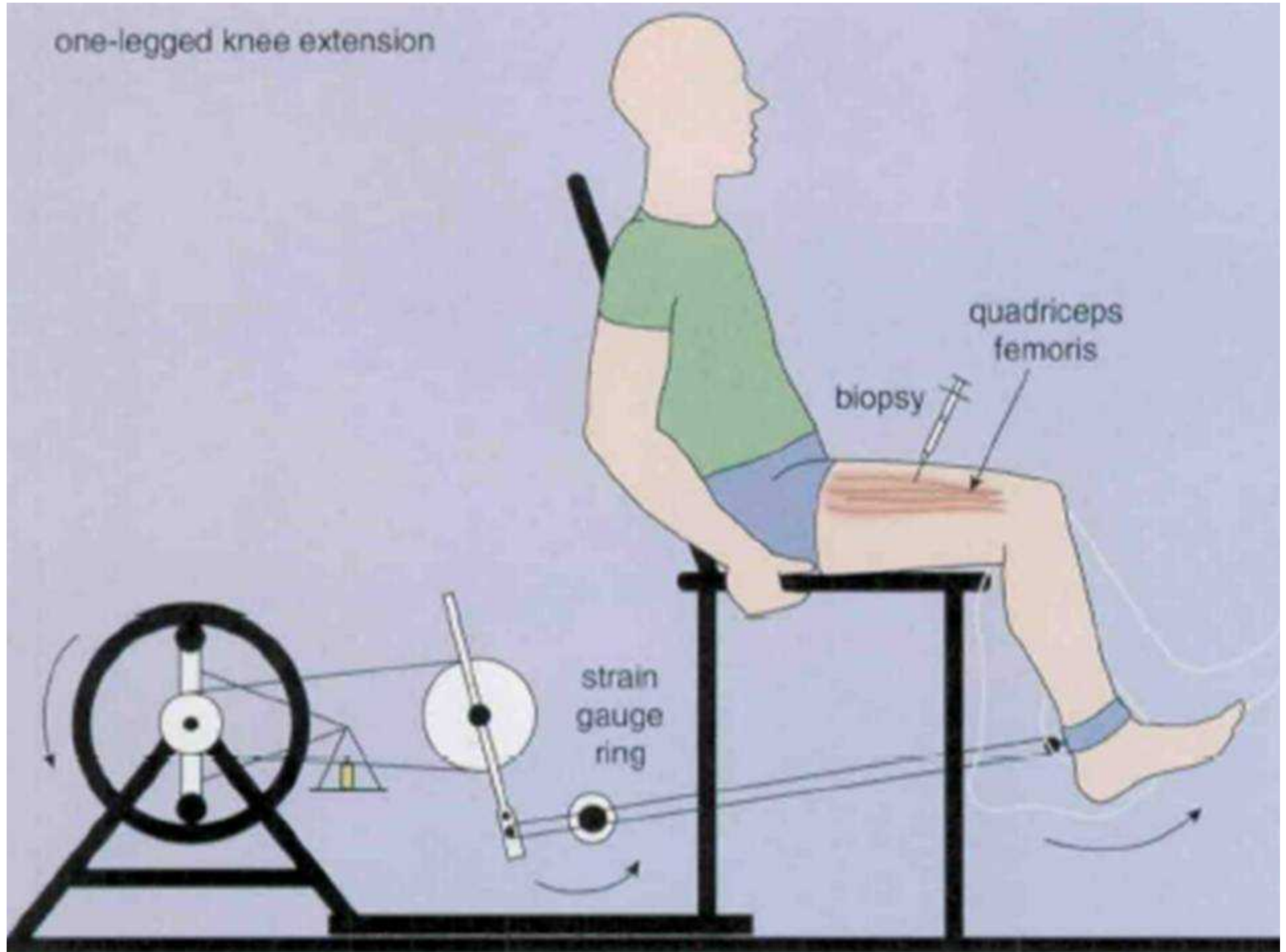
B



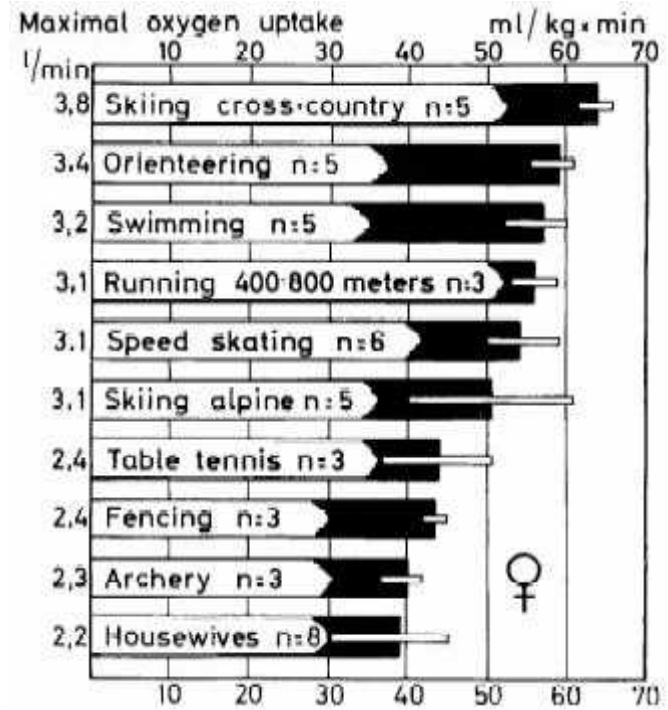
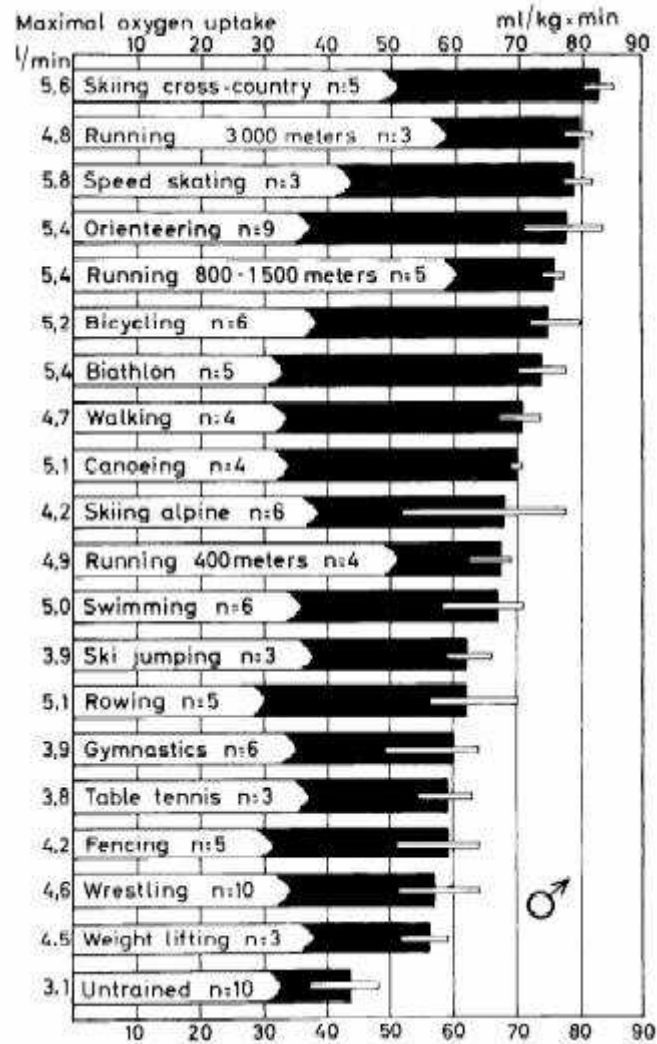




one-legged knee extension

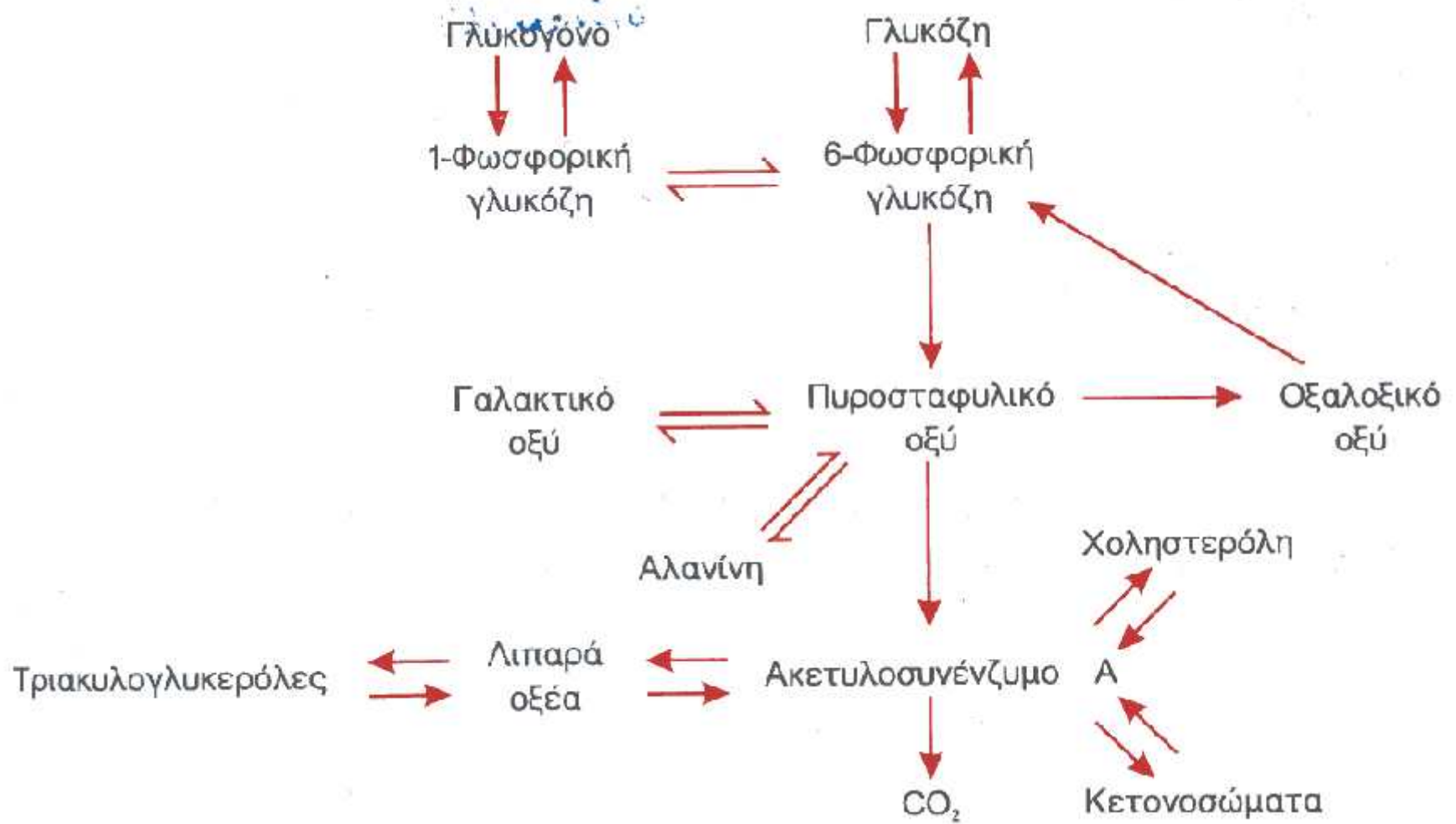


(VO₂max)





© 2008 Kenneth Koh/Adventure Nomad



-

-

PC

-

-

TG

-

- TG

μ

Πηγή	Ποσότητα (mmol)	Αποδιδόμενη ATP (mmol)		Μέγιστος ρυθμός παραγωγής ATP (mmol/s)	
		Αναερόβια	Αερόβια	Αναερόβια	Αερόβια
Μυϊκή ATP	168	168			
Μυϊκή φωσφοκρεατίνη	560	560		72,8	
Μυϊκό γλυκογόνο	2160*	6480	71.280	39,2	16,2
Ηπατικό γλυκογόνο	556*		17.792		2,1
Μυϊκές τριακυλογλυκερόλες	326		117.360		8,4
Τριακυλογλυκερόλες λιπώδους ιστού	12.209		4.395.240		5,6

