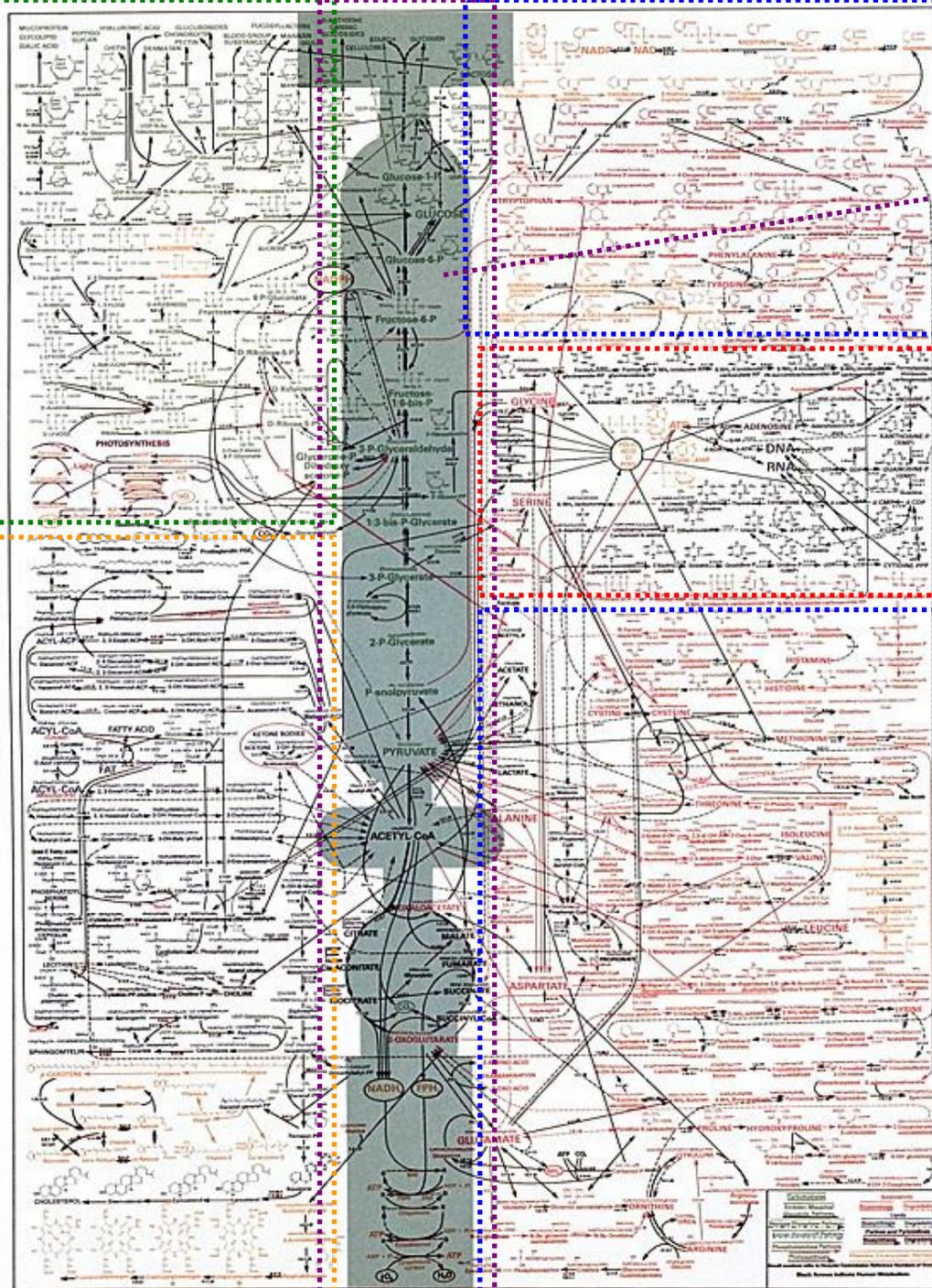


Fotossíntese +
Pentoses

Met. lipídeos

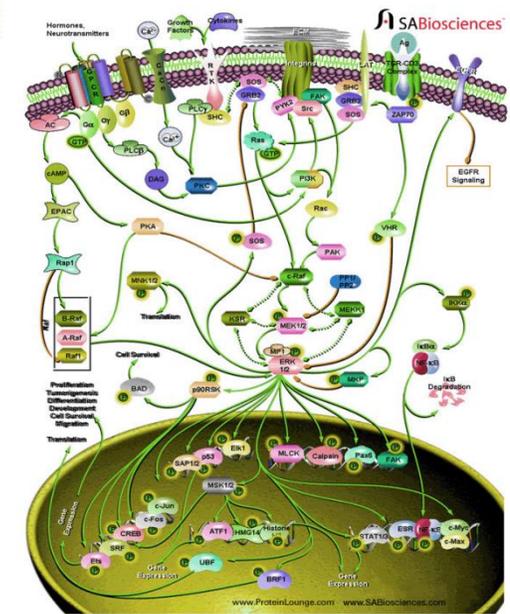
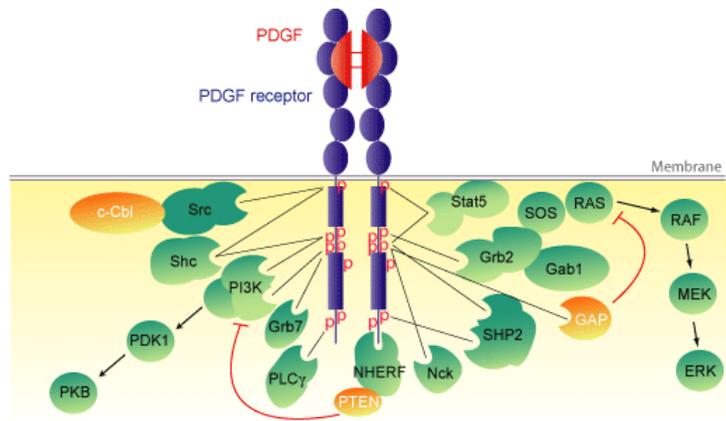
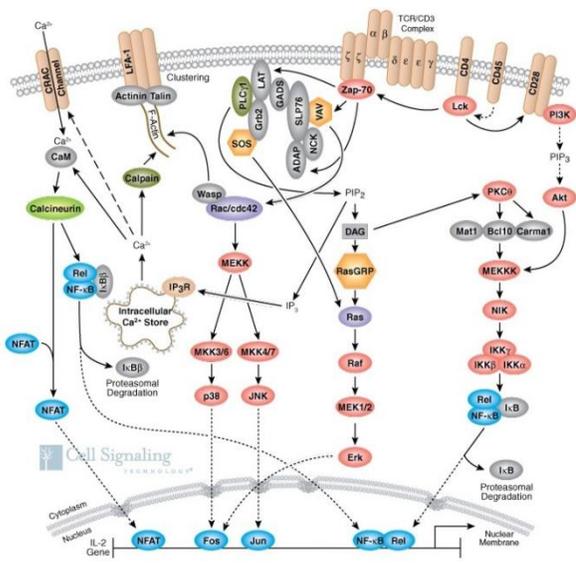
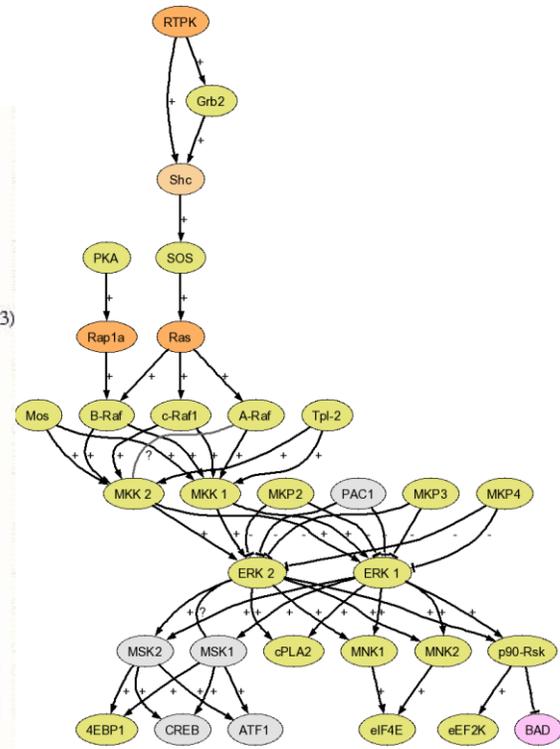
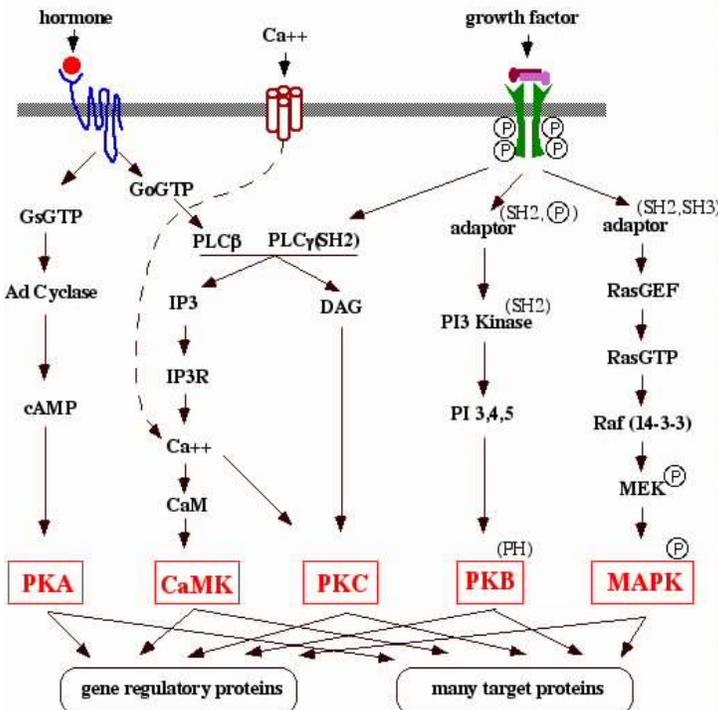
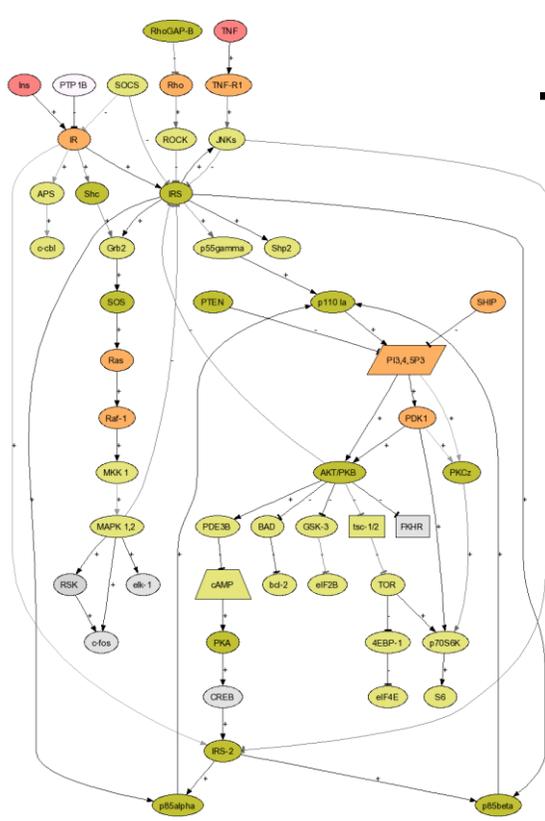


