

20.201 Mechanisms of Drug Action

Lecture #21: Omeprazole Case Study

November 9, 2005

Gastric physiology

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Images of Acetylcholine Pathways, Gastrin Pathways, Histamine Pathways removed due to copyright restrictions.

Acid Secretion Pathways

http://hopkins-gi.org/multimedia/database/intro_247_Parietal.swf

PKs of Omeprazole vs. Esomeprazole

	<i>R/S-Omeprazole</i> (20 mg)	<i>Esomeprazole</i> (20 mg)
V_d	0.34 L/kg	16 L
Plasma $t_{1/2}$	0.7 hr	1.2 hr
Albumin binding	95%	97%
Peak Conc. (C_{max})	EM = 0.6-0.7 μM PM = 3.5 μM	"EM" = 1.7 μM
CL_{total}	7.5 $\text{ml}\cdot\text{min}^{-1}\cdot\text{mg}^{-1}$	
CL_{int} (liver microsomes)	42.6	14.6
Oral availability	53%	89%
Urinary Excretion	<1%	<1%
5 d \uparrow in AUC	49%	111%