•

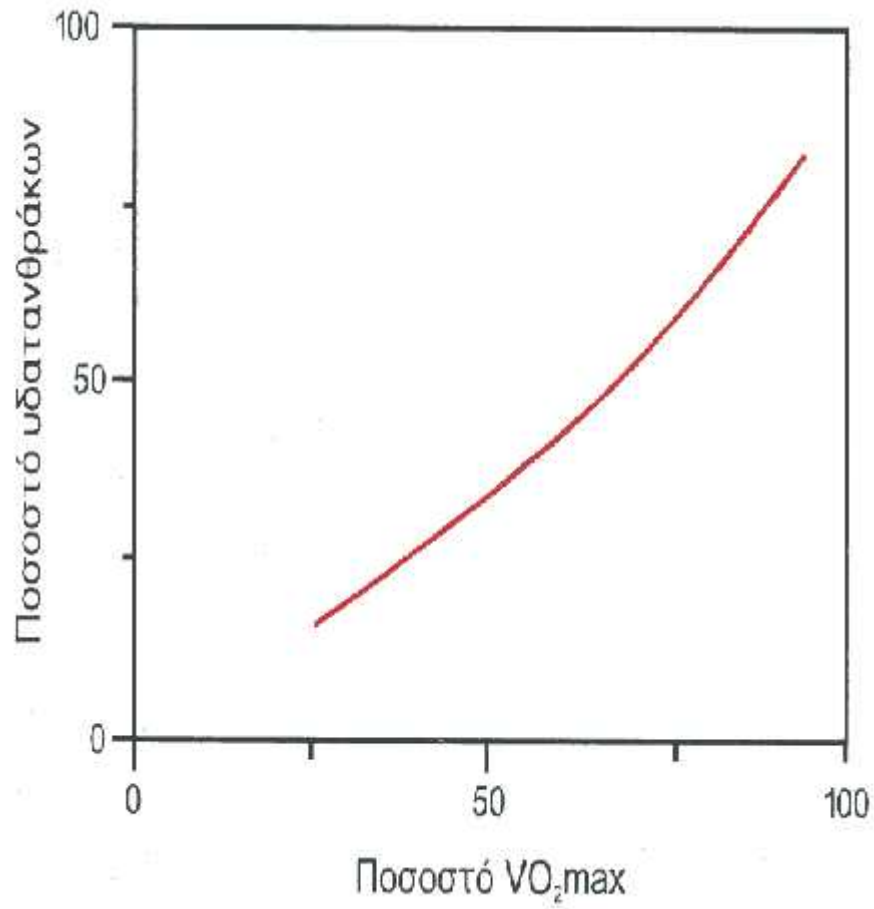
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μμ



- $\mu > \text{CHO}$
- $\text{CHO} >$
- μ / PC

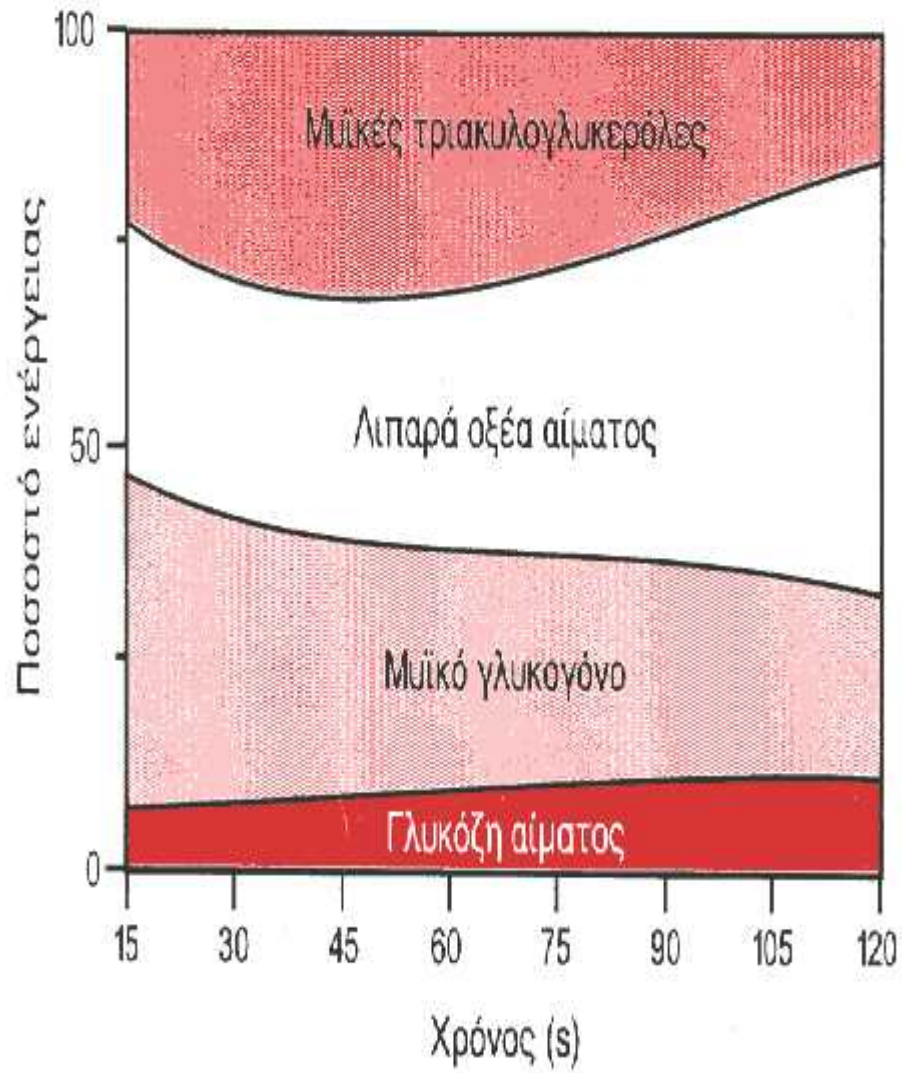
- « μ »: μ
 CHO μ
 (~50% VO₂max)

- ;

- $\mu\mu$ μ (

- CHO B/D)

-  [Epi]  $\mu\mu$  [. .]  μ



30
μ

)

μ

(>

:CHO

μ

- ;
- ↓ []
- ↑ [Epi], [], [GLCN]
- ↓ []
- ↑ [cylCoA] ↓
- . . →
- ↓ PFK
- ↓

μ CHO
↑

↑[6-GP]



:

μ

μ

.

μ

μ



:

μ

[] μ

μ

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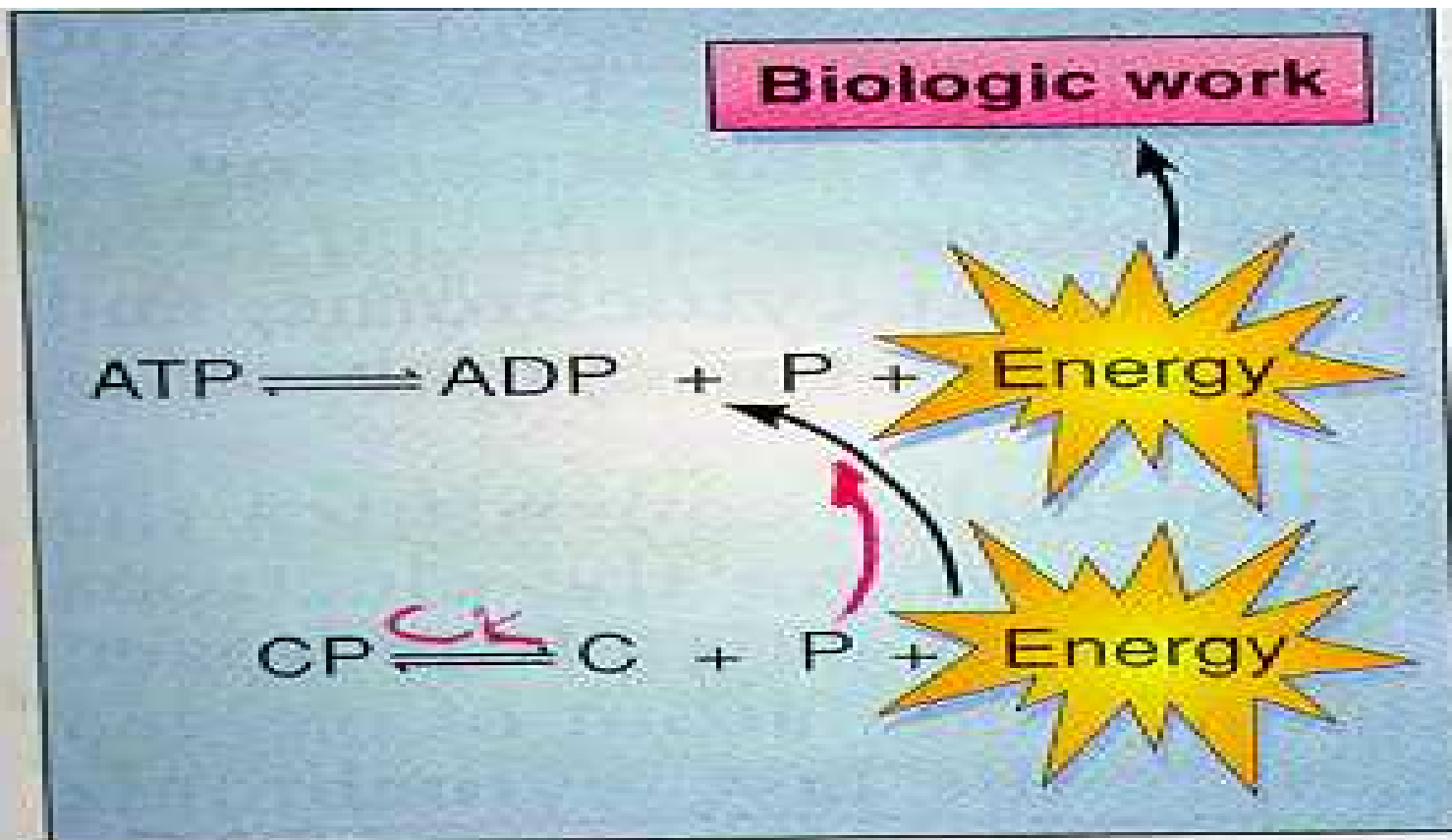


FIG. 6-3.

ATP and CP are nonaerobic sources of phosphate bond energy. The energy from the breakdown of CP is used to rebond ADP and P to reform ATP.

•

μ

μ

μ

:

μ

1.

μ

2.

μ

•

μ :

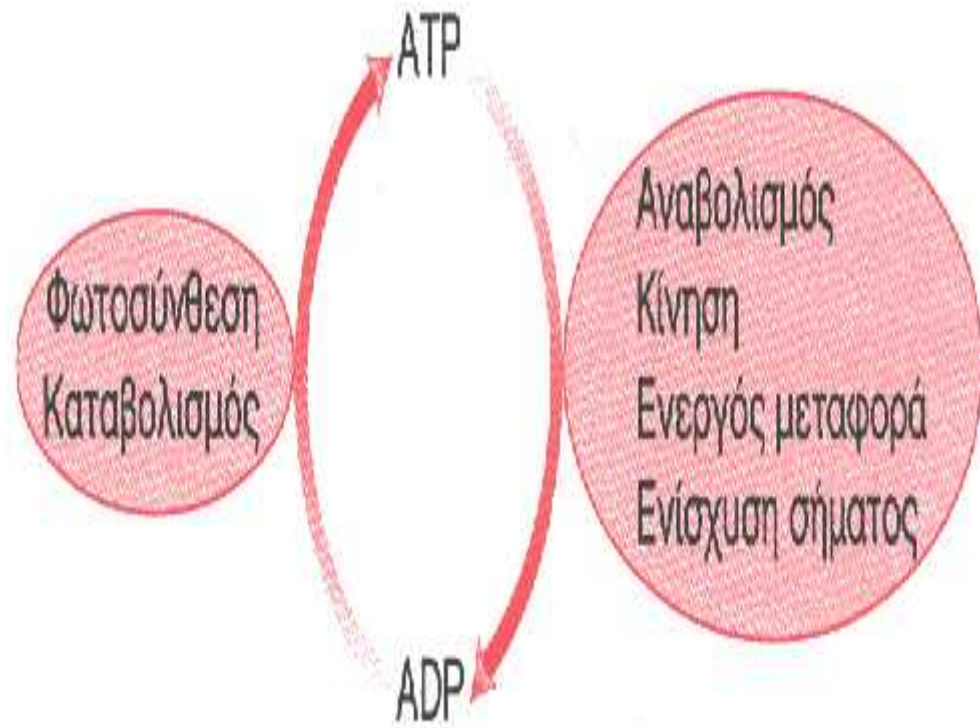
•

, ADP, PC

-ADP

•

μ .
μ
μ .
μ .
DP i



CHO.