Met.
carboidratos

Met. ác.
nucleicos

Met.
aminoácidos

Redes de Sinalização



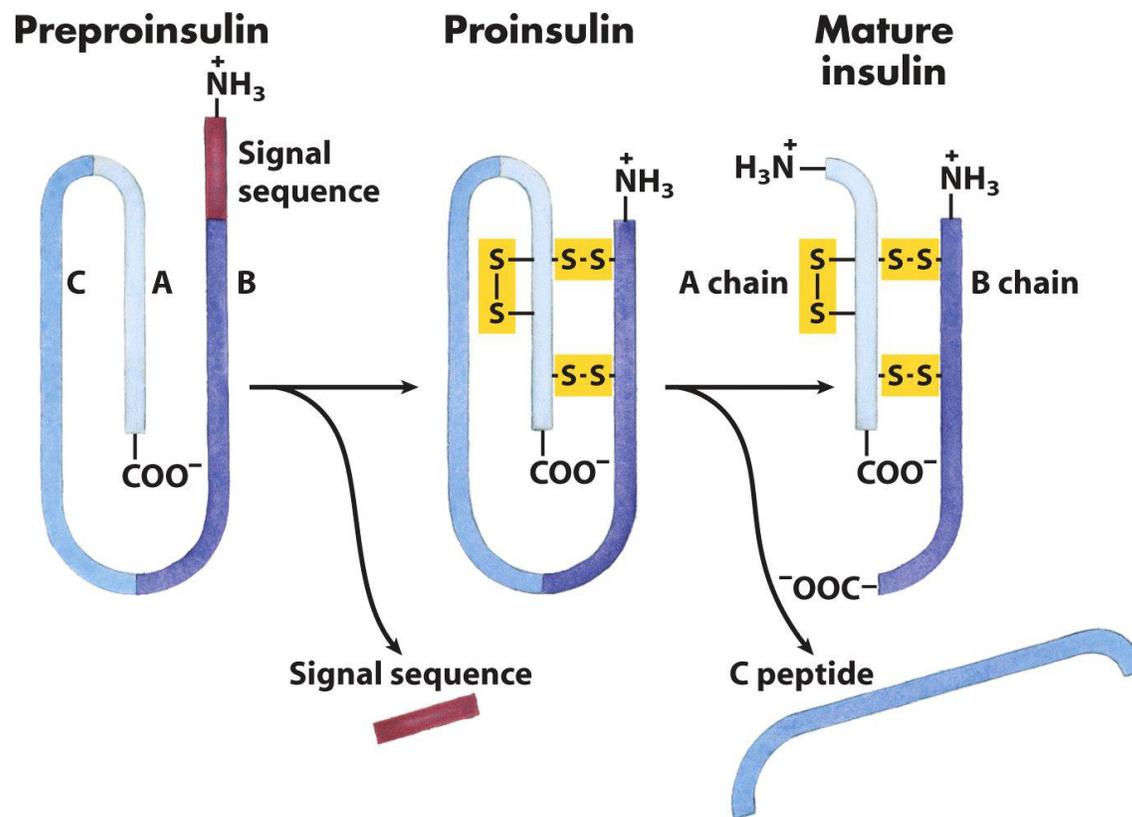
Hormônios

- Biomolécula produzida em uma parte do corpo que regula funções a distância
- Age em baixas quantidades
- Essencial para organismos multicelulares
- Age por meio de receptores na célula-alvo

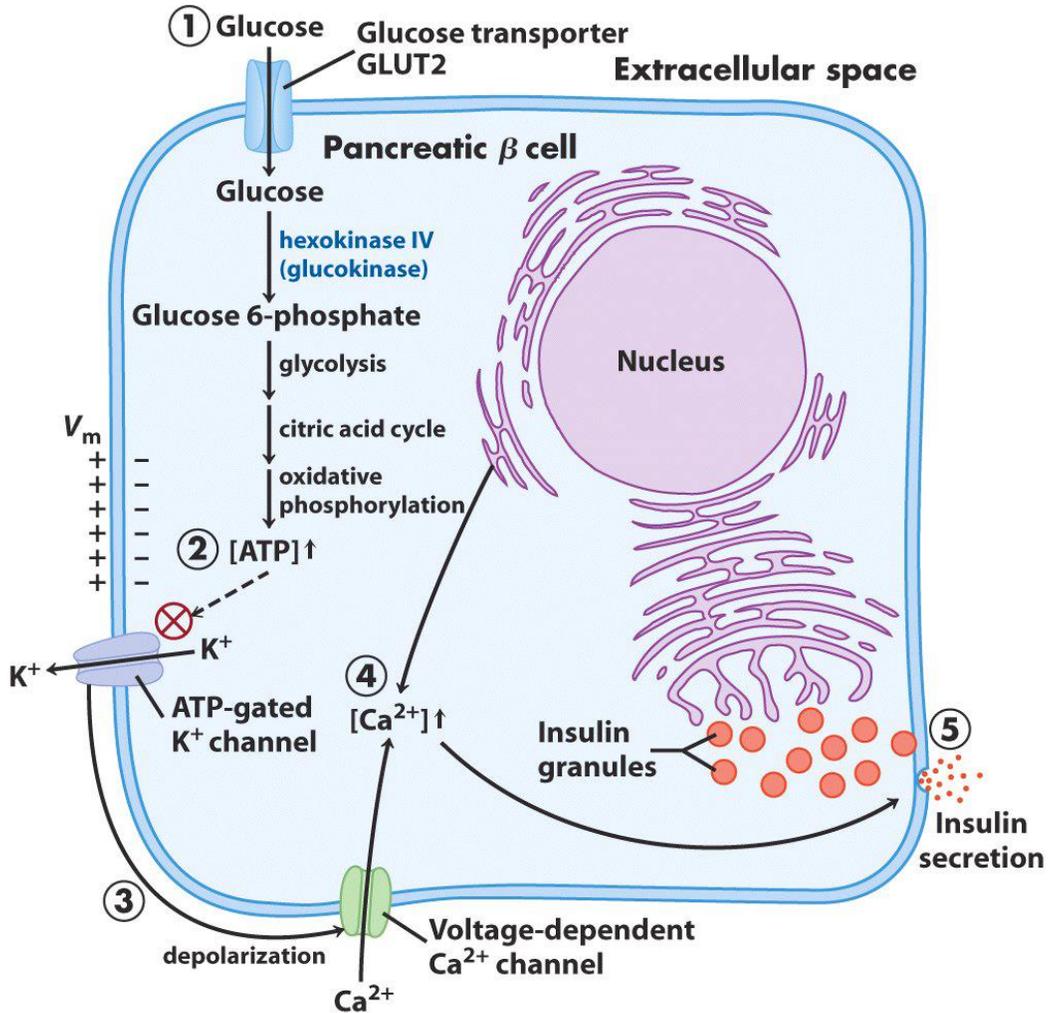
Biossíntese → Estocagem → Secreção → Transporte
→ Reconhecimento → Amplificação → Resposta →
Degradação

Biossíntese de Insulina

- Peptídeo de duas cadeias, sintetizado como proinsulina
- Armazenado em grânulos de secreção

