



Fármacos:

O papel da Química Medicinal



XXII Semana Acadêmica de Química - UFF

Aula 3

UFRJ



Eliezer j. Barreiro

Professor Titular





Como as chaves
acham as
fechaduras ?

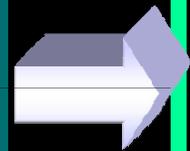
Como os fármacos
chegam aos
alvos terapêuticos ?



Medicamento

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Química Medicinal

Fase farmacêutica

Excreção

Eliminação renal

Bile, fezes, pulmão

Biofase

Agente de depósito

Bioinativação

tóxico

Complexo tissular

Bioativação

Distribuição

Hepática, plasmática, entérica

Absorção

Metabolismo

F-R

E.T.

Polimorfismo, idade, raça, sexo

PQF

P
pKa
D

Complexo plasmático

Indução / inibição enzimática

Agente de deslocamento

Afinidade
Potência
Eficácia
Sinergismo

Vida-média

Agente de co-solubilidade

Fármaco

Fase farmacocinética (ADME)

Fase farmacodinâmica



Biofase

Absorção

Concentração

Meia-vida

Posologia

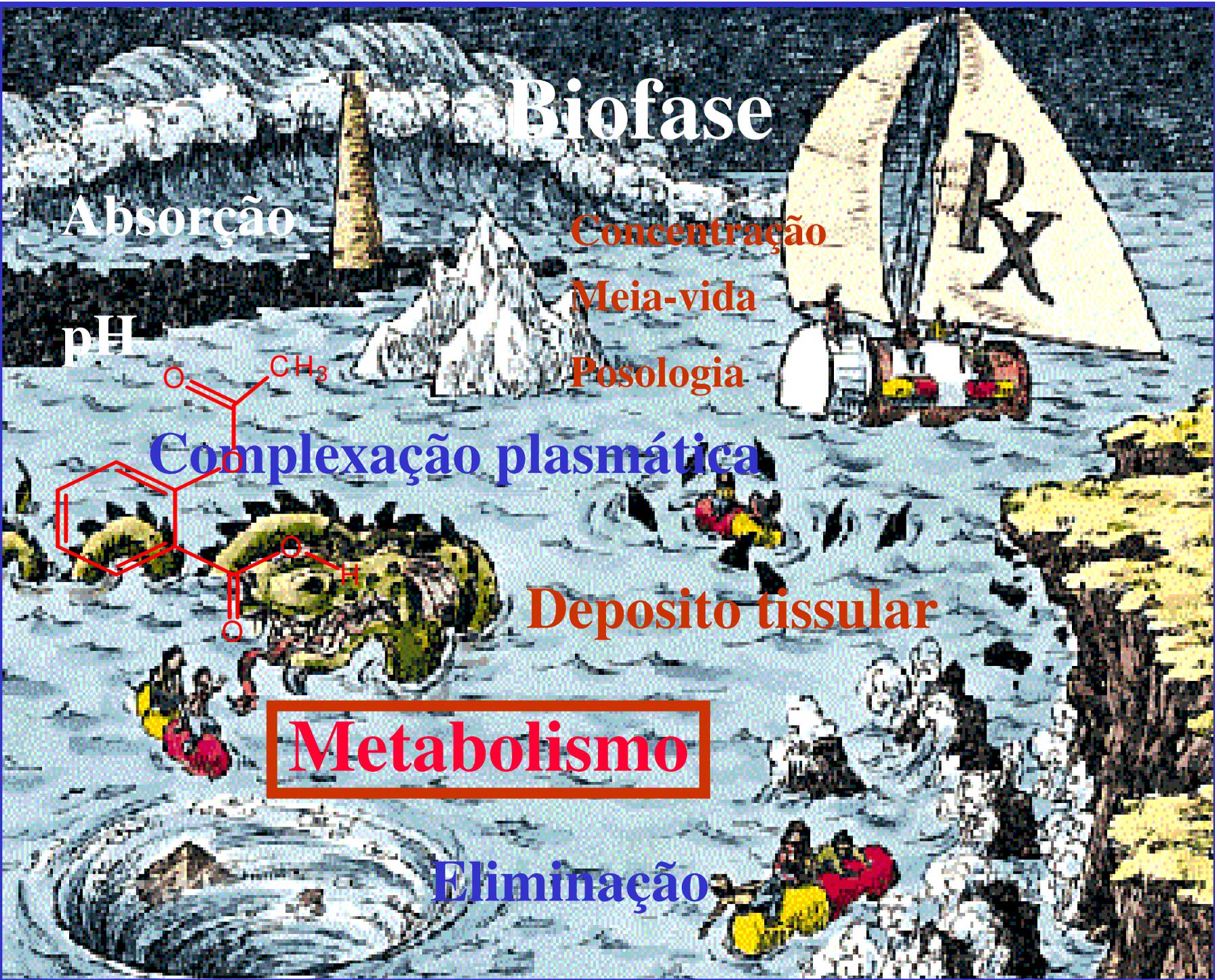
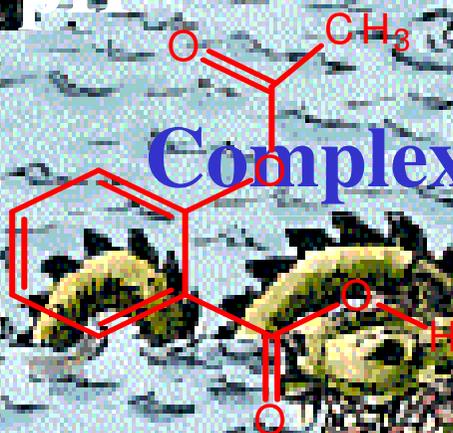
pH