-ADP

- H
μ

μ
(~3 sec).

-

-

μ

40

μ

-ADP

•

3

: 1)

2)

μ

(

Na-K,

Ca)

3)

μ

(

μ

)

•

μ

70

μ

•

μ

0.5

•

μ

-

-ADP

•

μ

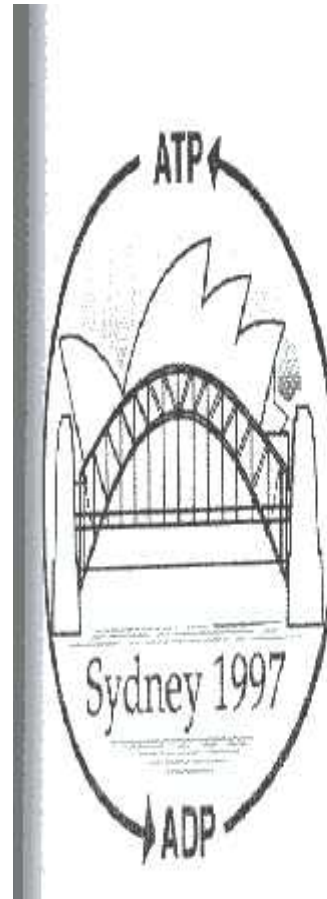
μ

,

μ

μ

μ



• + 2 $\xrightarrow{\text{ADP + Pi}}$

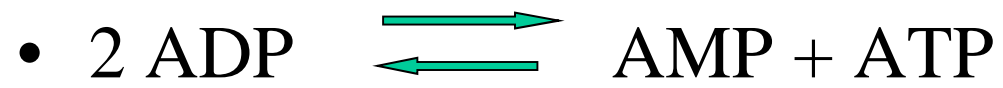
• ADP Pi μ

• Pi μ

• μ

• To ADP μ

μ



• μ
0.9 mmol μ kg μ sec

• To μ
(μ). μ μ μ .

μ

•

μ

μ

μ

•

μ

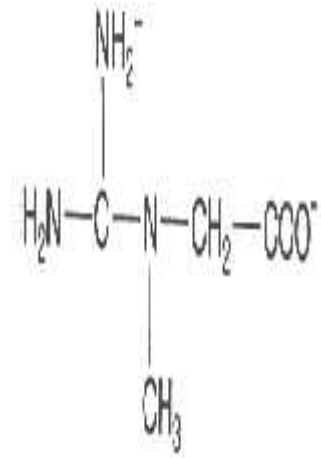
μ

mmol)

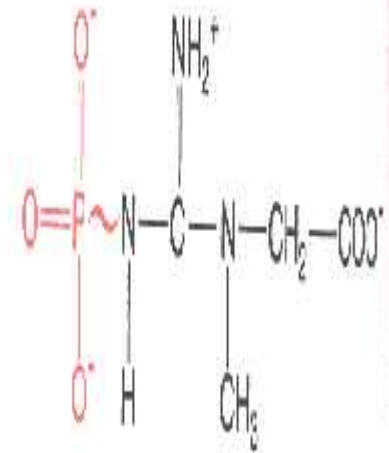
mmol)

(12

(20



Κρεατίνη



Φωσφοκρεατίνη

μ

•

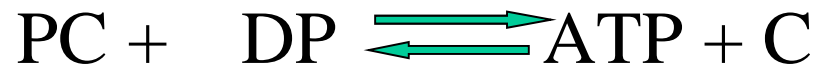
•

•

μ

DP.

•



•

μ

μ

(CK).

μ

μ

3 μ CK

- CK-1 CK-BB.

μ

- CK-2 CK- B.

- CK-3 CK- .

μ

- μ μ

-

μ

PC

2.2 mmol/kg/sec

•

;

•

μ

μ

μ

μ

•

CK

•

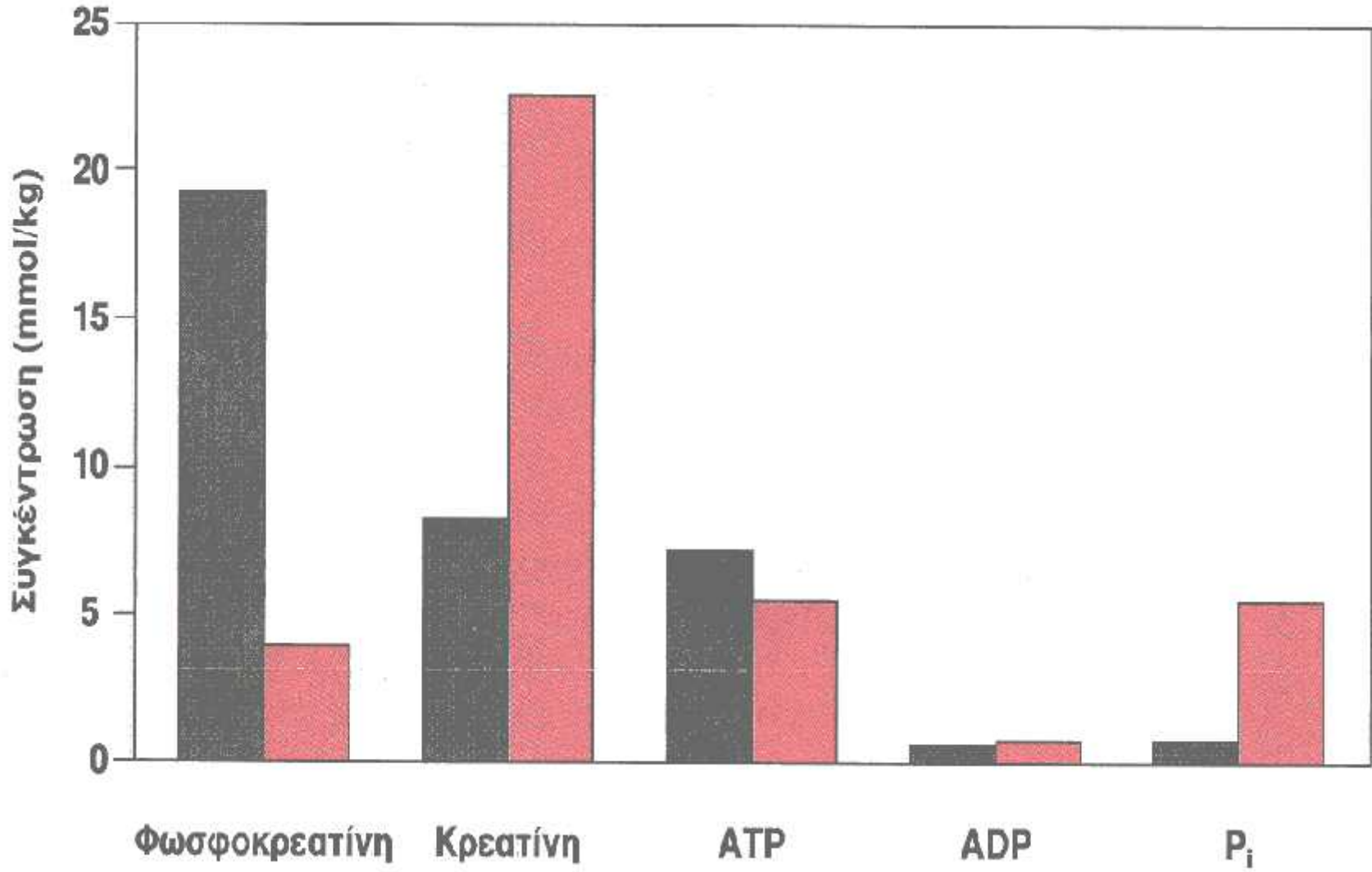
μ :