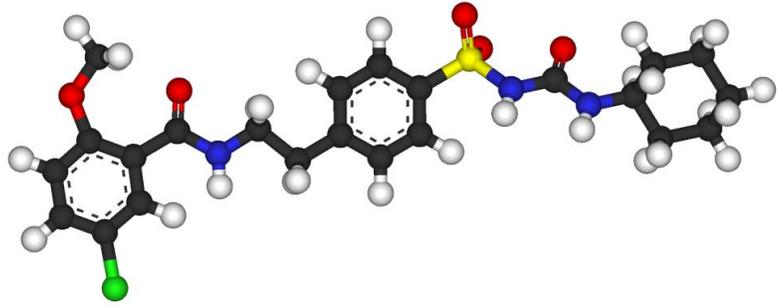


Secreção de Insulina

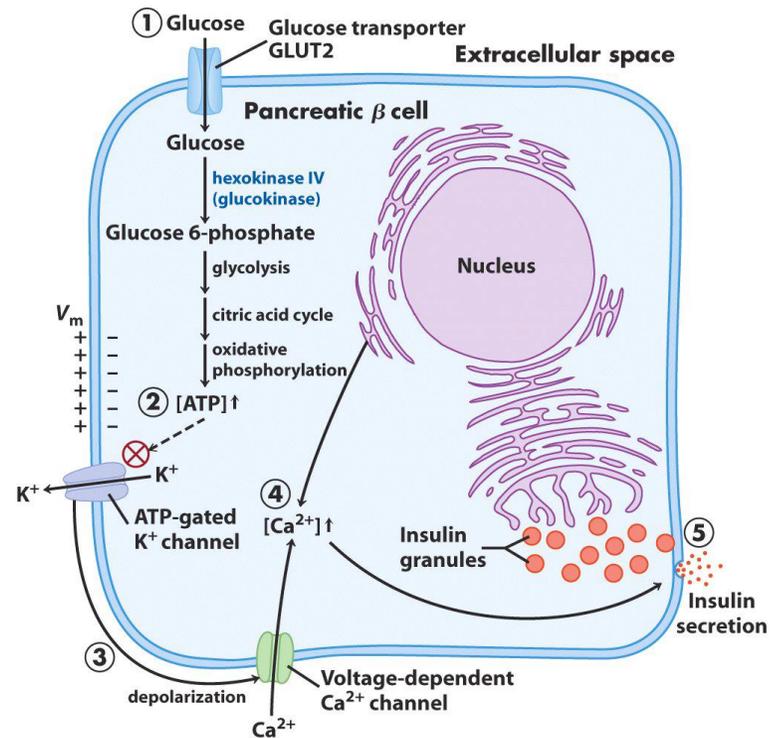


- Células β possuem GLUT2
- Células β possuem glicocinase
- \uparrow glicemia = \uparrow ATP
- ATP inibe canais para K^+
- Despolarização
- Ativação da entrada de Ca^{2+}
- Secreção de insulina
- Síntese de insulina

Sulfoniluréias no Tratamento da DM II

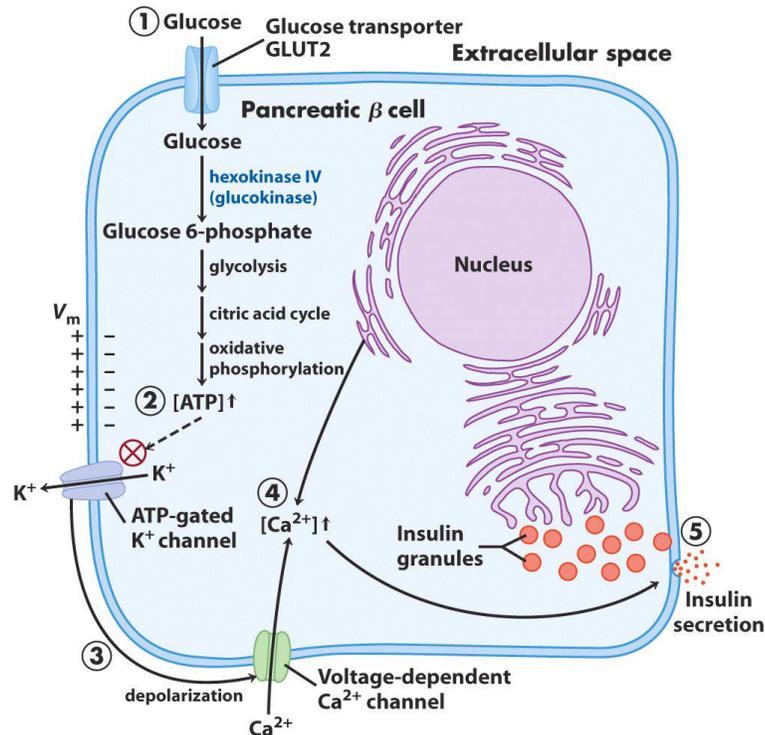
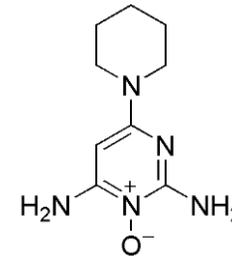
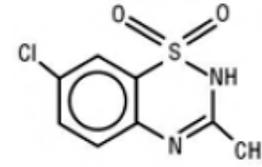


- Inibem canais para K^+ sensíveis a ATP
- Aumentam secreção de insulina
- Eficazes em resistência periférica a insulina



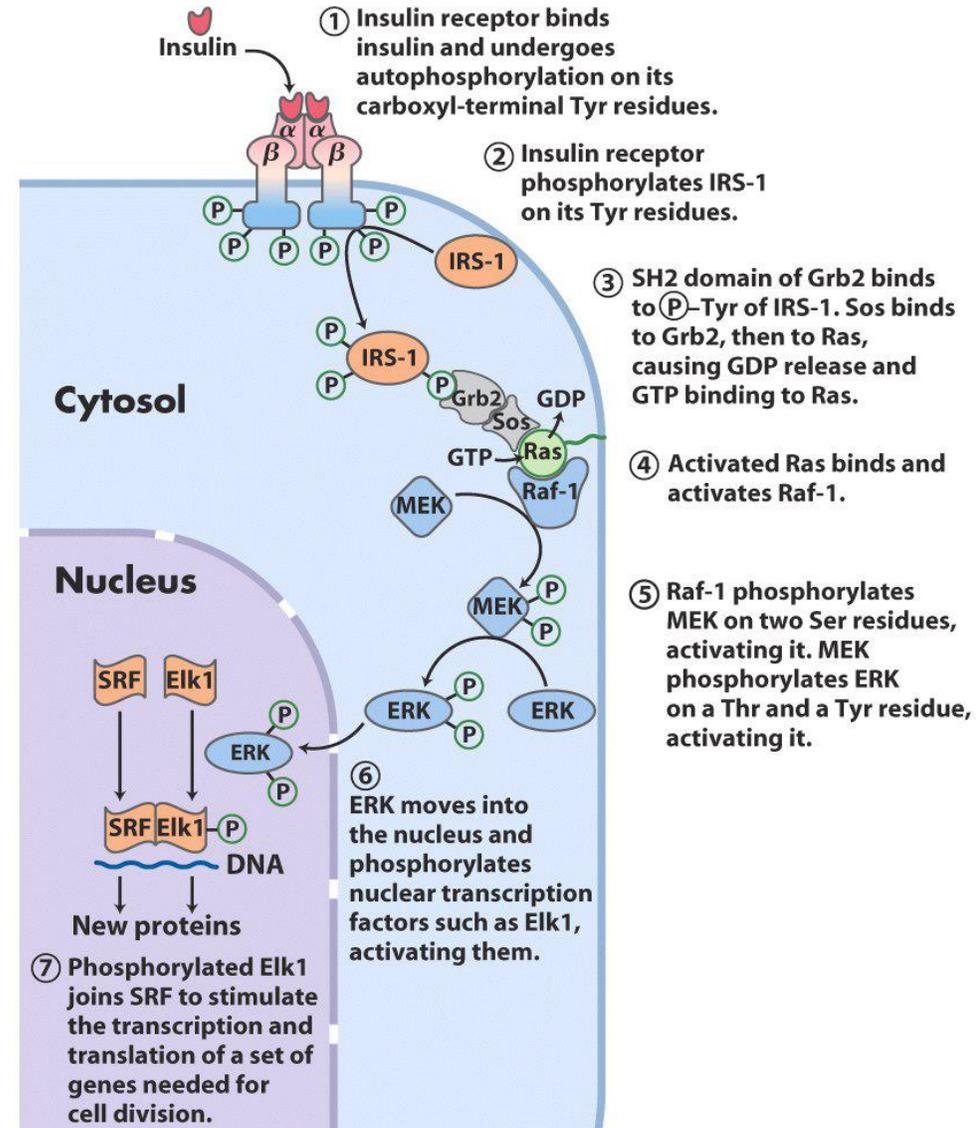
Agonistas de K_{ATP} s na Hiperinsulinemia

- Insulinomas levam a hiperinsulinemia e hipoglicemia
- Tratamento definitivo = remoção cirúrgica
- Tratamento medicamentoso = ativadores de K_{ATP} s