Complexação plasmática

Deposito tissular

Metabolismo

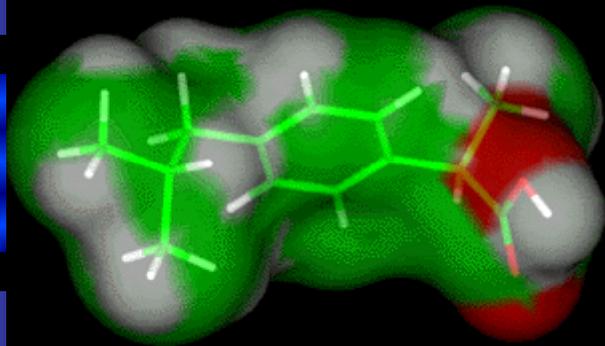
Eliminação



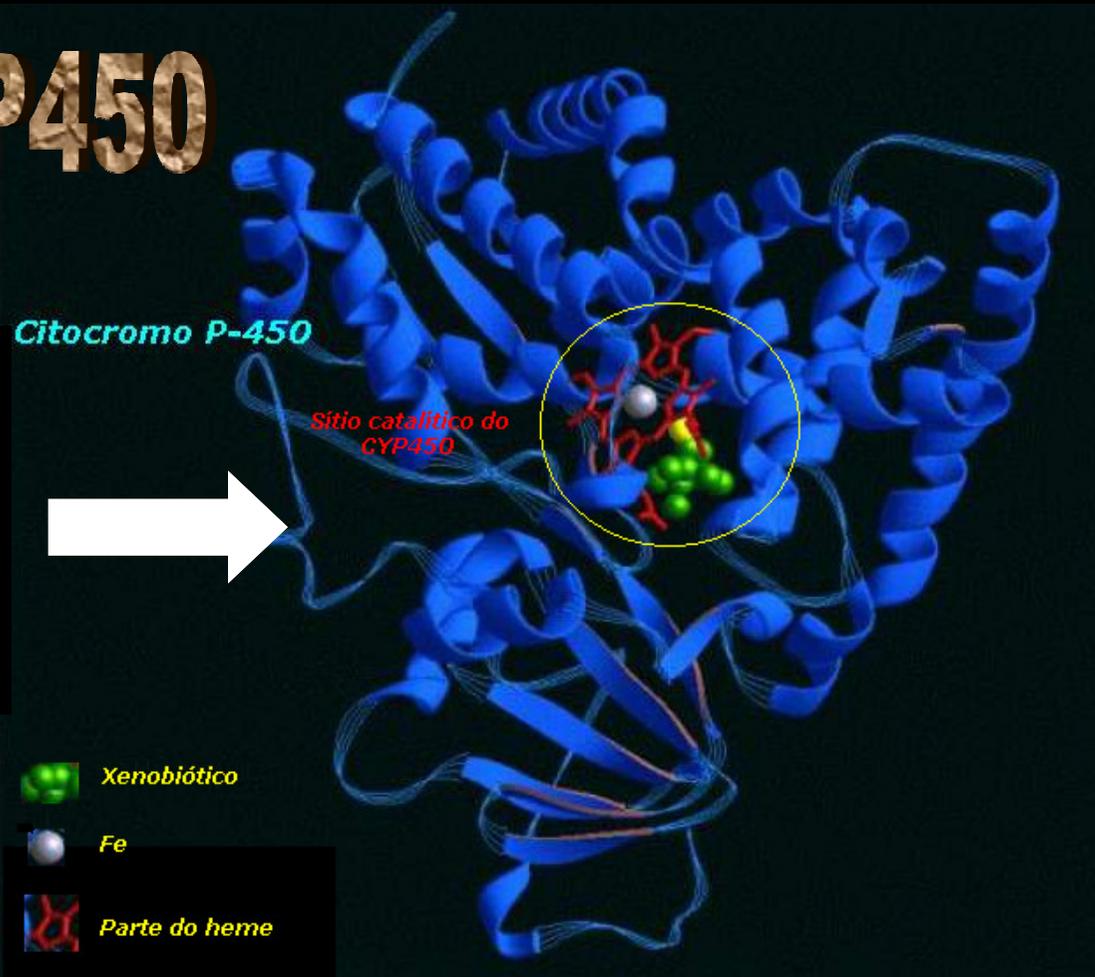


