

**I Jornada de Actualización en VIH para Atención Primaria  
Barcelona, 24 de Mayo de 2013**

# **Interacciones medicamentosas en pacientes con infección por VIH**

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Barcelona**

# Factores que afectan la concentración en lugar de acción: Absorción, Distribución, Metabolismo, Eliminación

## Administración oral

Comprimido/cápsula

*Desintegración* ↓

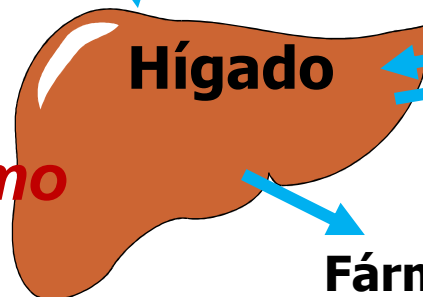
Partículas en fluido GI

*Disolución* ↓

Fármaco en solución

*Absorción* ↓

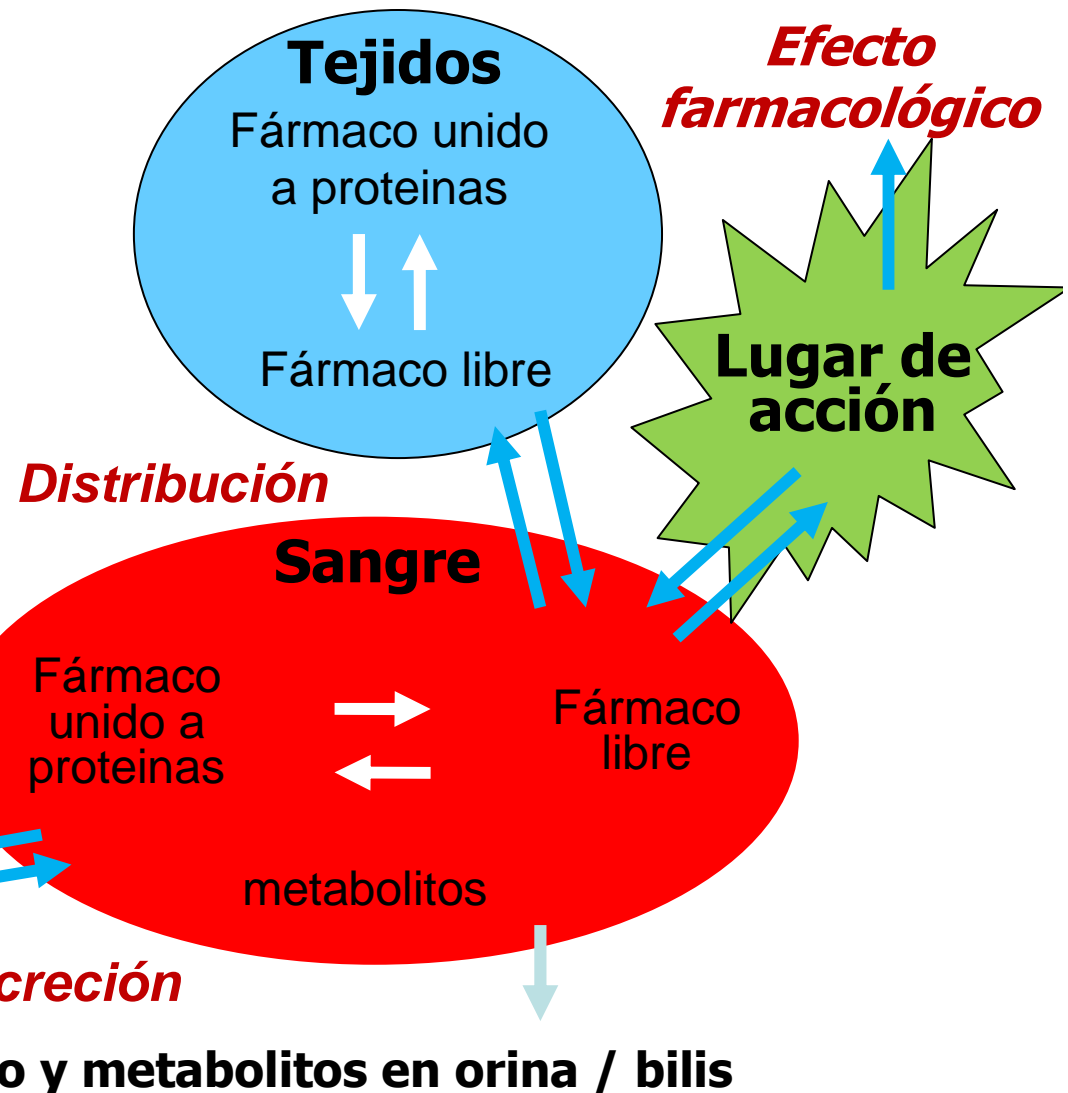
Mucosa tracto GI



*Metabolismo*

*Excreción*

Fármaco y metabolitos en orina / bilis



*Efecto farmacológico*

**Tejidos**

Fármaco unido a proteínas

Fármaco libre

*Distribución*