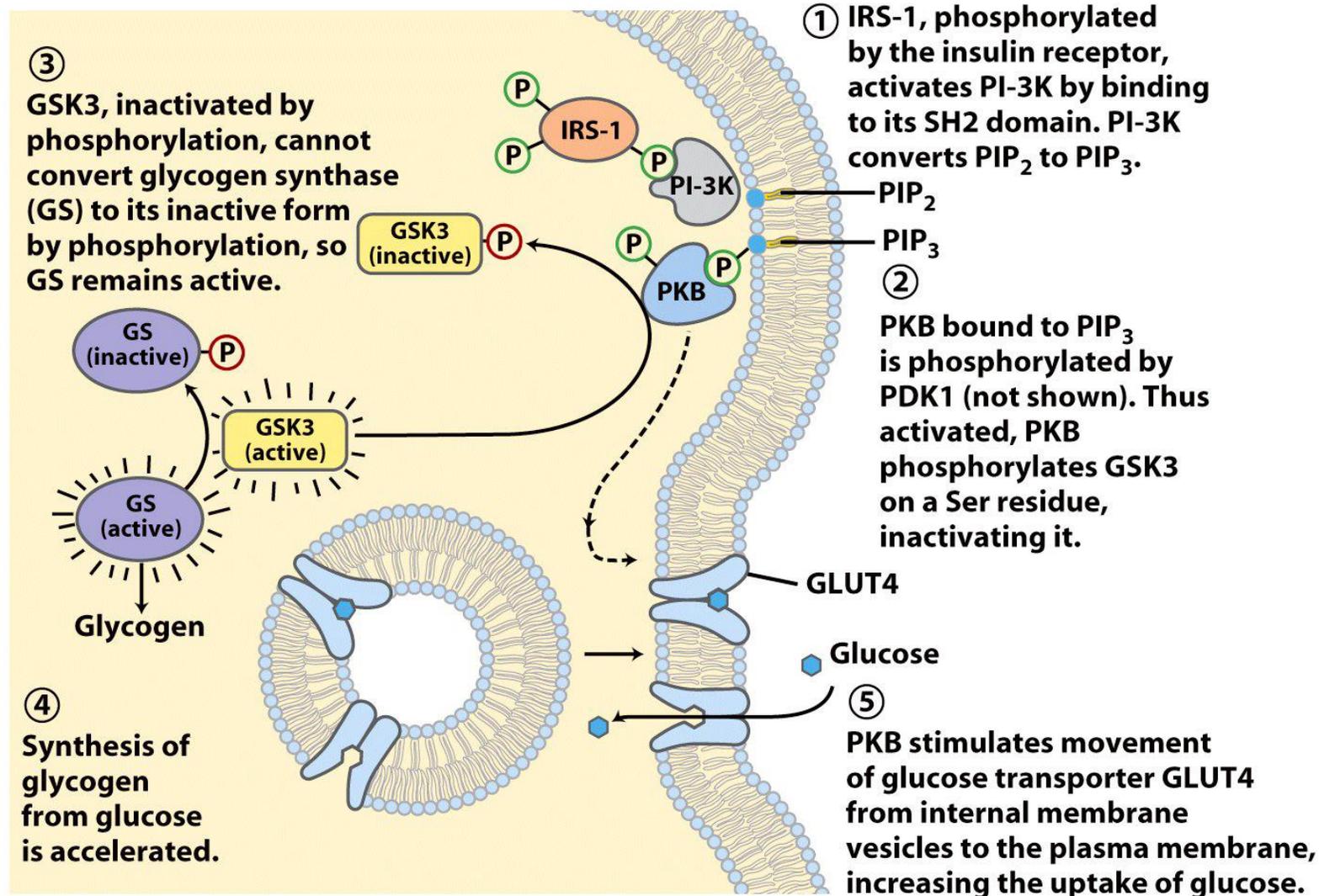


Insulina e Receptores Tirosina Quinase

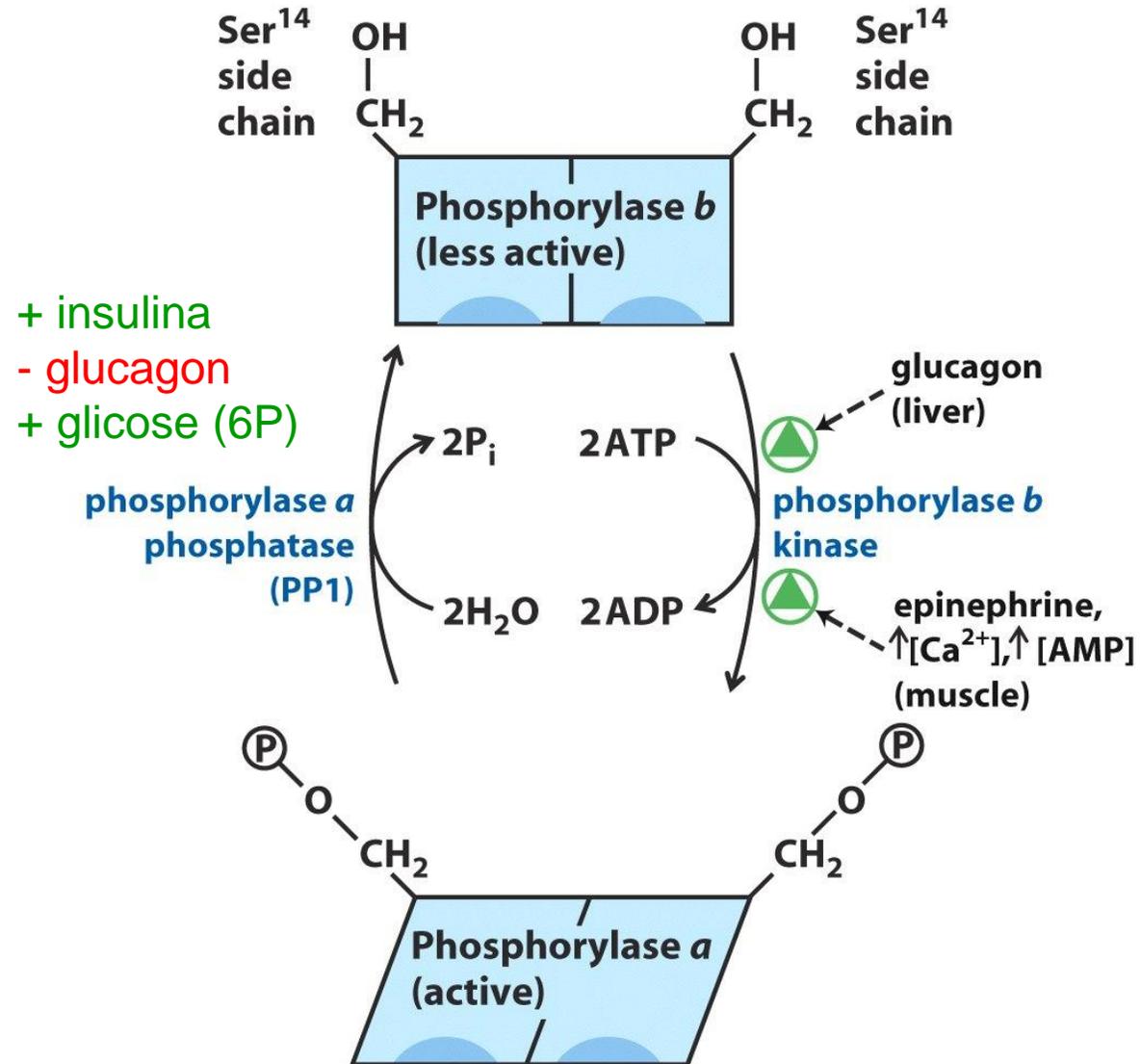
- Receptor contém dímeros α , onde se liga a insulina
- Subunidades β se autofosforilam
- Ativada a ação tirosina quinase sobre outros substratos
- IRS-1 é fosforilado

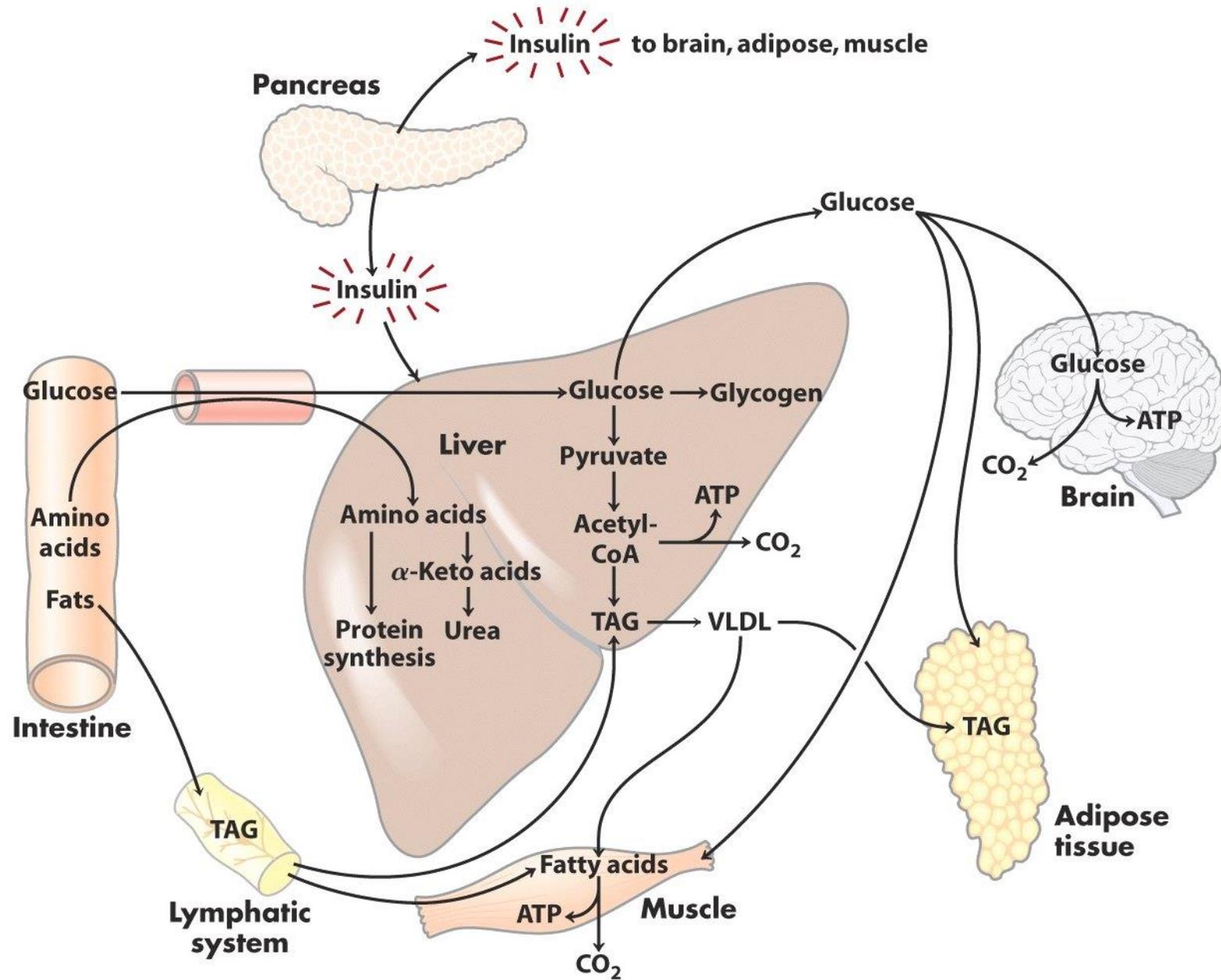


Insulina – Efeitos Sobre Metabolismo de Glicogênio



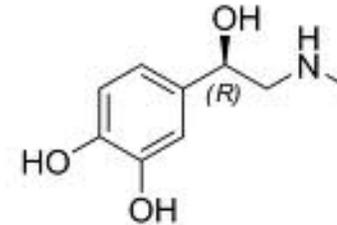
Insulina – Efeitos Sobre Metabolismo de Glicogênio