Enzimas oxidativas: fase 1

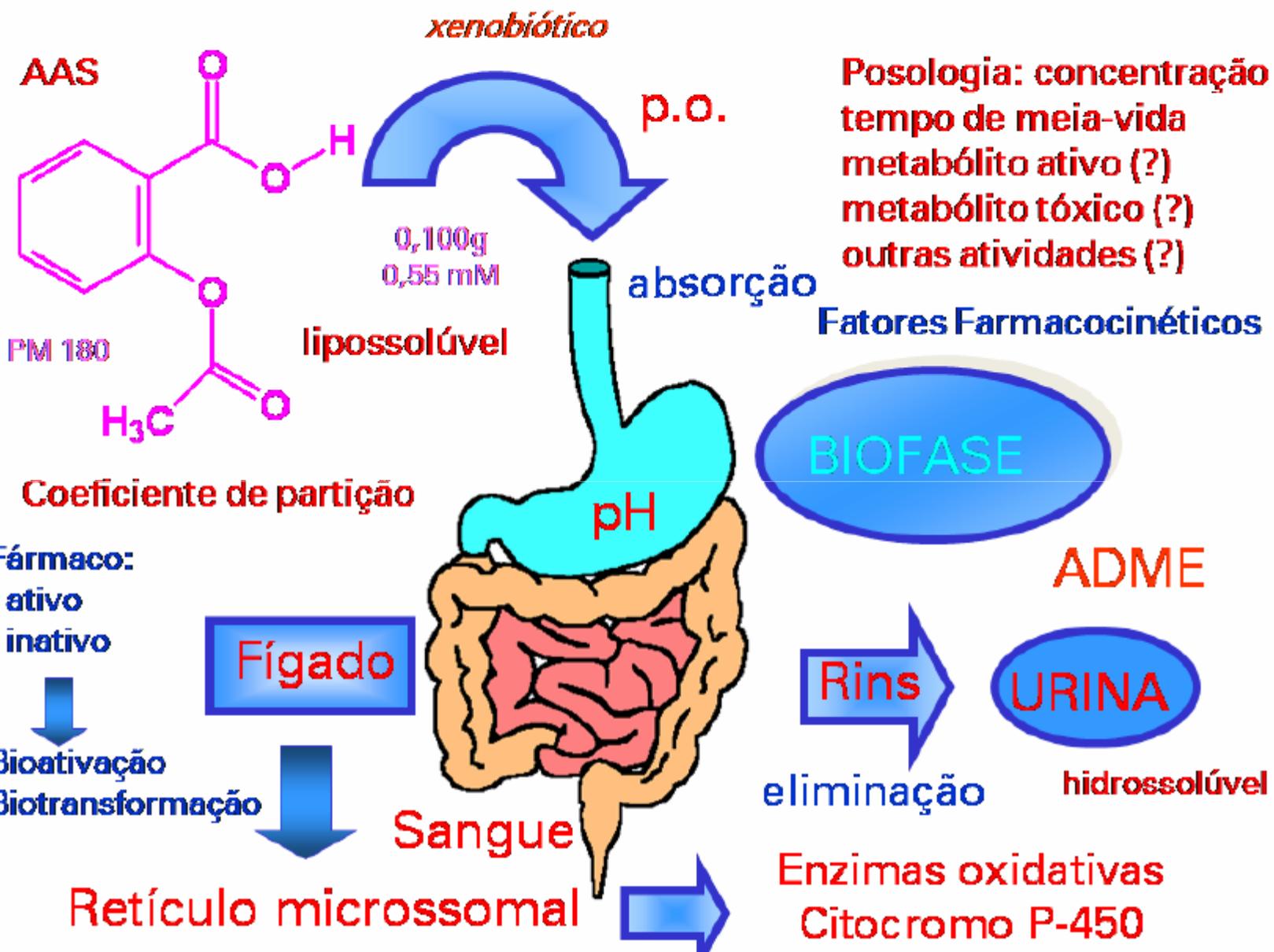
Citocromo P450

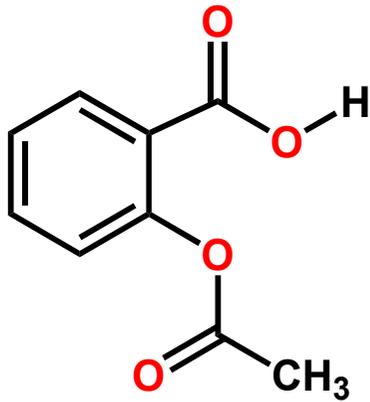


Fármaco