**Sangre**

Fármaco unido a proteínas

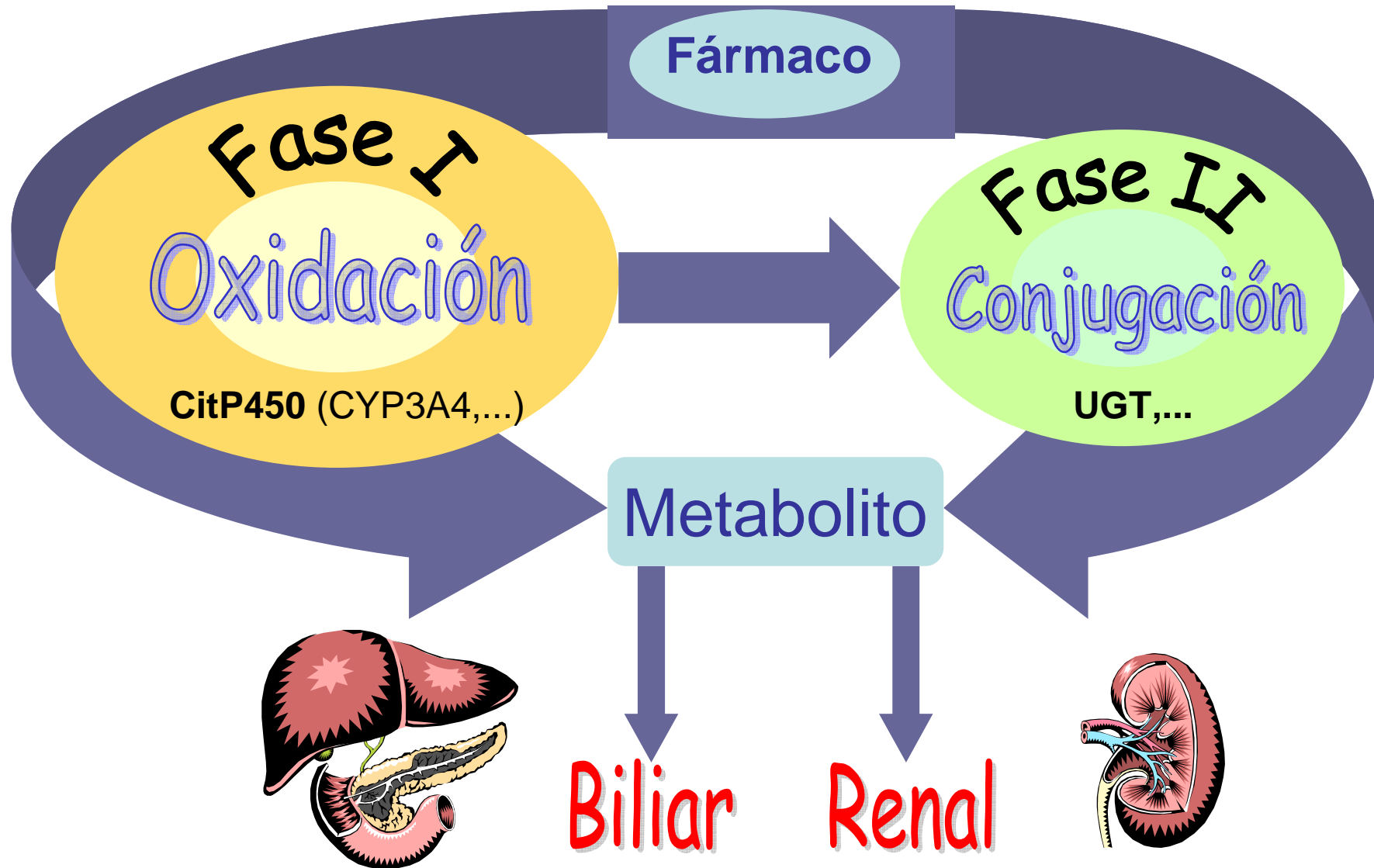
Fármaco libre

metabolitos

**Lugar de acción**

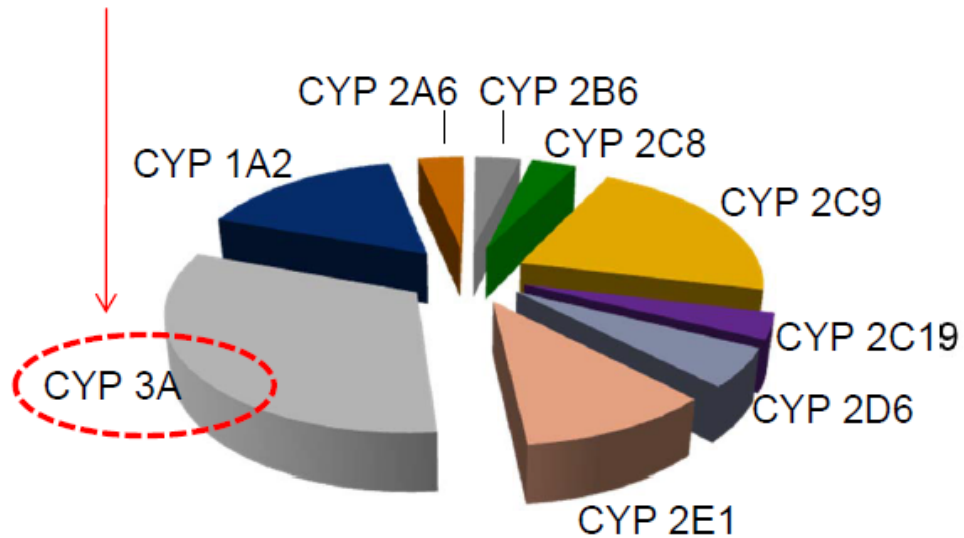
Fármaco y metabolitos en orina / bilis

# Metabolismo y eliminación de los fármacos