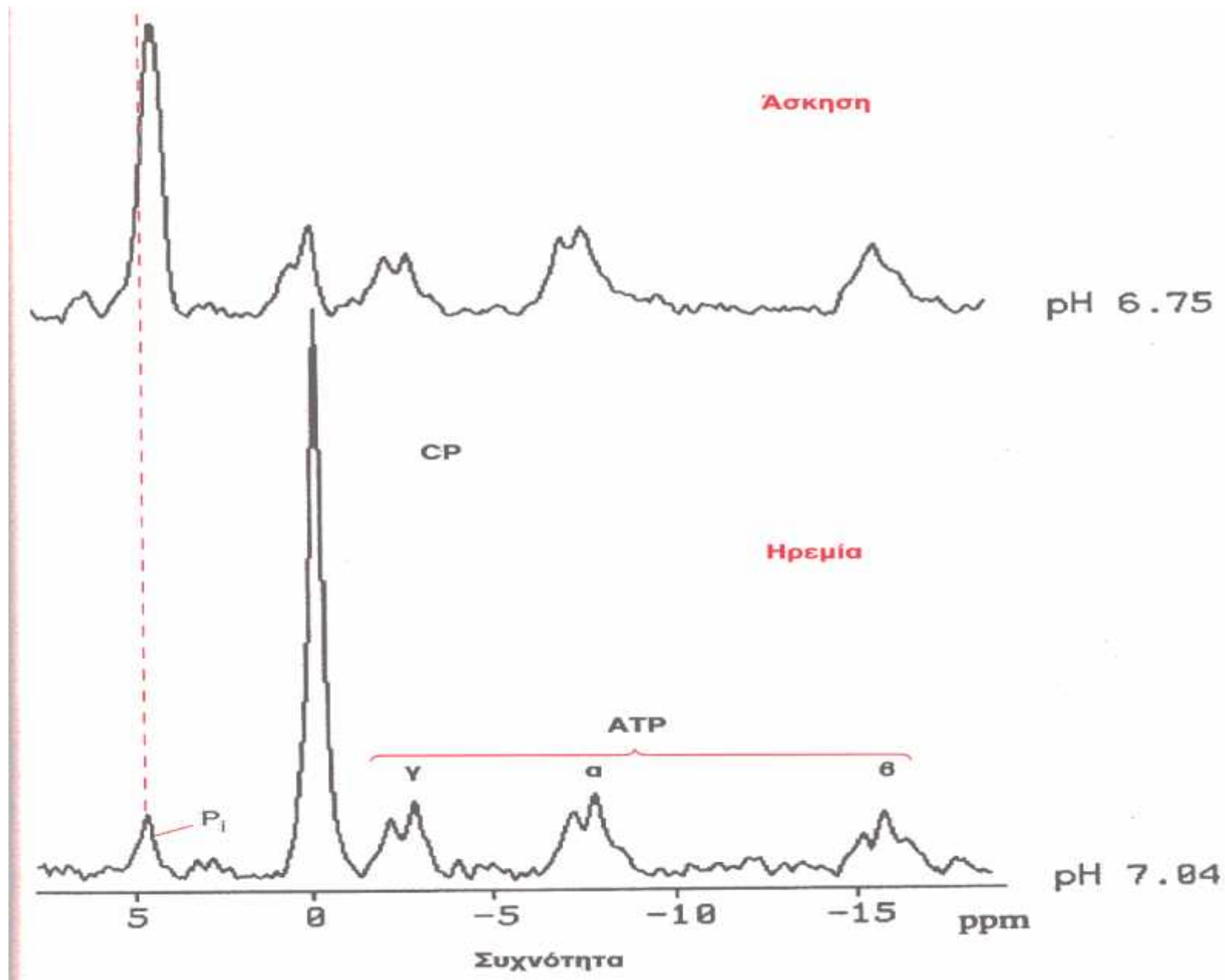
μ

μ

1-2 sec

μ





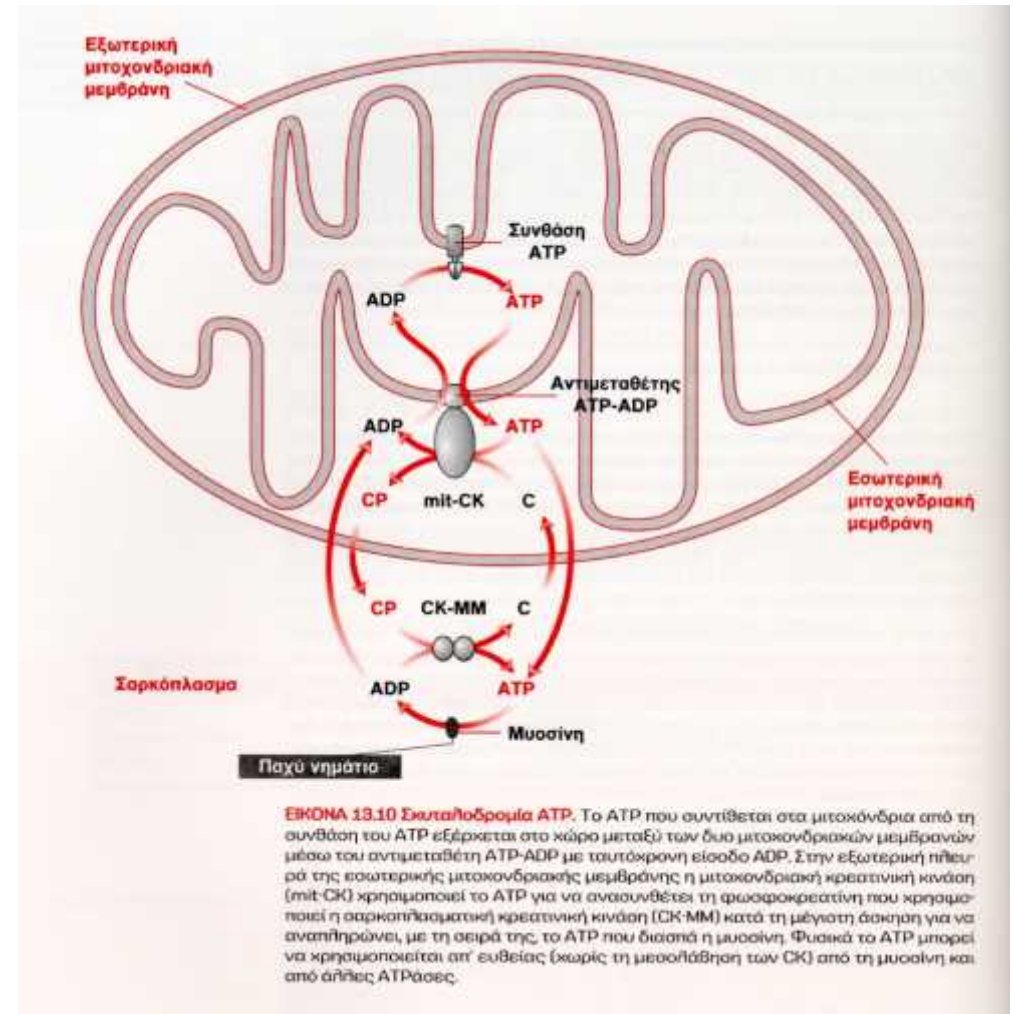
μ PC
 μ ;

• 7 .

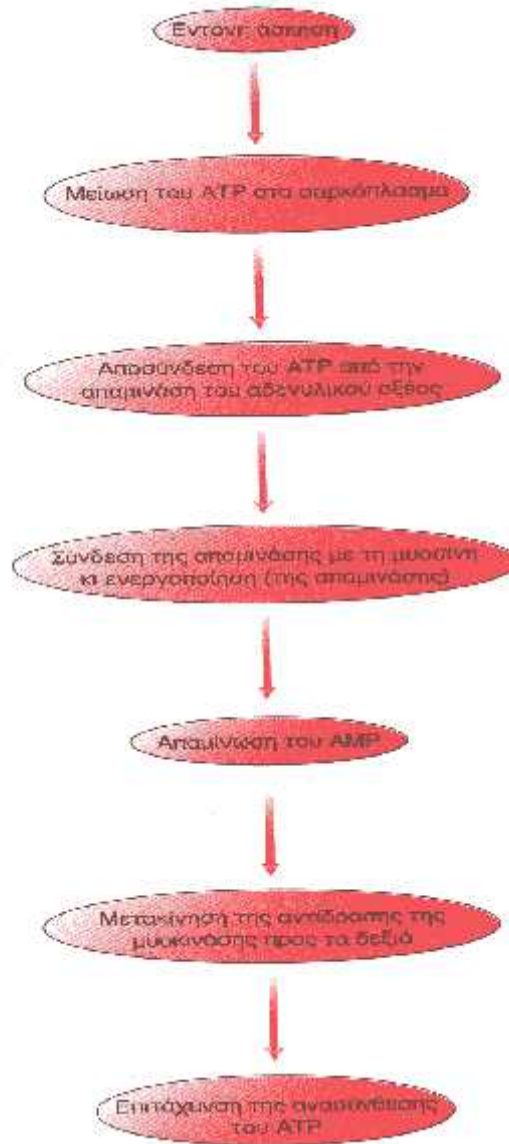
• , μ , , 60 μ

PC

- H $\xrightarrow{\mu}$ PC
- C + ATP $\xrightleftharpoons{\mu}$ CP + ADP + H
- $\mu \xrightarrow{\mu \mu}$
- $\mu \xrightarrow{\mu}$
- $\mu \xrightarrow{\mu}$
- $\mu \xrightarrow{(\)}$
- VO₂ max
- 3-10



μ



μ

μ

μ

μ

μ

Φωσφοκρεατινή



ATP



ADP



AMP



IMP



Ινδοσίνη



Υποξανθίνη



Ξανθίνη



Ουρικό οξύ

•

μ

μ

μ

μ

μ

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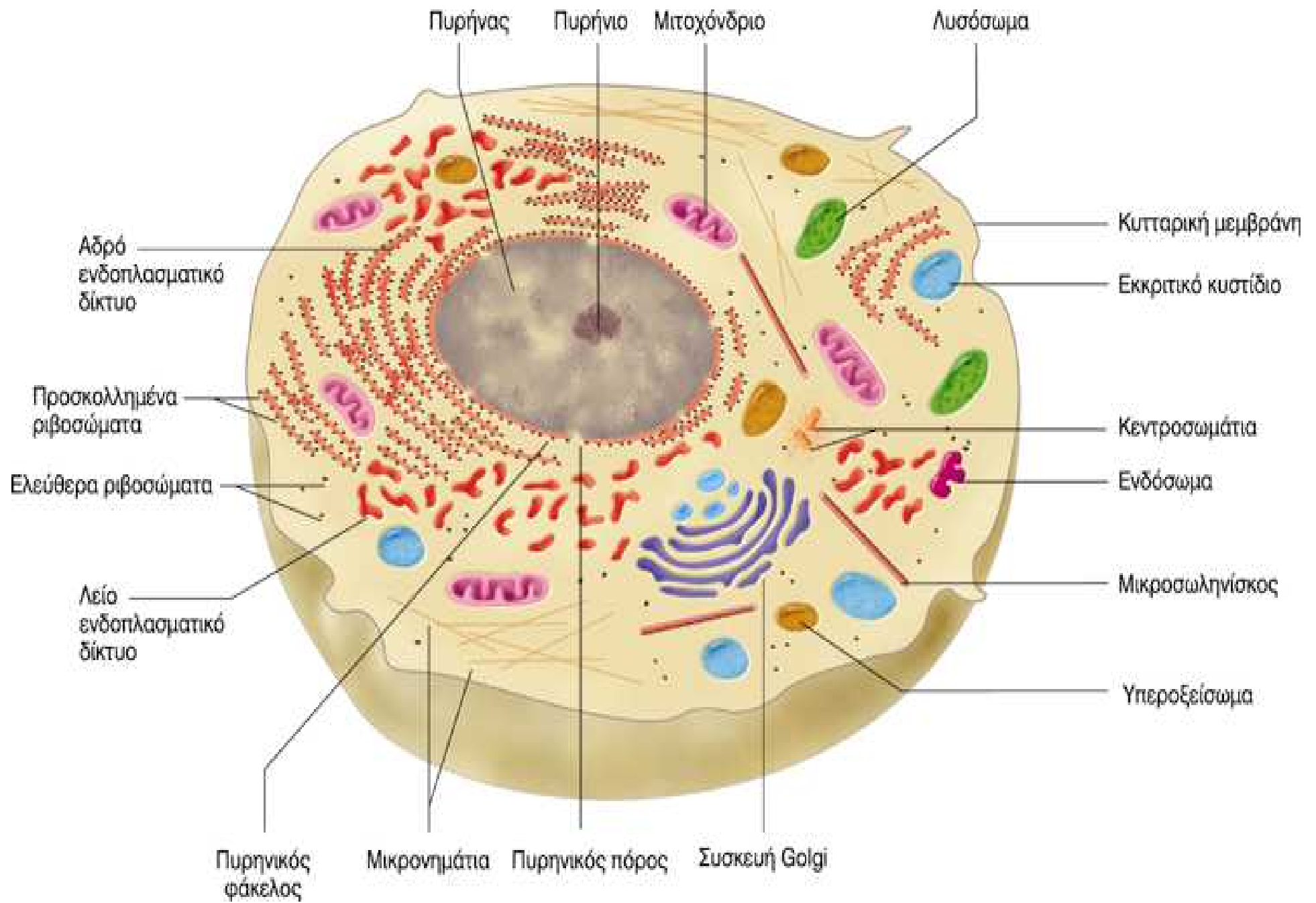
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μ