Retículo microssomal hepático





$C_9H_8O_4$

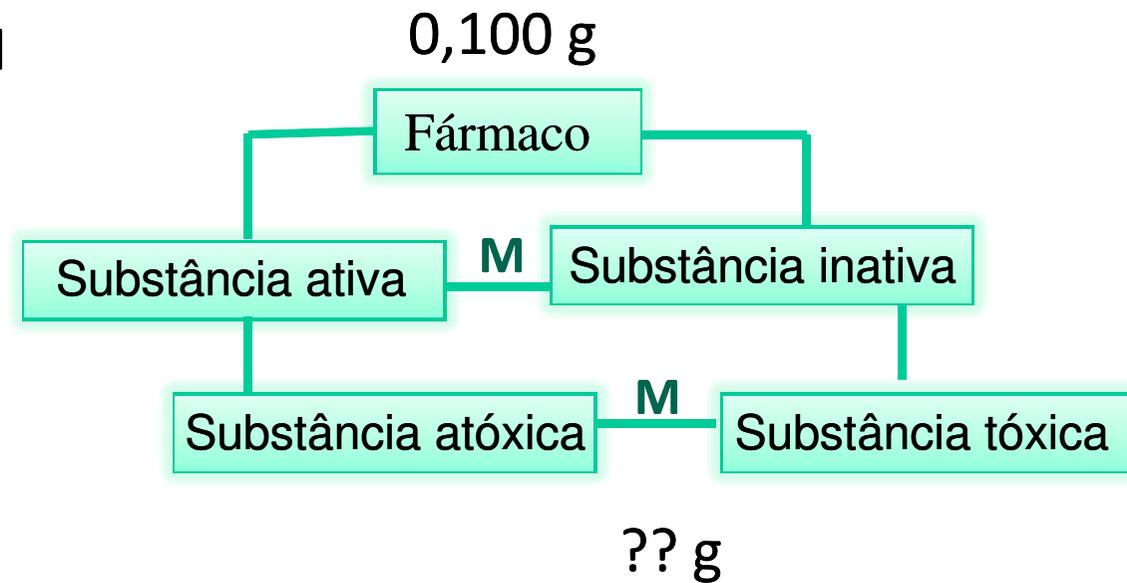
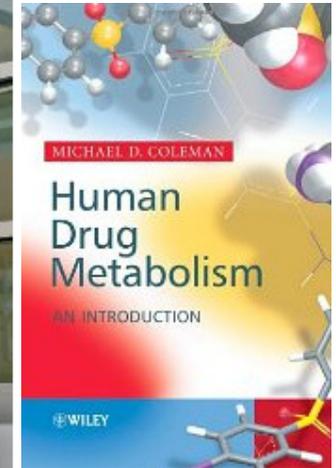
PM = 180 g