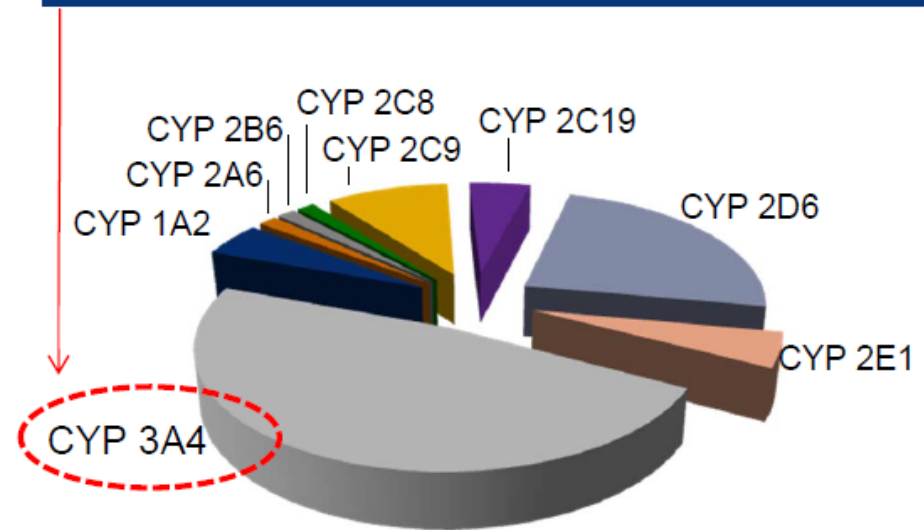
# Citocromo P450: Isozimas

CYP 3A is the most abundant CYP isozyme



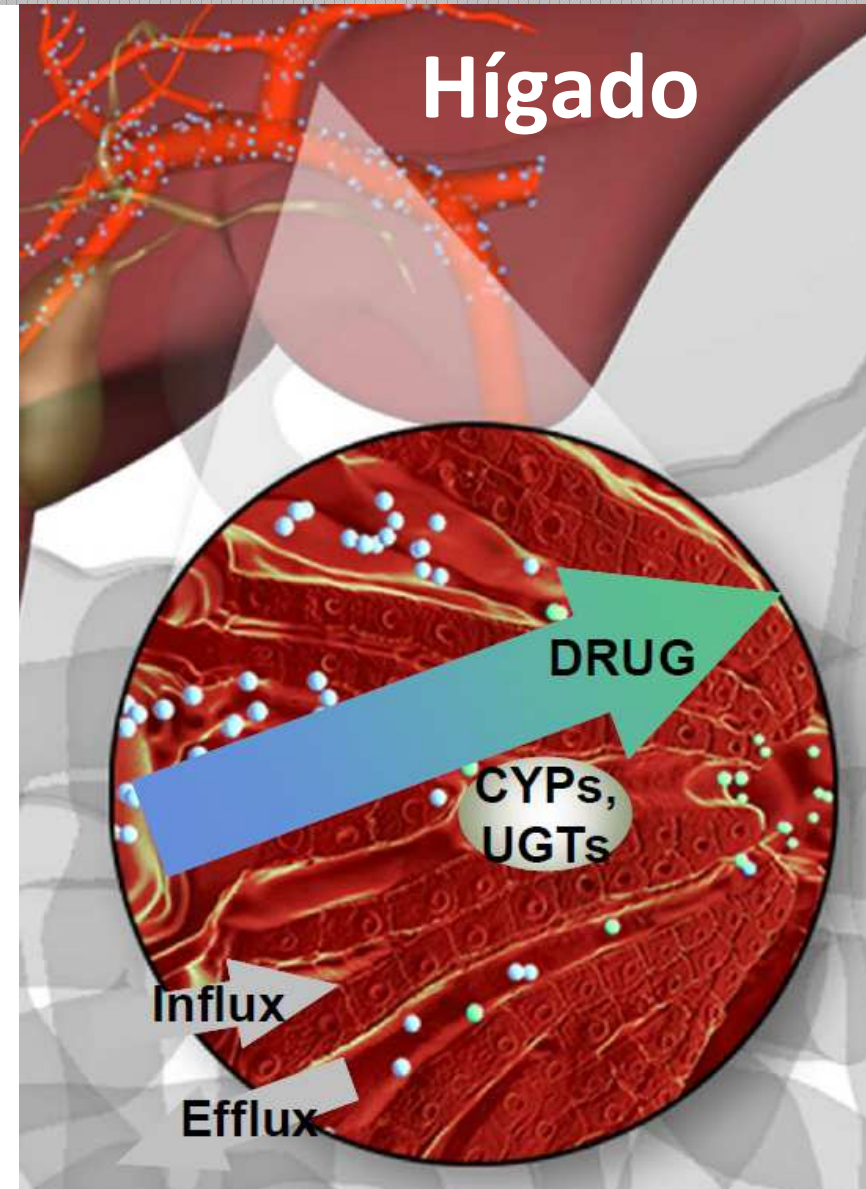
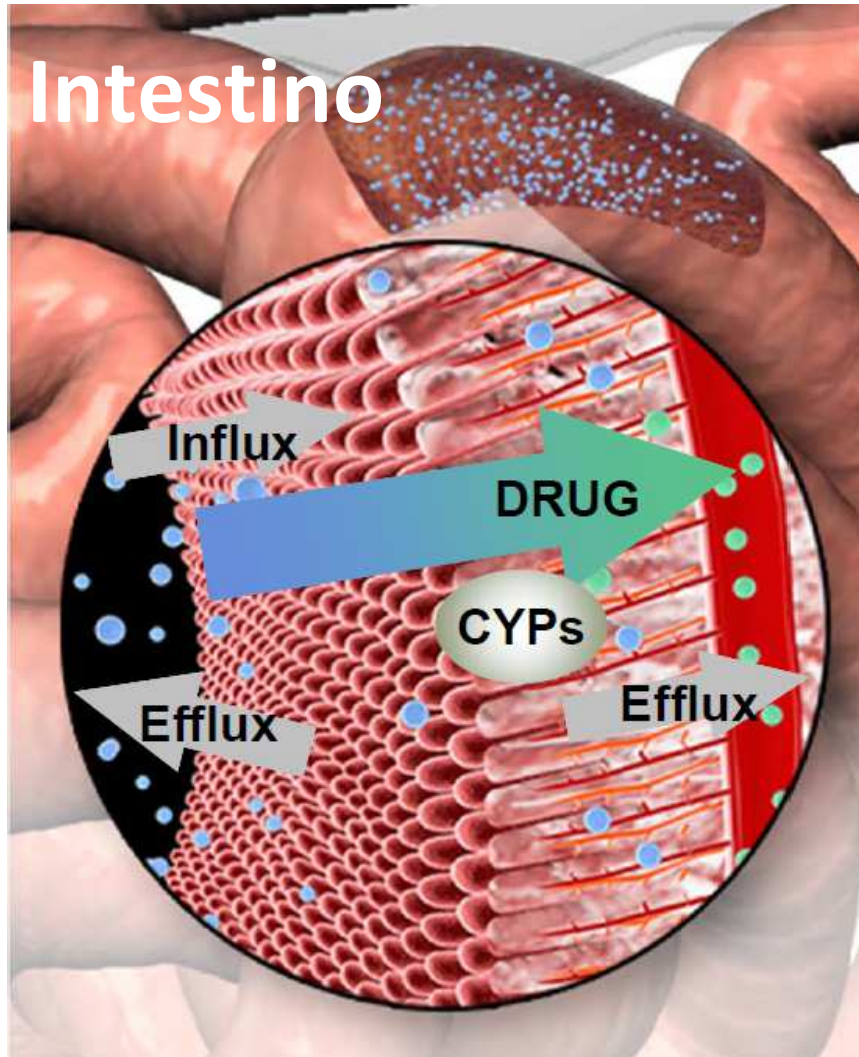
Proportion of total CYP enzymes present in human liver