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μ

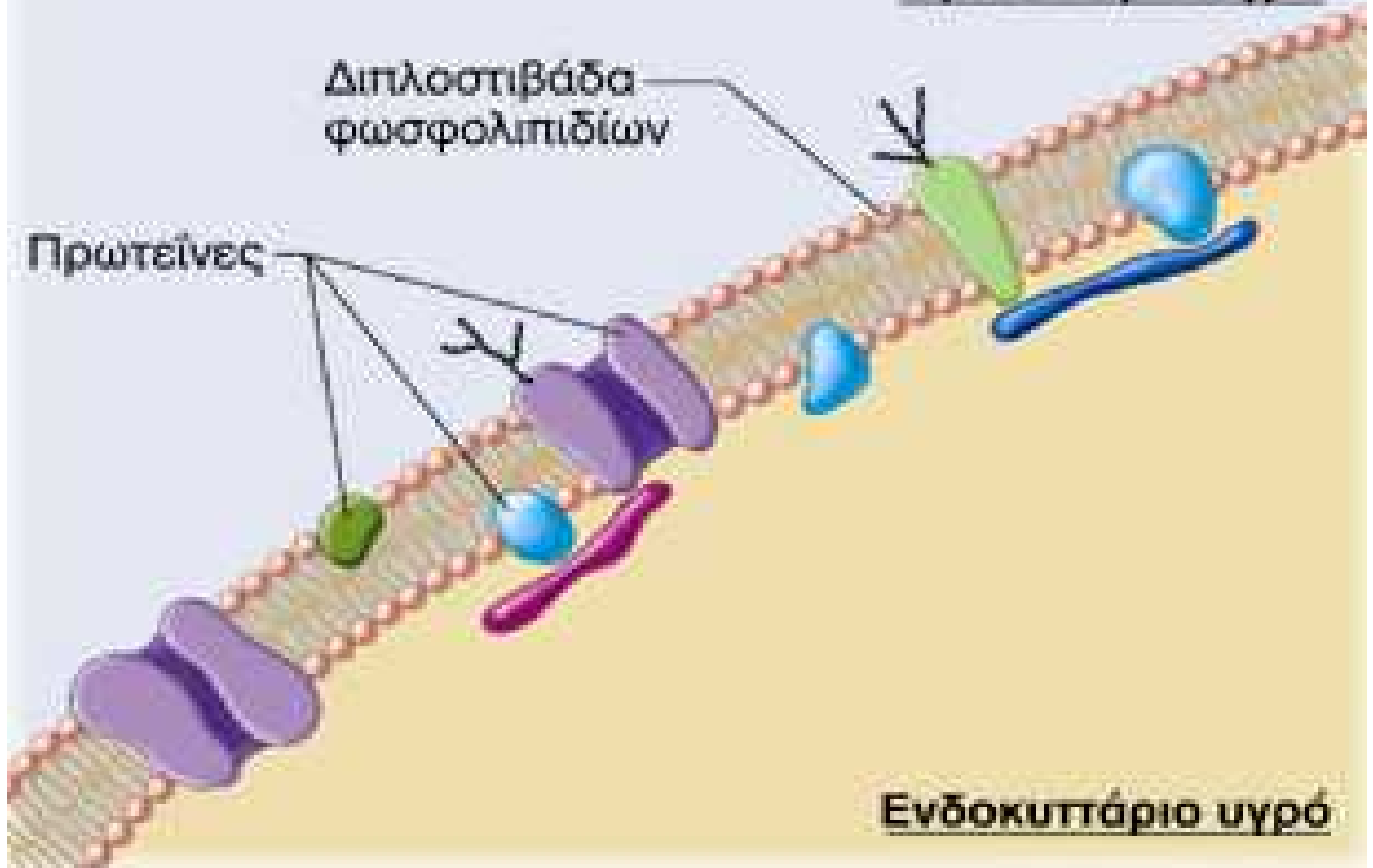


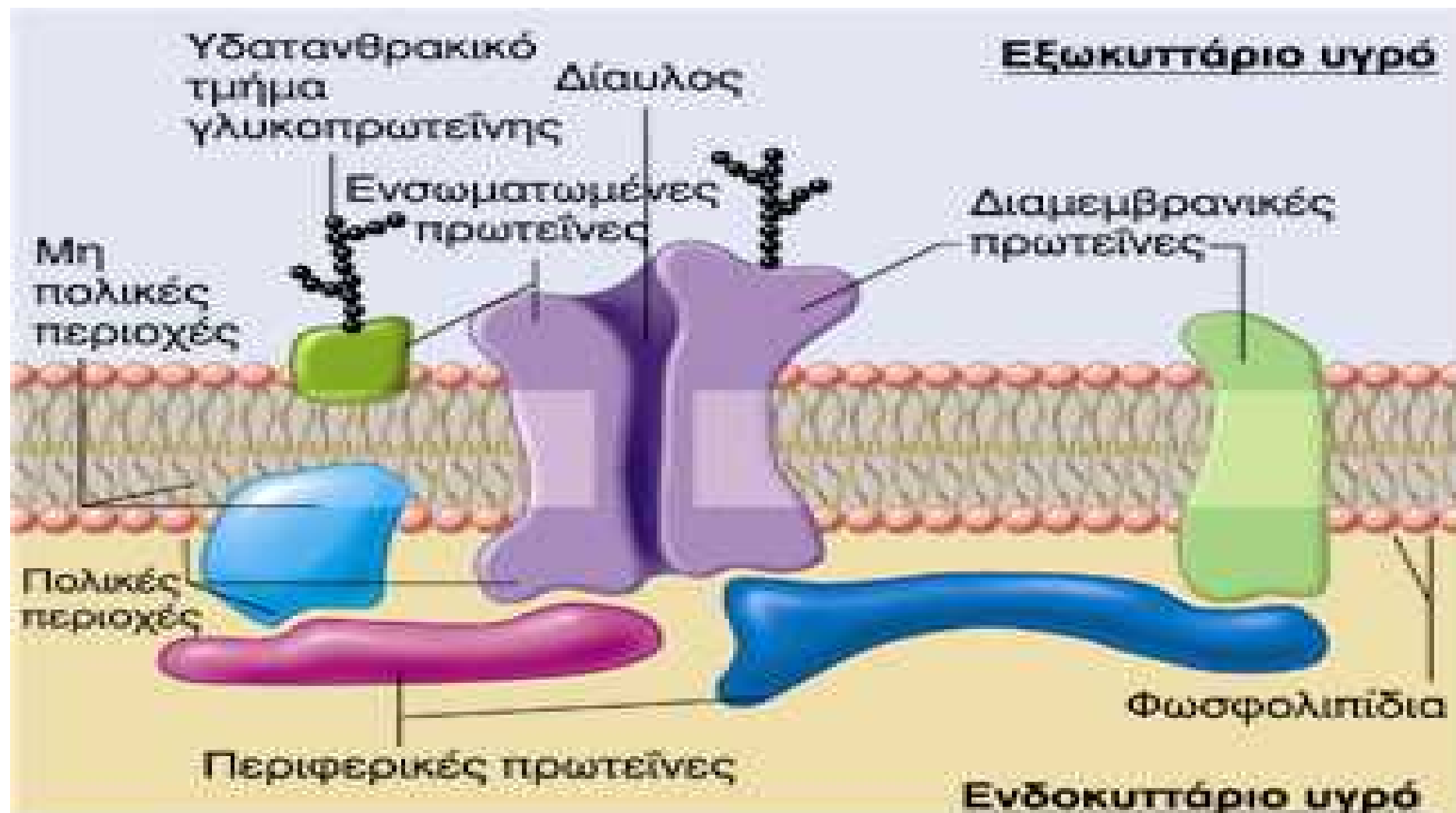
Εξωκυττάριο υγρό

Διπλοστιβάδα
φωσfolιπιδίων

Πρωτεΐνες

Ενδοκυττάριο υγρό

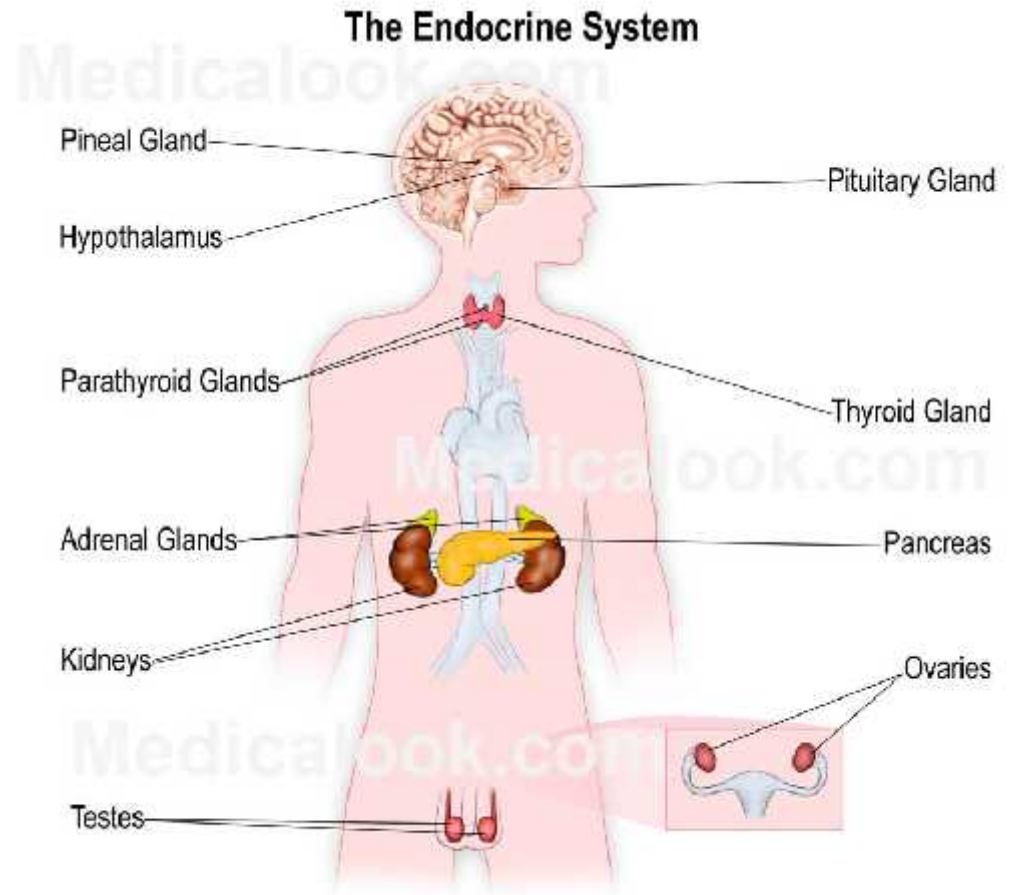




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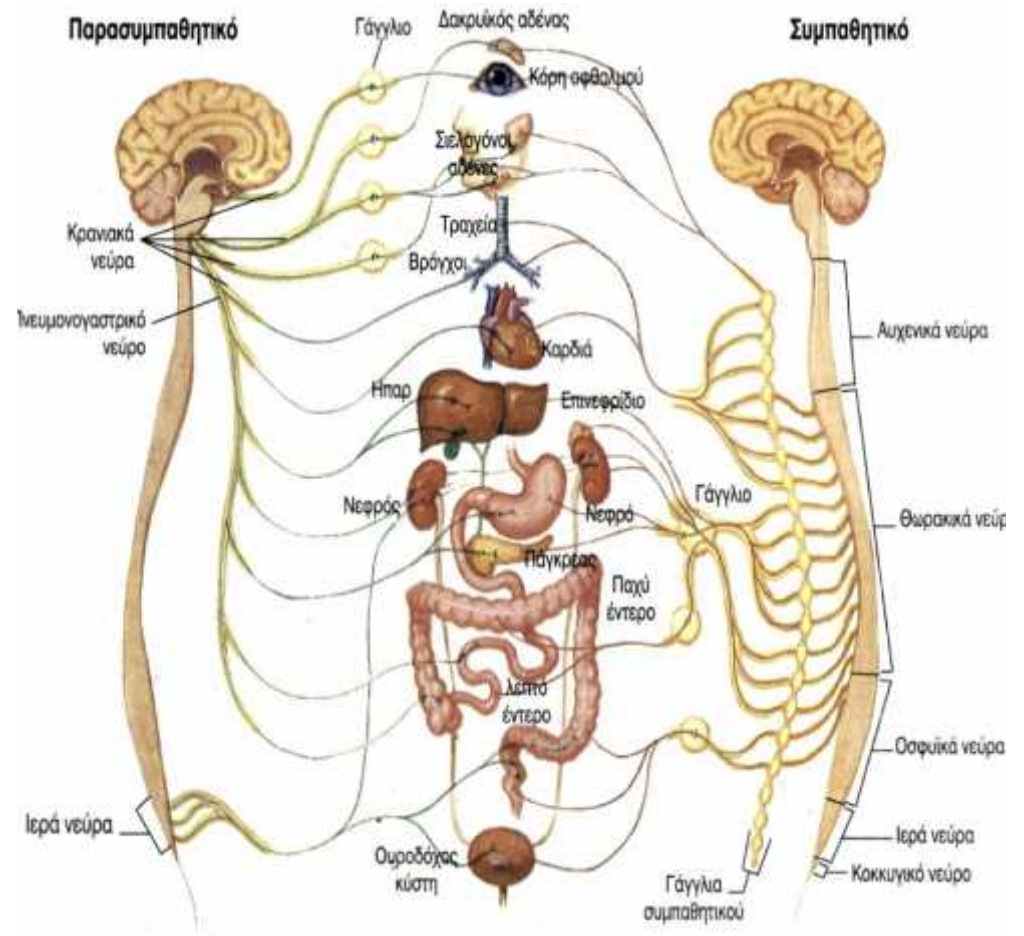


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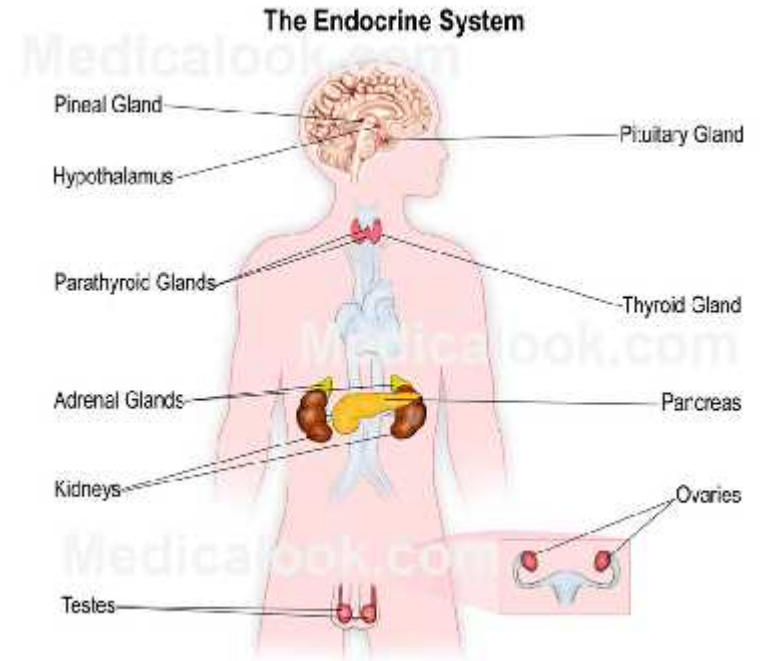
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1. $\mu \quad \mu$
- 2.
- 3.