0,100 g ~ 0,5 M

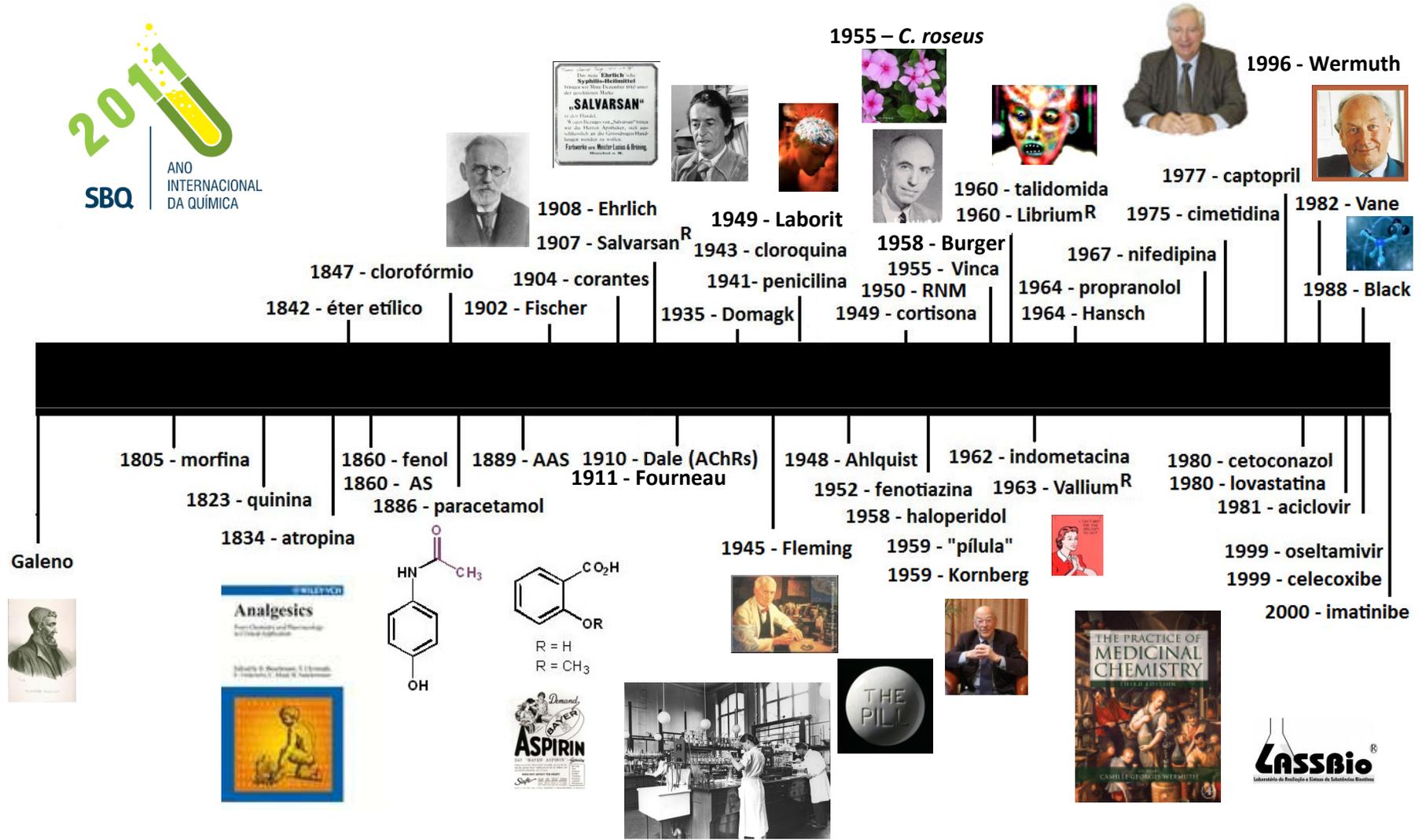


70 kg





Cronologia histórica da **Química Medicinal**

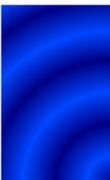
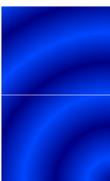
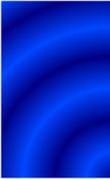