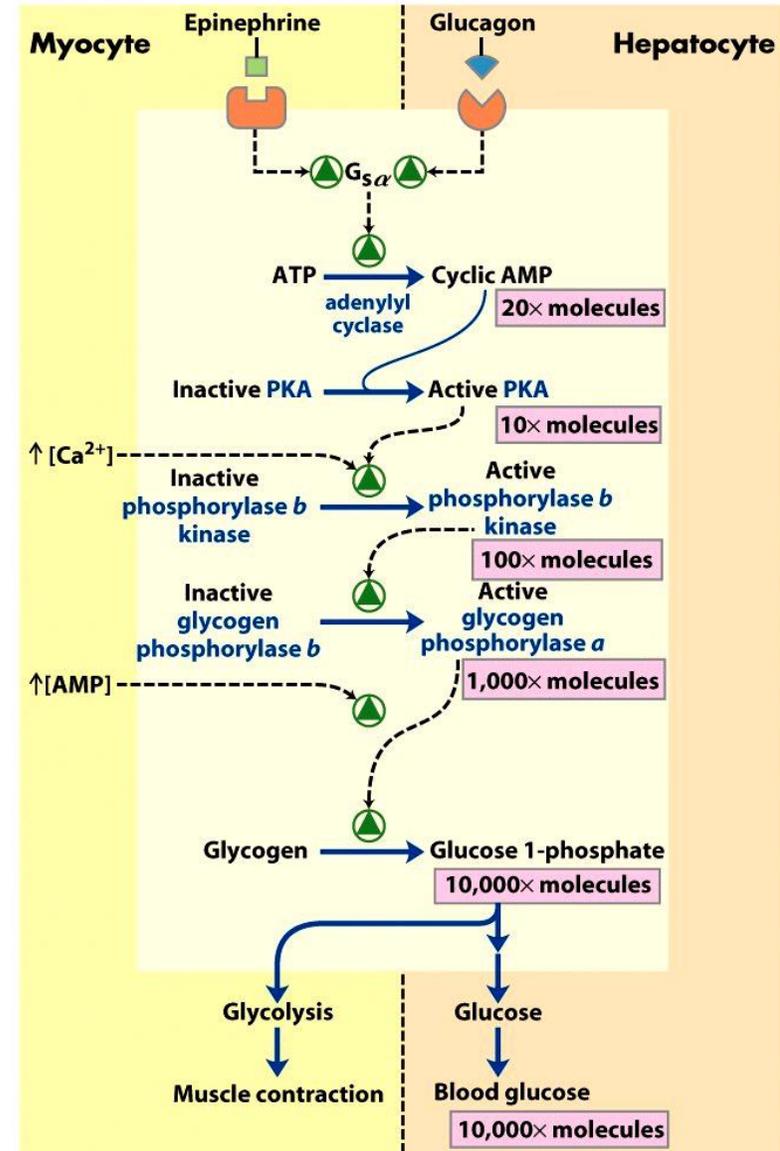
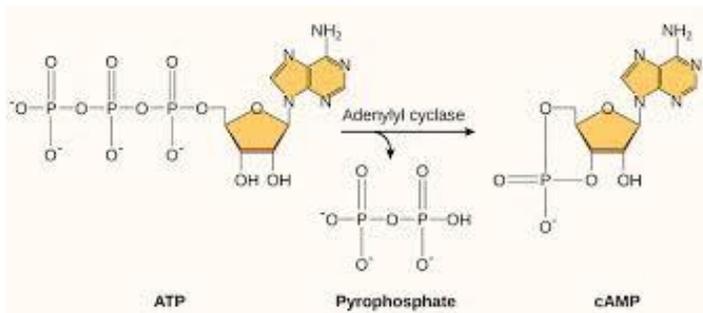
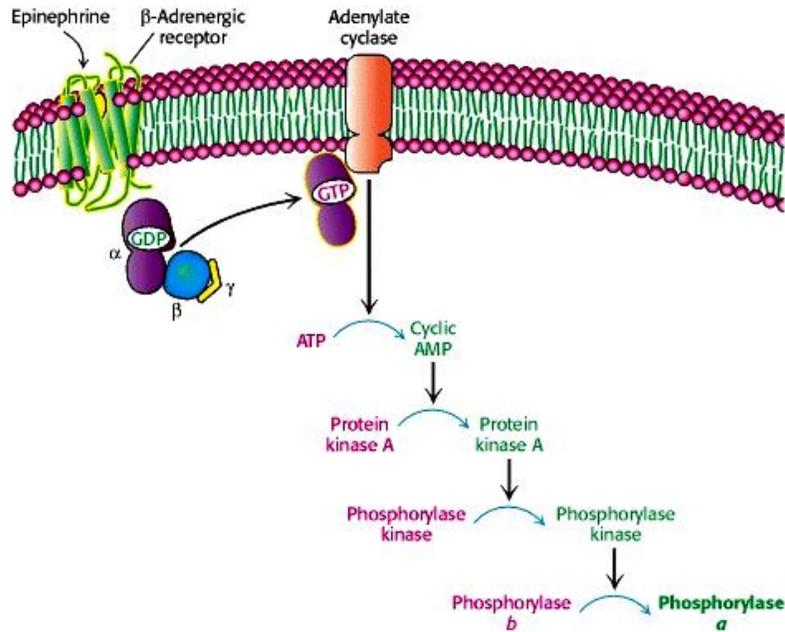
Biossíntese e Secreção de Adrenalina (Epinefrina)

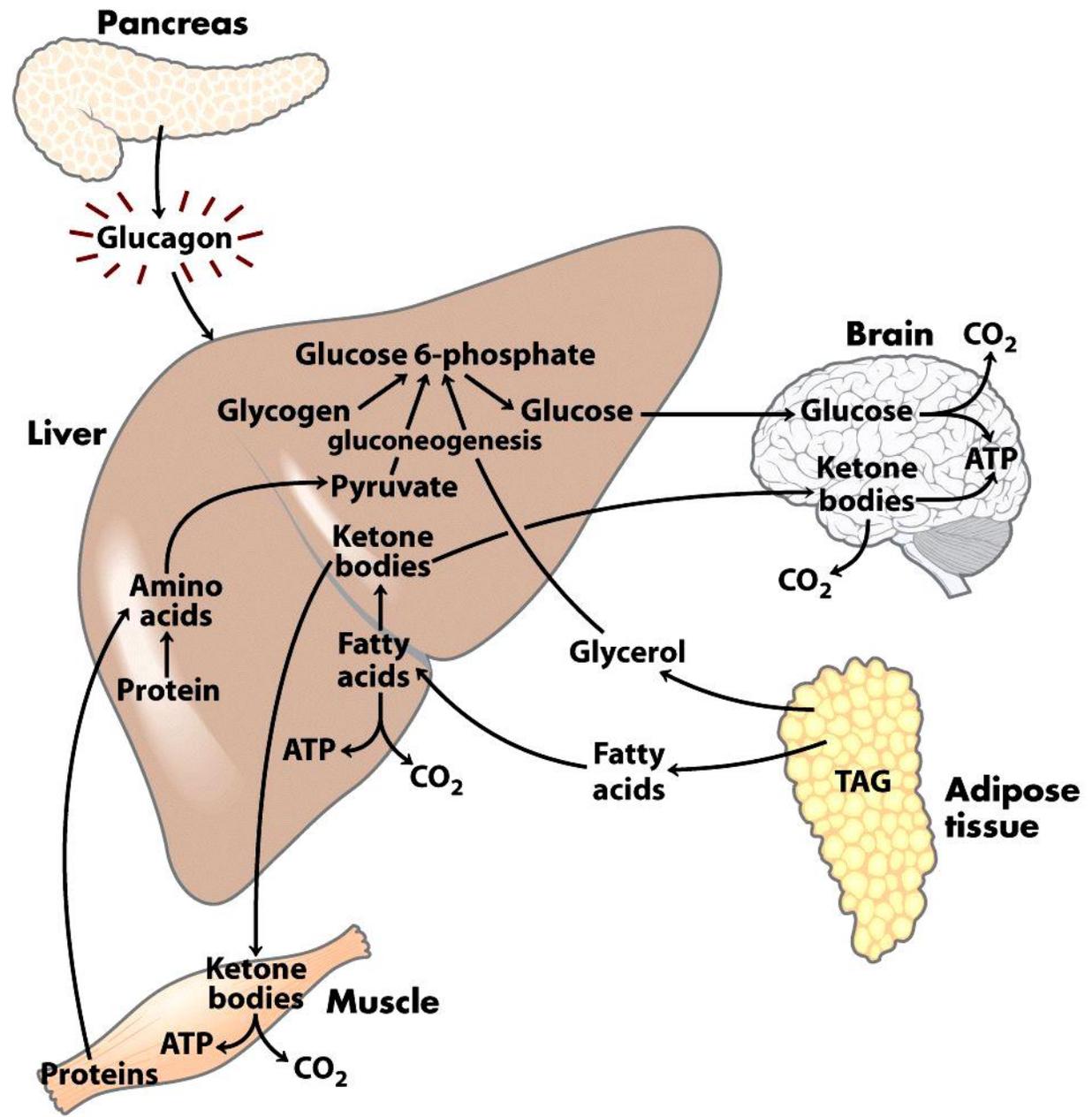
- Sintetizado na adrenal
- Precursores: fenilalanina e tirosina
- Primeiro hormônio biossintético (não-peptídico)
- Usado clinicamente em parada cardíaca, choque, anafilaxia