μ μ

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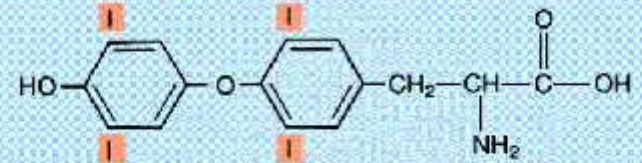
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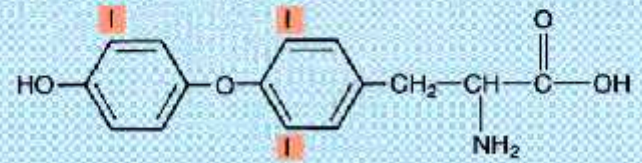
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μ

Thyroid Hormones

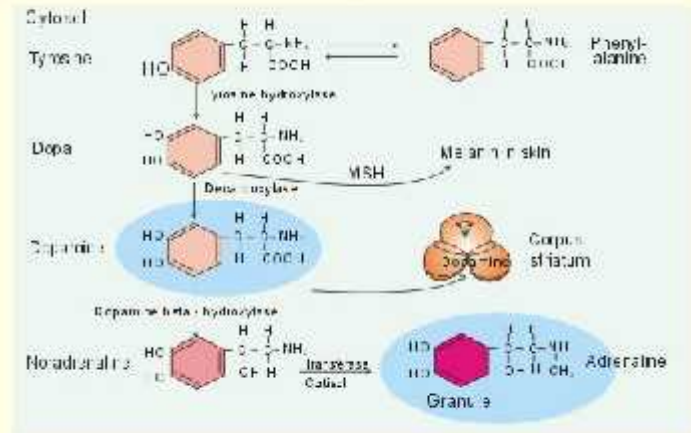


3, 5, 3', 5' - Tetraiodothyronine (thyroxine, T₄)



3, 5, 3' - Triiodothyronine (T₃)

Synthesis Of Catecholamines



μ

Iodine Deficiency Disorders



Goiter



Cretinism

(4)

(3)

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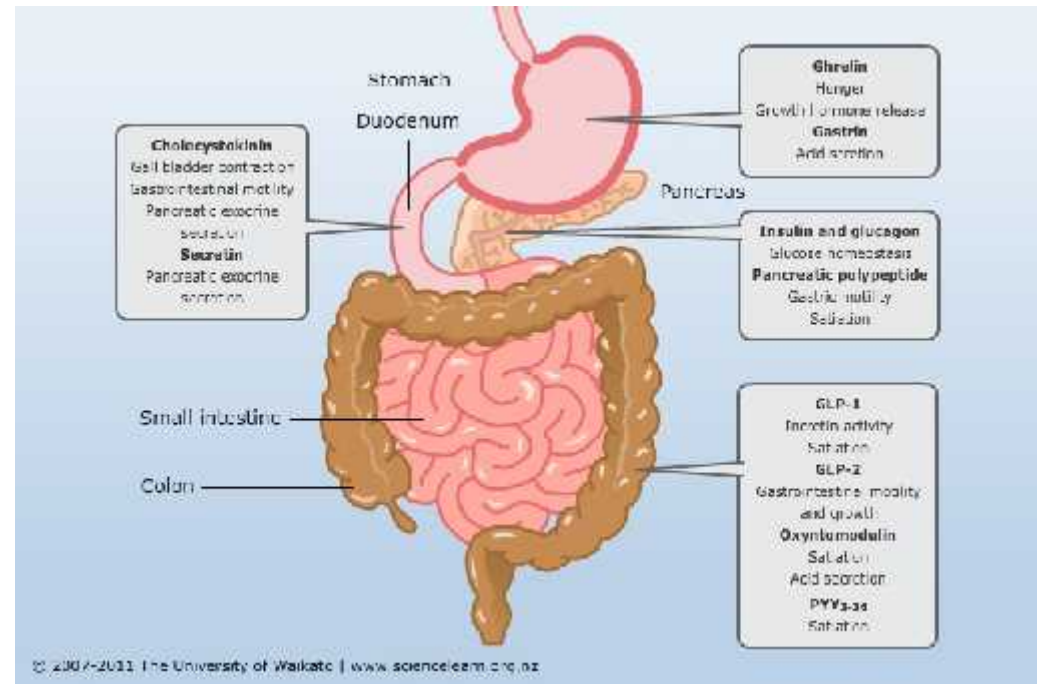
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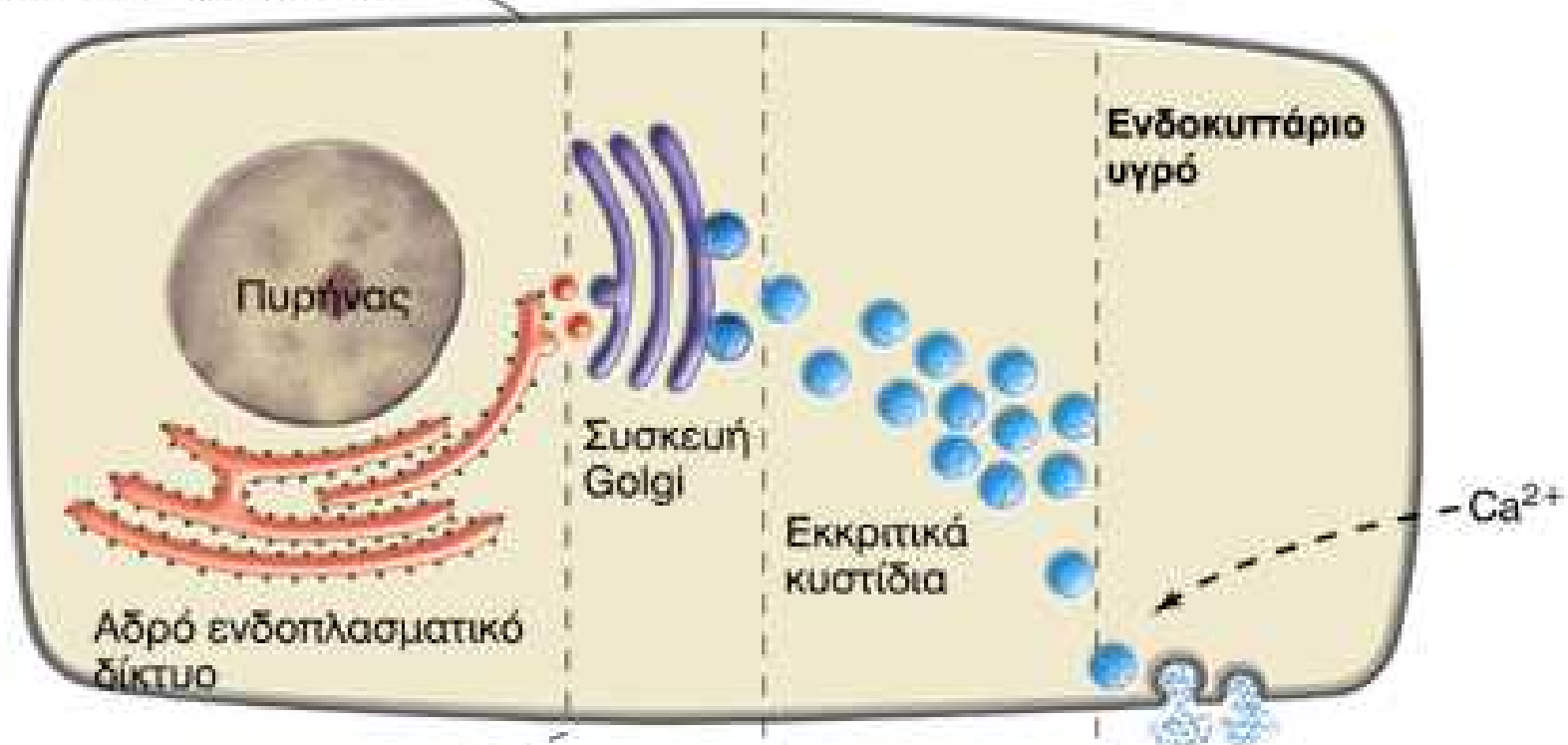
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Golgi



μ

Μεμβράνη πλάσματος



Σύνθεση

Συσκευασία

Αποθήκευση

Έκκριση

Πρώιμη προορμόνη

Προορμόνη

Προορμόνη

Ορμόνη

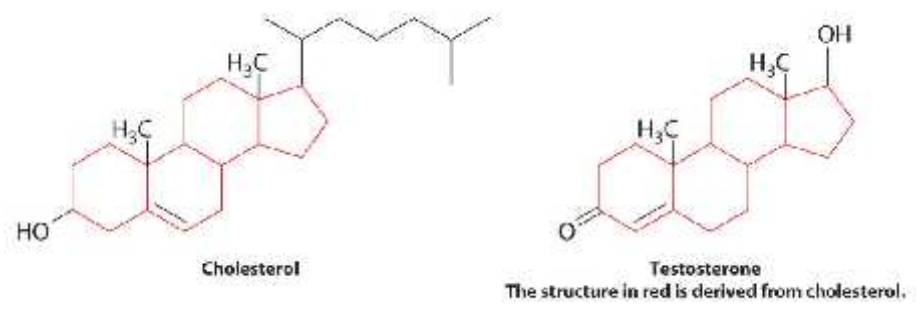
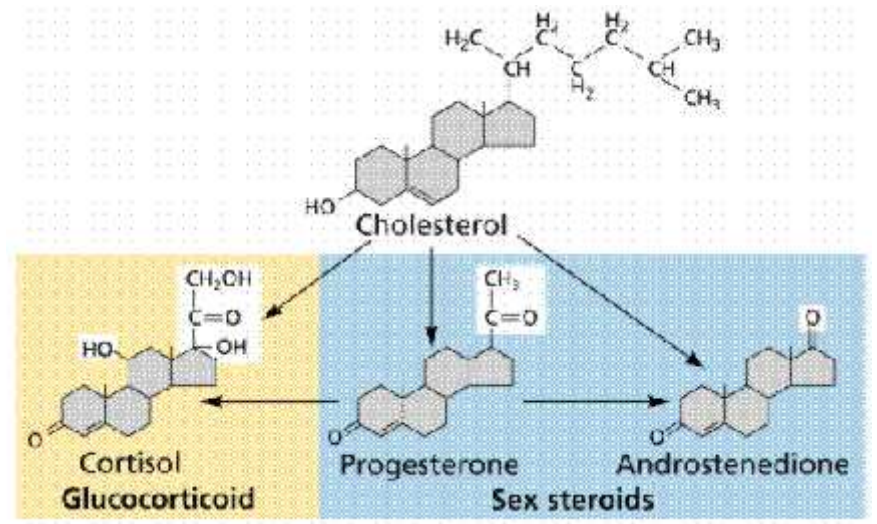
Ορμόνη

Ορμόνη (και «θραύσματα» προορμόνης)



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STEROID HORMONES BIND TO SIGNAL RECEPTORS INSIDE THE CELL.