CYP 3A 4 involved in the metabolism of majority of drugs



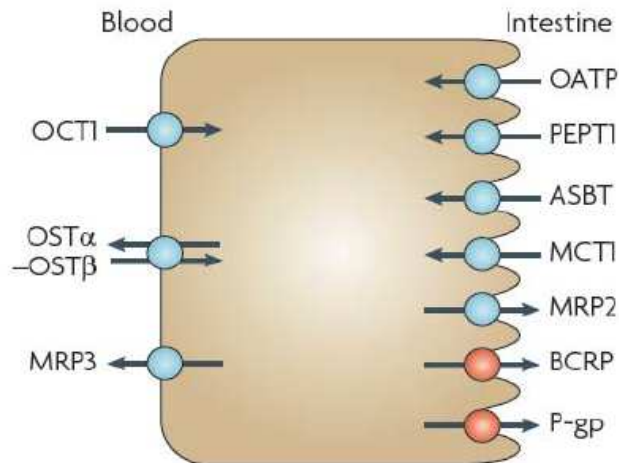
Proportion of drugs that are substrates for major CYP enzymes

# Importancia del metabolismo y transporte

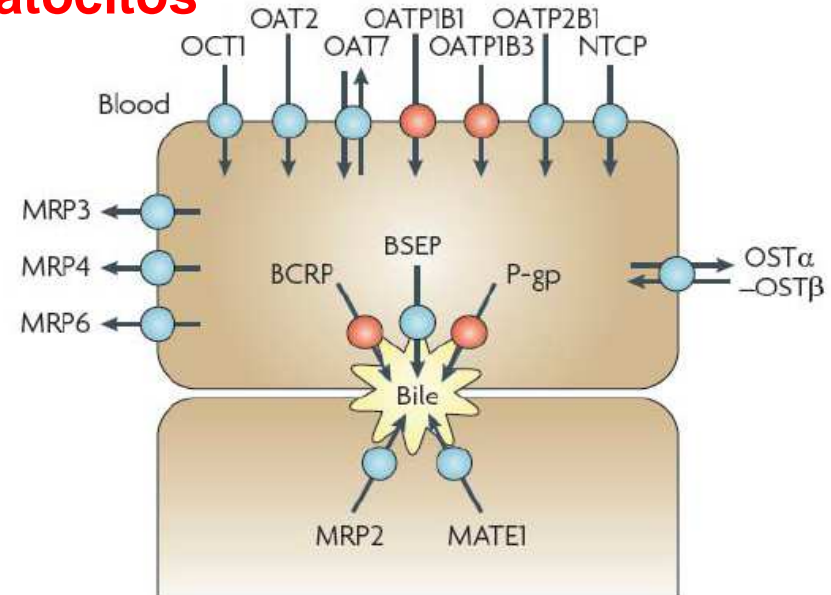


# Complejidad de los transportadores

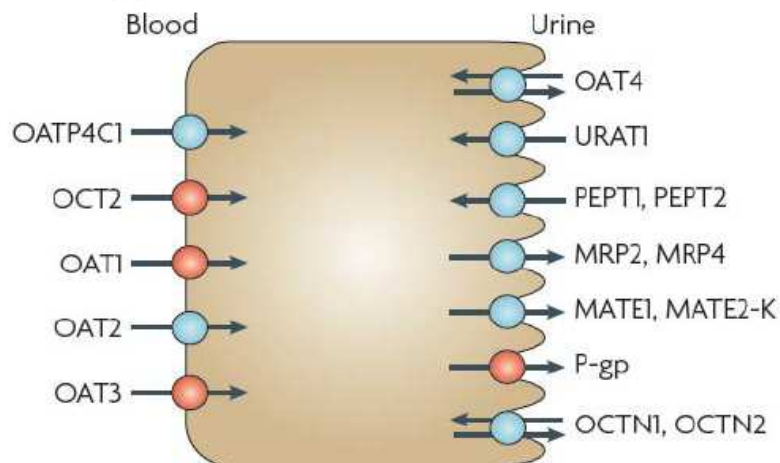
## Epitelio intestinal



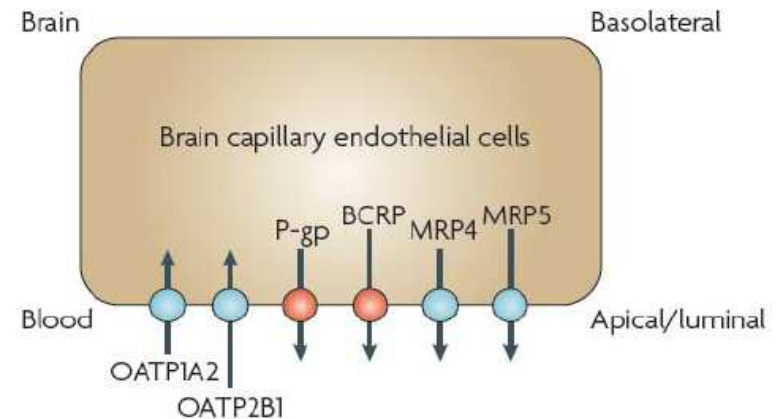
## Hepatocitos



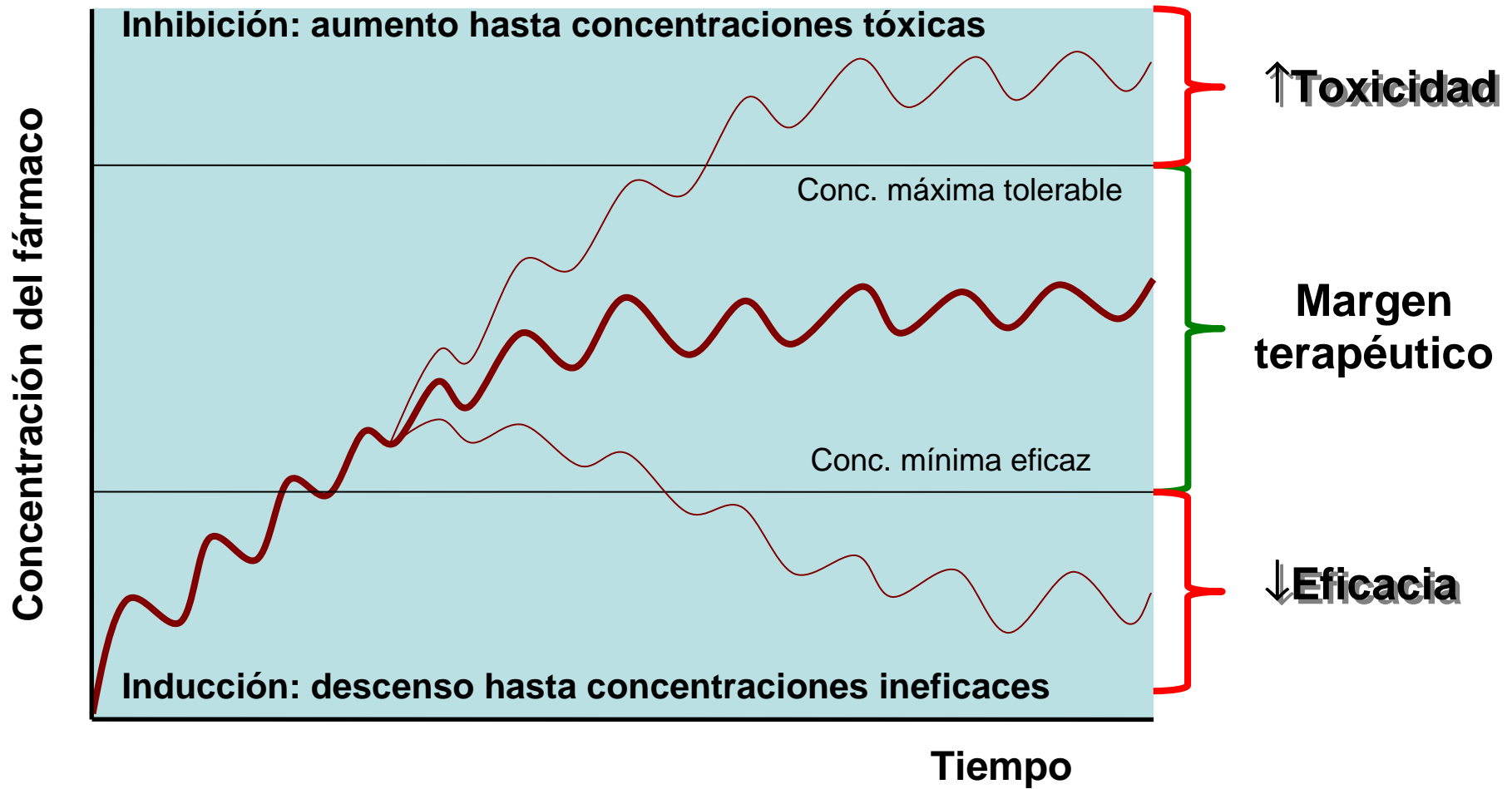