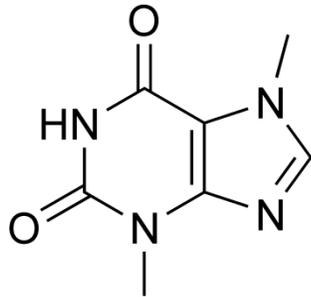
Efeitos Periféricos do Glucagon e Adrenalina

- Receptores de 7 hélices
- Acoplados a proteínas G
- Cerca de 50% dos medicamentos agem por Prot. G!

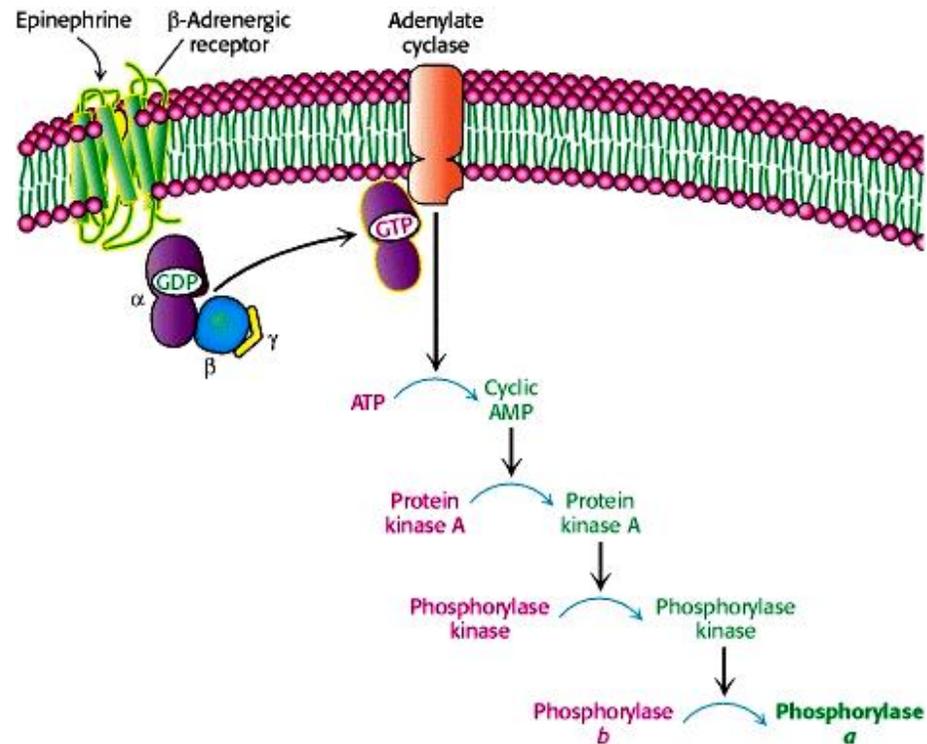
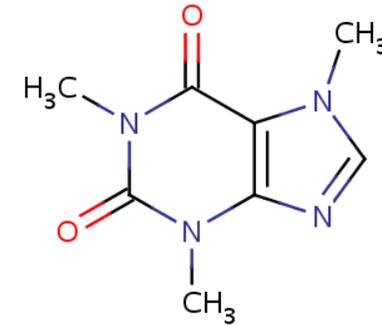




Teobromina e Cafeína



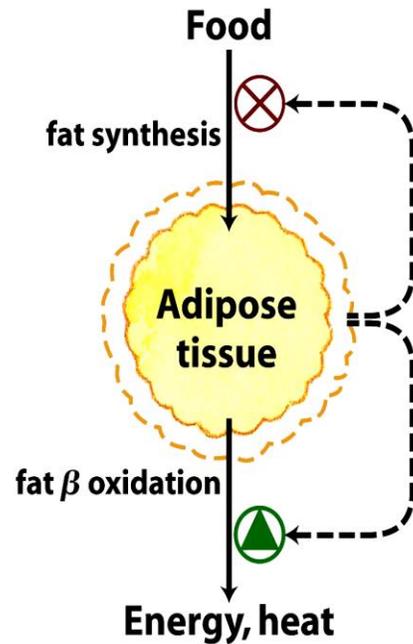
- Inibidores da fosfodiesterase
- Aumentam AMPc
- Aumentam efeitos da adrenalina
- Promovem emagrecimento