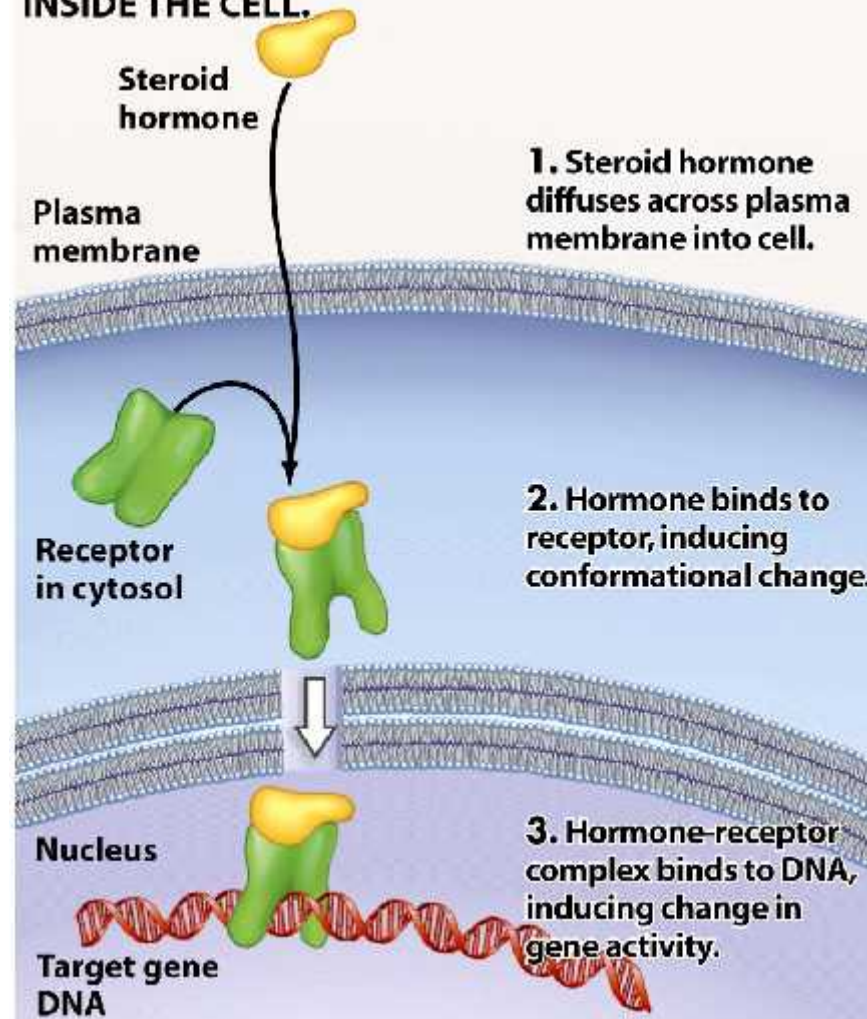
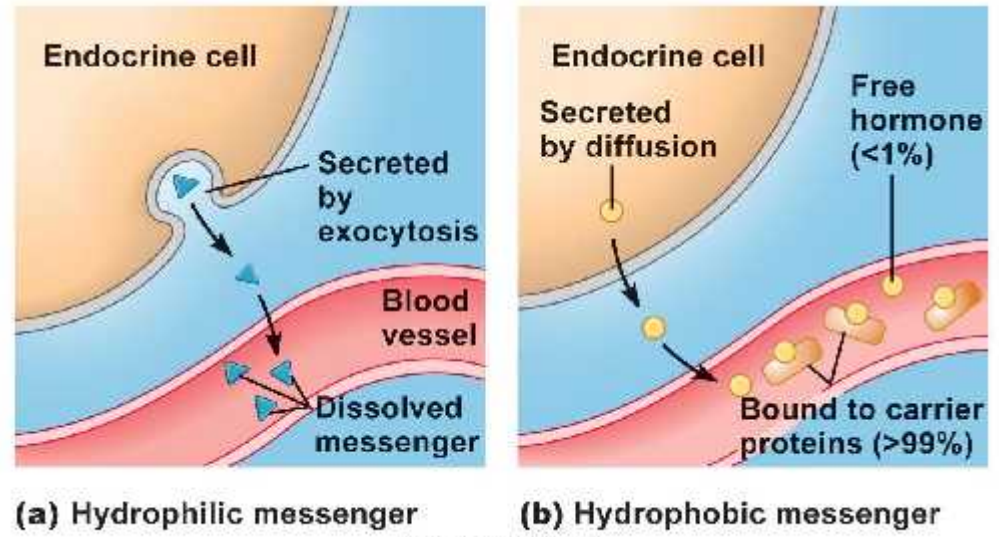


Figure 8-15 Biological Science, 2/e

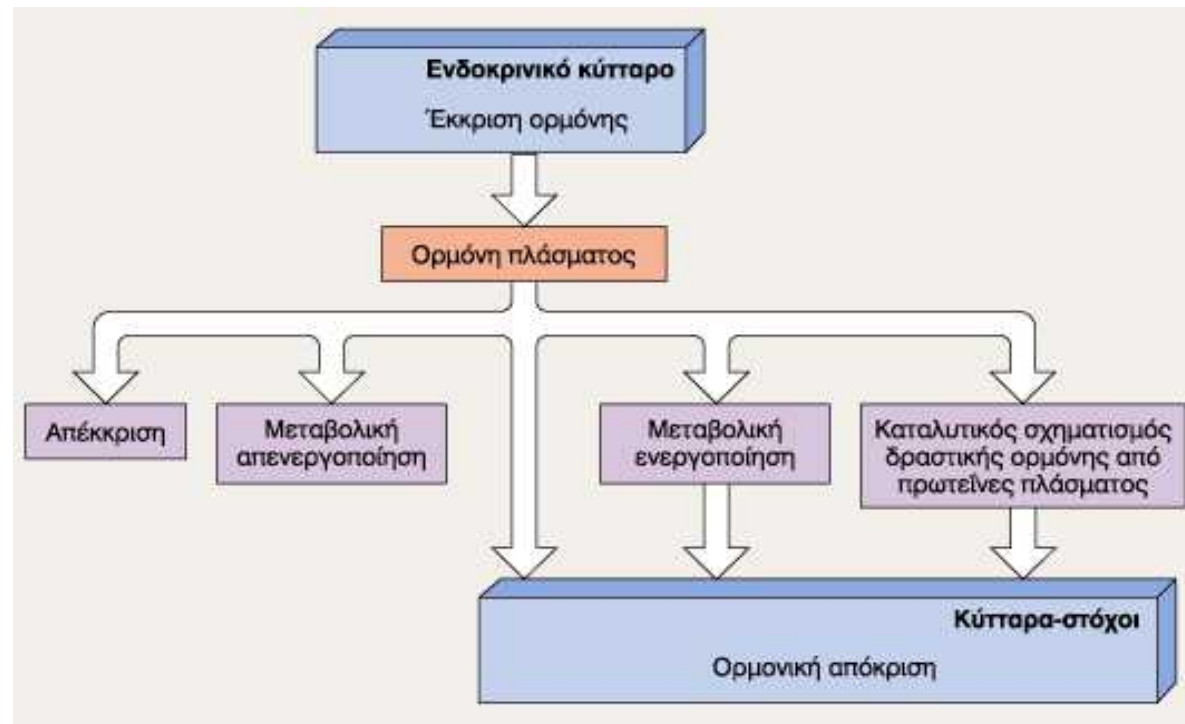
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- μ
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- (a) μ
, μ μ μ μ
- (b) μ
μ μ μ μ μ

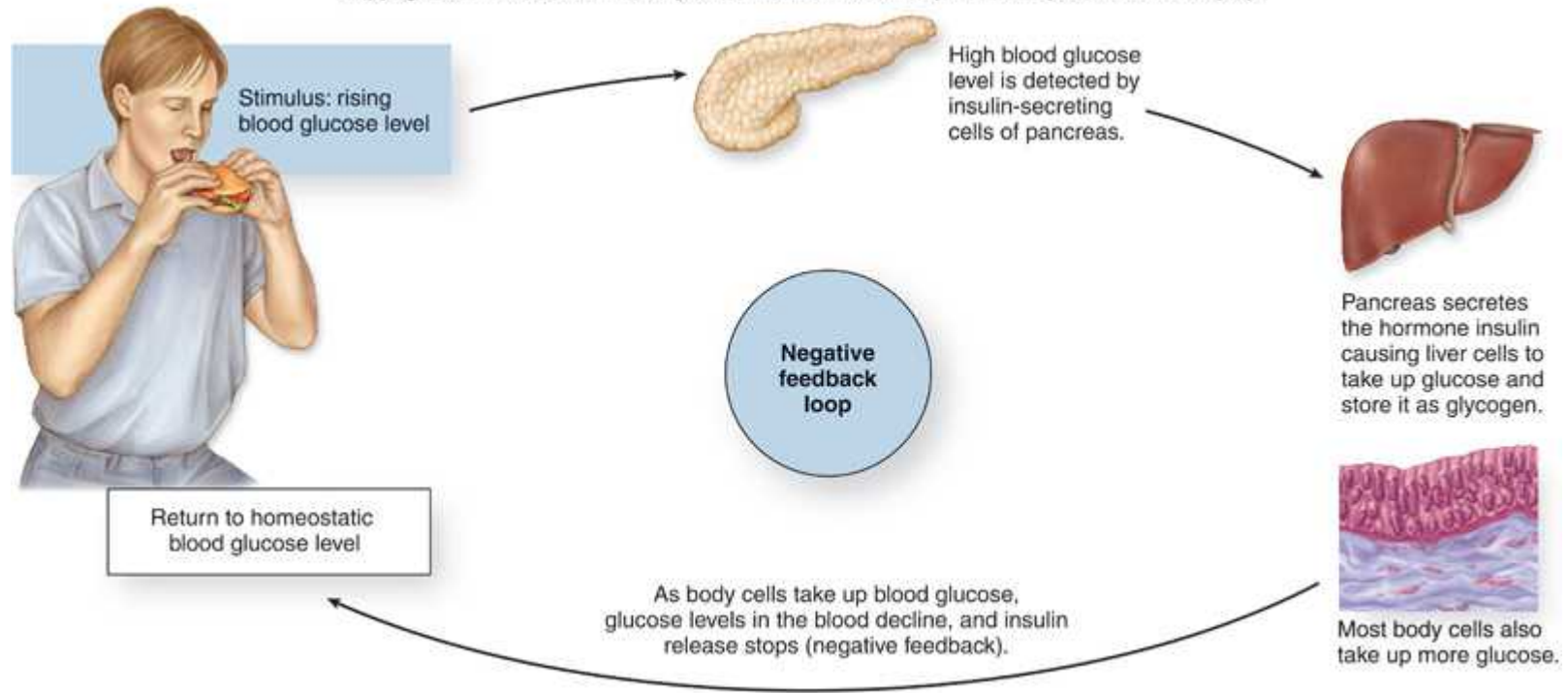


μ μ



- μ μ μ = μ μ .
- , , -

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(a) Negative feedback

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μ

ESA COMPARISON (ERYTHROPOIETIN-LIKE THERAPY)

	Erythropoietin alpha	Erythropoietin delta	Erythropoietin delta	Erythropoietin omega	Darbepoetin	Micifox polyethylene glycol erythropoietin delta
Brand names	Epogen, Procrit	NeoRecorron	DynEPO	Epomax	Aranesp	Mircera
Half life	IV: 4-13 hours SQ: 13-37 hours	IV: 4-12 hours SQ: 8-22 hours	IV: 4.7 to 13.2 hours	IV: 10-30 hours	IV: 12-38 hours SQ: 21-144 hours	SQ: 138-142 hours
FDA Approval	Approved	Not approved, Approved in Europe	Not approved in USA, Approved in Europe	Not approved in USA, Approved in Europe	Approved	Approved
Source	Chinese hamster ovary cells	Chinese hamster ovary cells	Human cell line	Baby hamster kidney cells	Chinese hamster ovary cells	Chinese hamster ovary cells