Química
Medicinal

O processo ...
racional





Am J Physiol 1948, 153, 586

A invenção do propranolol

A STUDY OF THE ADRENOTROPIC RECEPTORS

RAYMOND P. AHLQUIST

From the Department of Pharmacology, University of Georgia School of Medicine

AUGUSTA, GEORGIA



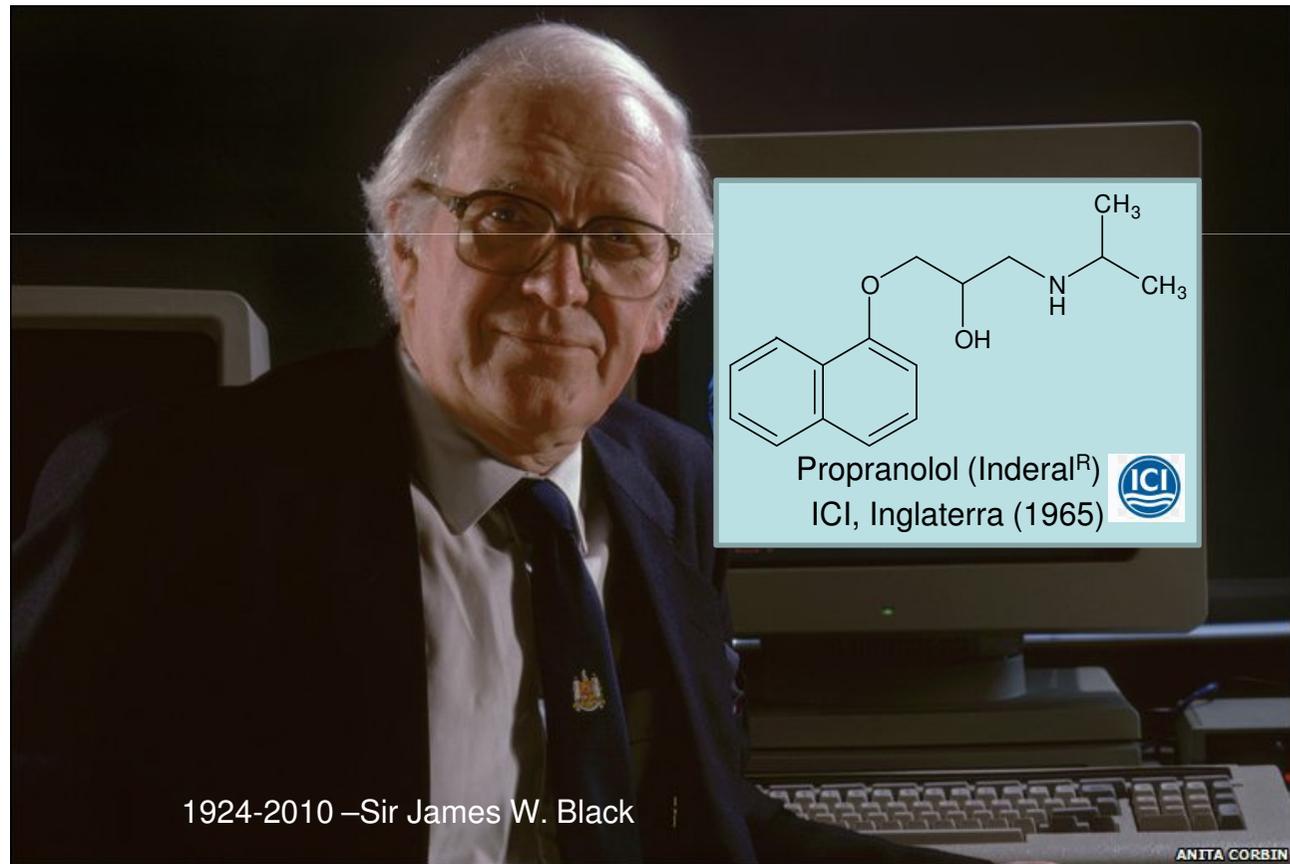
Raymond Ahlquist (1914)



Premio Nobel
1988

Química
Medicinal

Pharmacology
Farmacologia



1924-2010 – Sir James W. Black



J. Black *et al.*, *Br. J. Pharmacol. Chemother.* **1965**, *25*, 577

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