Controle da Massa Corporal

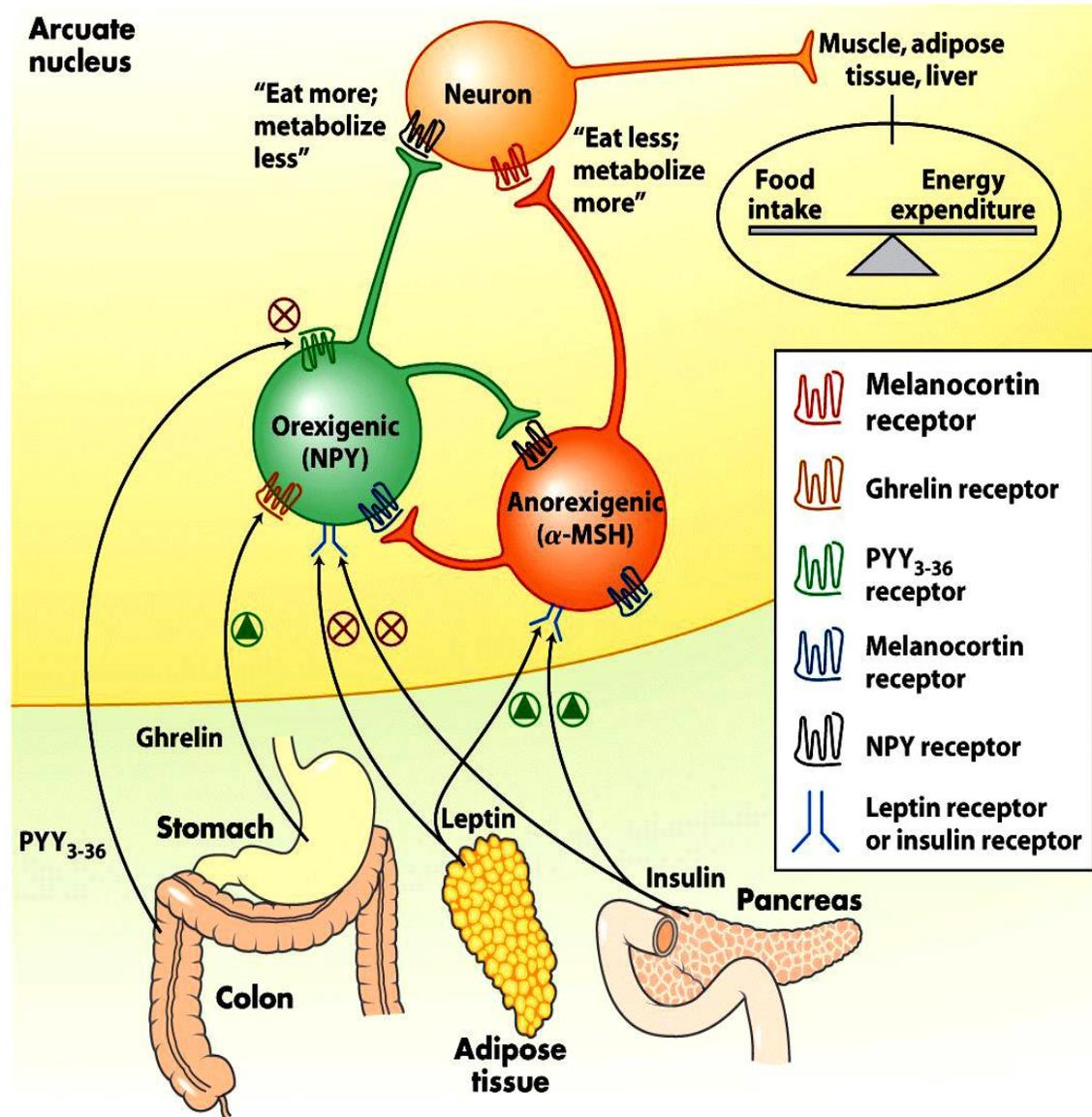
Leptina – produto do gene OB

Teoria lipostática

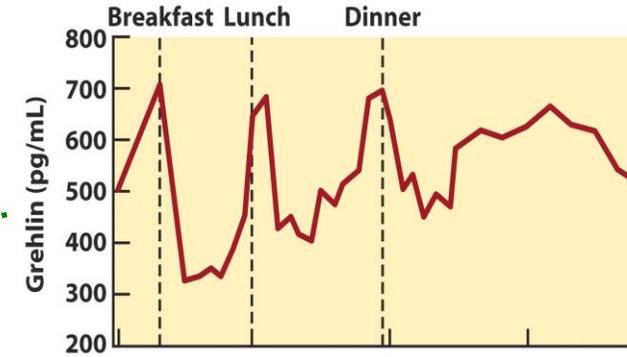
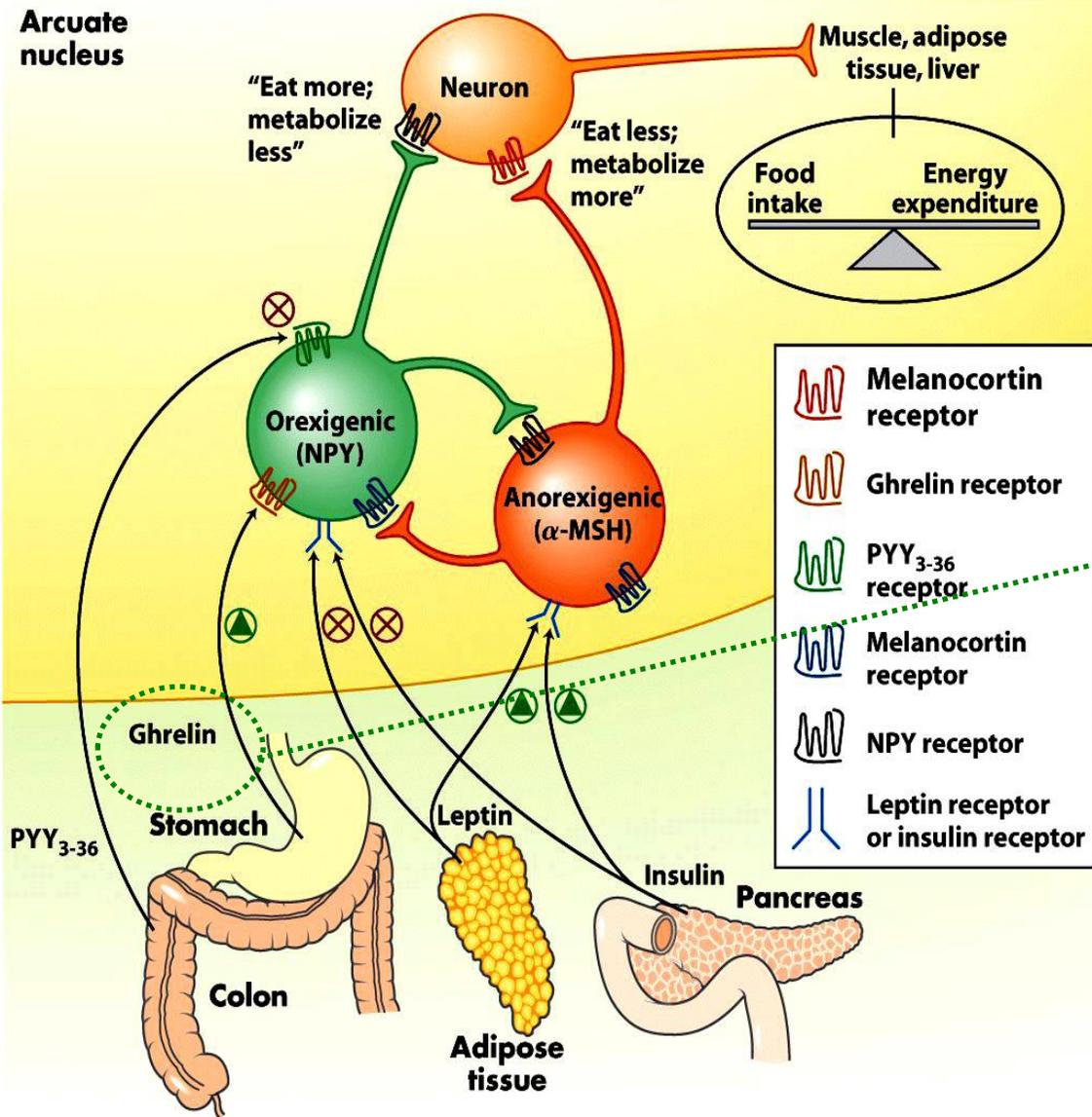