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	μ		μ μ	μ μ μ /
μ		μ μ -	μ : , , JAK , G . . μ μ (cAMP, cGMP, DAG, IP3)	()
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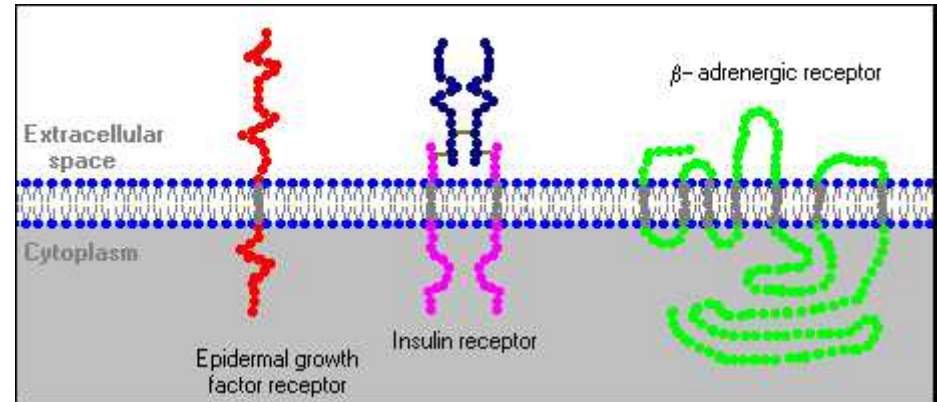
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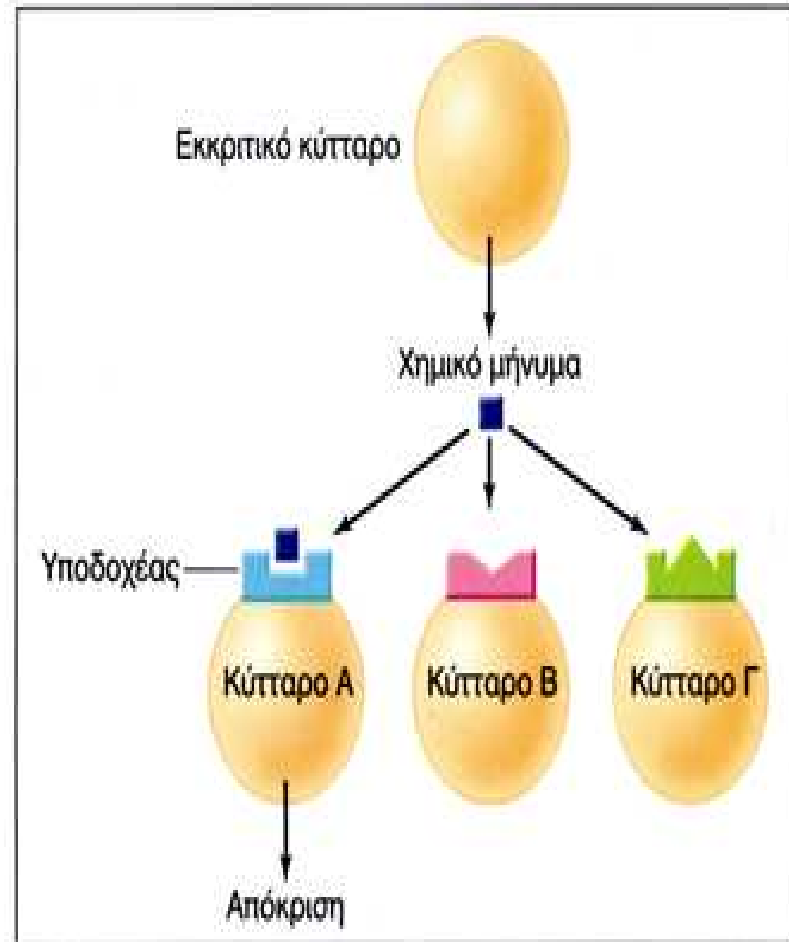
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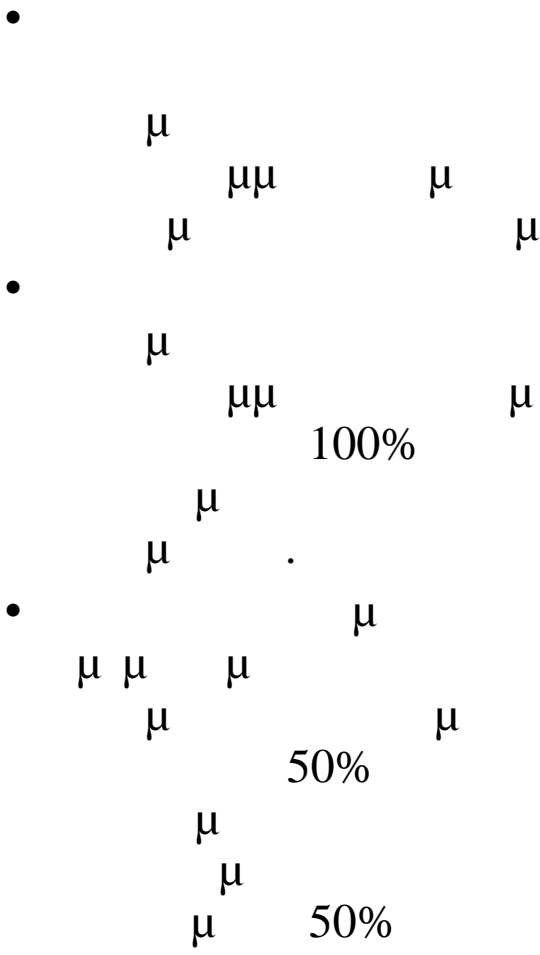
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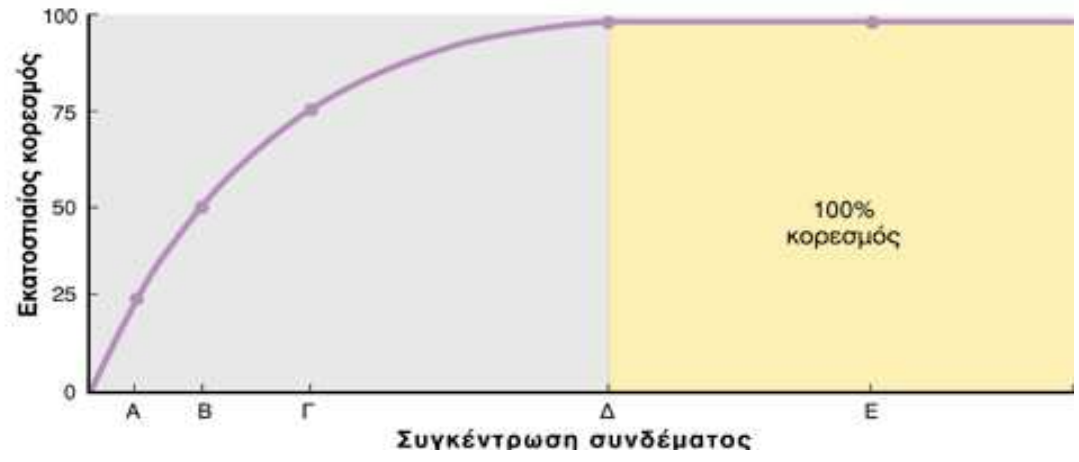
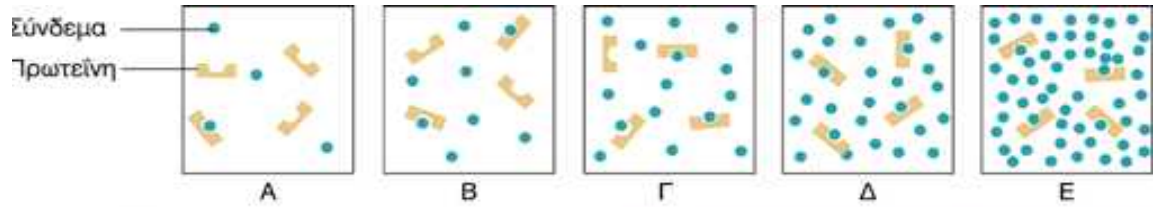


μ



100%

μ μ
 μ μ



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- μ : μ μ μ μ ,

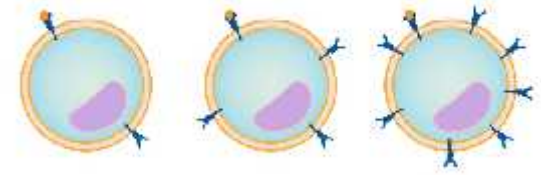
- μ (μ μ)

- μ : μ μ μ μ ,

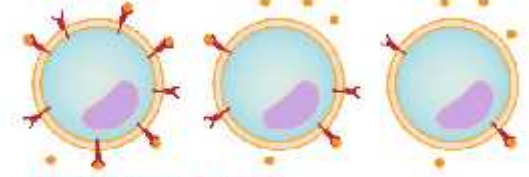
- μ μ (μ μ)

- μ ,

upregulation



time →



downregulation

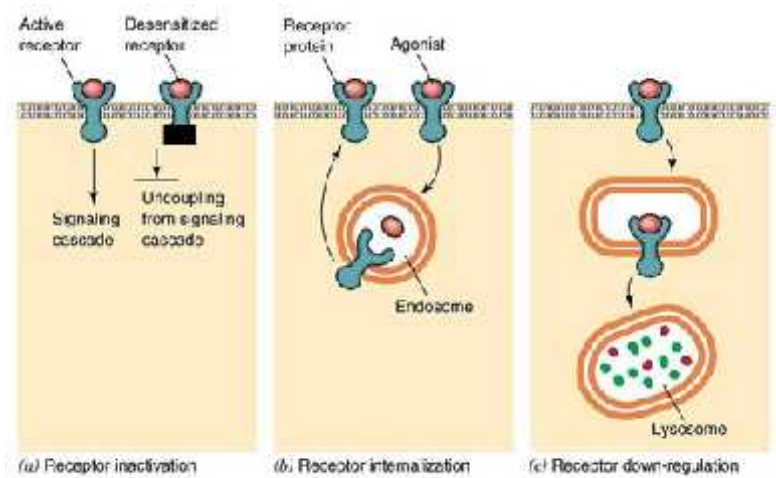
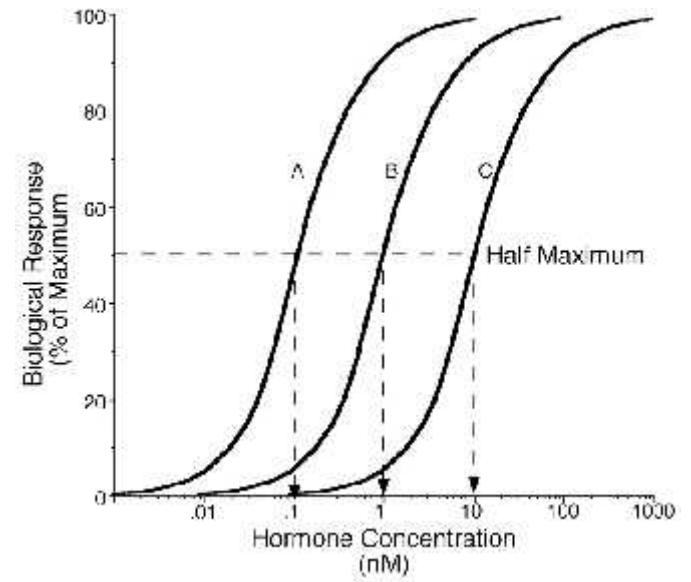


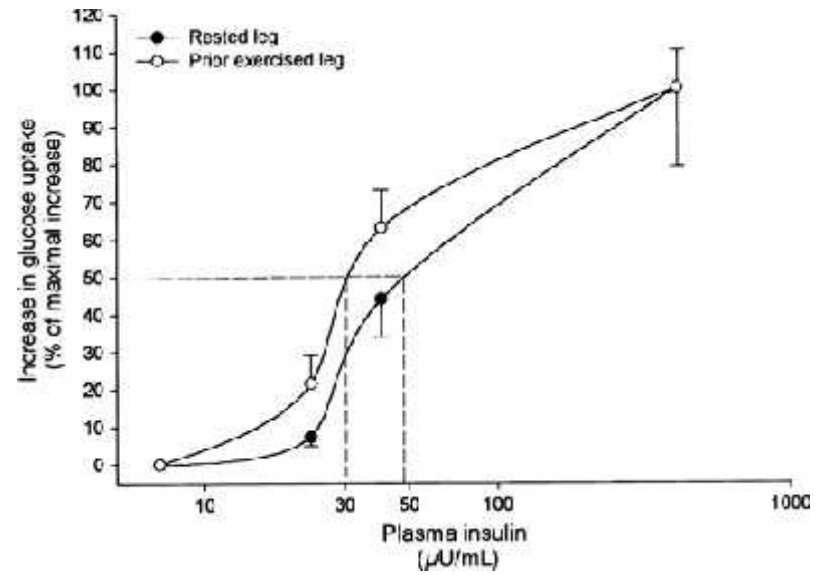
Figure 15.10. Major mechanisms for the termination of receptor-dependent signal transduction.

Textbook of Biochemistry: 8th Edition, 2008, Edited by Thomas M. Dawson, Copyright © 2008 John Wiley & Sons, Inc.

- μ
- μ , μ - μ



- μ .
- μ .



μ

μ

μ

	μ μ μ	μ μ μ μ
(c)	μ μ μ μ c .	(μ μ)
G (cG)	μ μ μ μ	(μ μ G)
- (DAG)	G C μ μ μ μ DAG , 3 . . (2)	C
(IP3)	μ DAG	μ

- Hormones and Sport Symposium. Journal of Endocrinology, 2001, 1-2.
- Sonksen H. Hormones and Sport: Insulin, growth hormone and sport. Journal of Endocrinology, 2001, 13-25.
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