Apetite voraz
Obesidade
Síndrome metabólica
Sensibilidade ao frio

Modulação do Apetite



Modulação do Apetite – Grelina e PYY

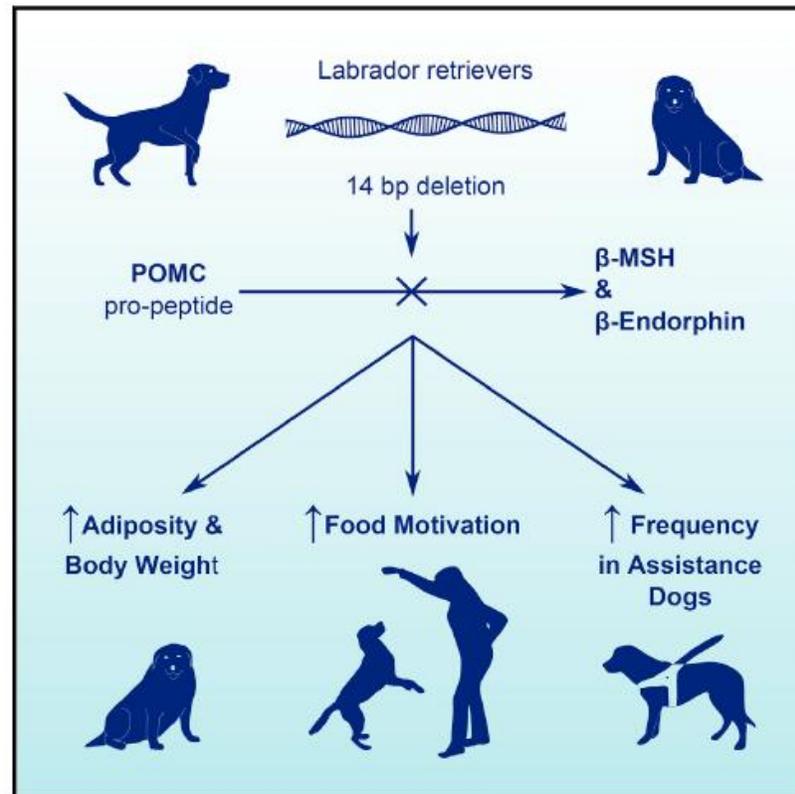


Modulação do Apetite e Evolução Canina

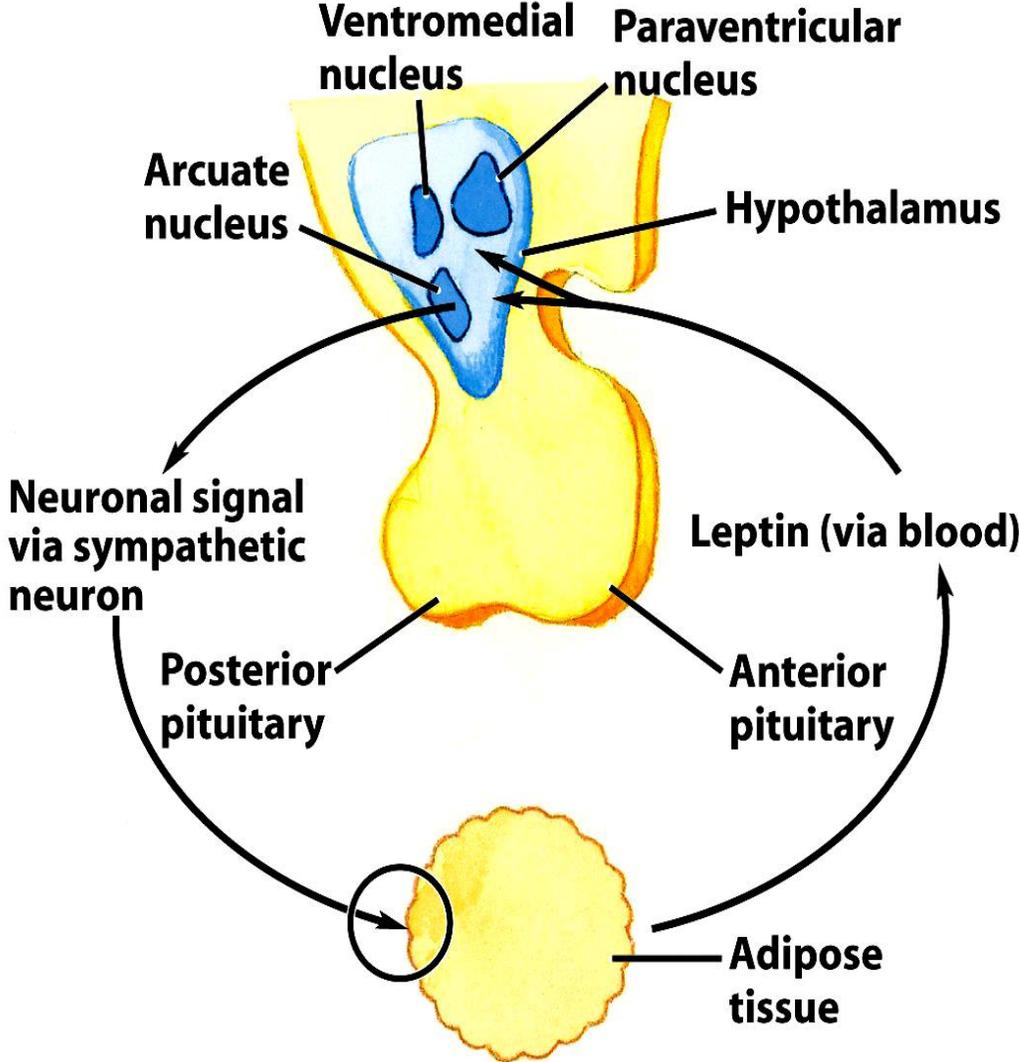
Short Article

Cell Metabolism

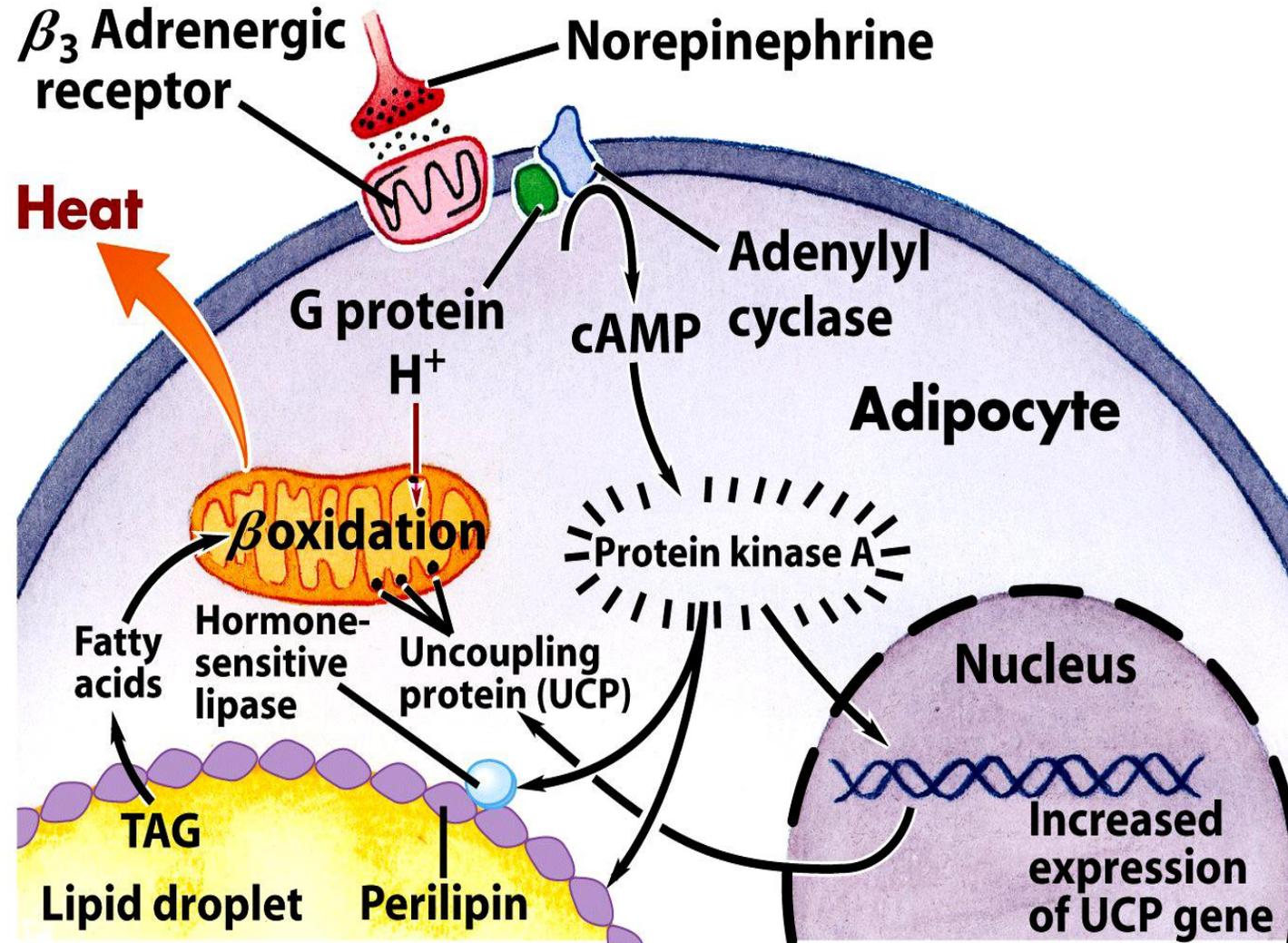
A Deletion in the Canine *POMC* Gene Is Associated with Weight and Appetite in Obesity-Prone Labrador Retriever Dogs



Leptina



Leptina - Efeitos Periféricos



Porcos Não Tem Termorregulação por Leptina

The Uncoupling Protein 1 Gene (*UCP1*) Is Disrupted in the Pig Lineage: A Genetic Explanation for Poor Thermoregulation in Piglets

Frida Berg¹, Ulla Gustafson², Leif Andersson^{1,2*}

¹ Department of Medical Biochemistry and Microbiology, Uppsala University, Uppsala, Sweden, ² Department of Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Uppsala, Sweden

Pig has no uncoupling protein 1

Lianjie Hou^a, Jia Shi^a, Lingbo Cao^a, Guli Xu^a, Chingyuan Hu^b, Chong Wang^{a,*}

^a National Engineering Research Center for Breeding Swine Industry, Guangdong Provincial Key Lab of Agro-Animal Genomics and Molecular Breeding, College of Animal Science, South China Agricultural University, Guangzhou, Guangdong, 510642, PR China

^b Department of Human Nutrition, Food and Animal Sciences, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, 1955 East-West Road, AgSci. 415J, Honolulu, HI 96822, USA

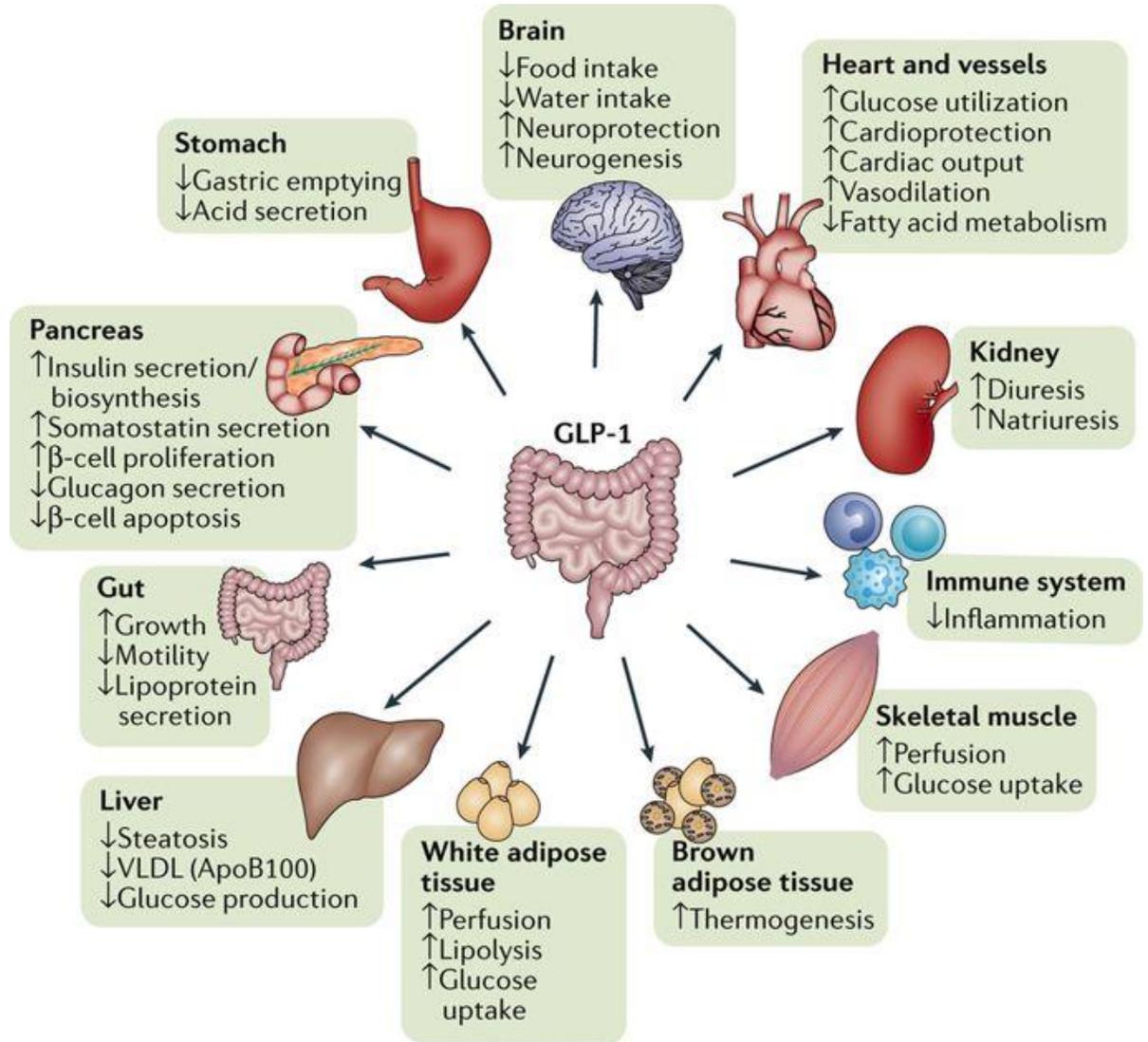


Leptina – Solução para Obesidade?



- Maioria dos humanos obesos tem excesso de leptina
- Tratamento com leptina não reduz massa corporal
- Defeitos demonstrados em receptores (DB) e sinais de resposta

Novos moduladores de apetite





Próximas aulas: - Especialização tecidual
- Integração/revisão
- Doenças