## Túbulos proximales (riñón)



## Barrera hematoencefálica



# Interacciones relevantes a nivel del metabolismo



Proteínas reguladoras nucleares (PXR, CAR, FXR)

Gen

MDR-1

Rifampicina  
NVP EFV

Inducción  
Síntesis proteica

**Inducción:  
Efecto lento**

CYP450

Glicoproteina P  
MRPs

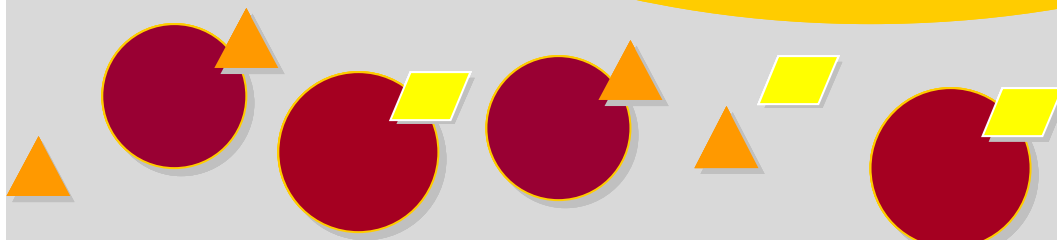
Metabolismo

Bombas de eflujo

**Inhibición:  
Efecto rápido**

**Inhibición  
competitiva**

IPs

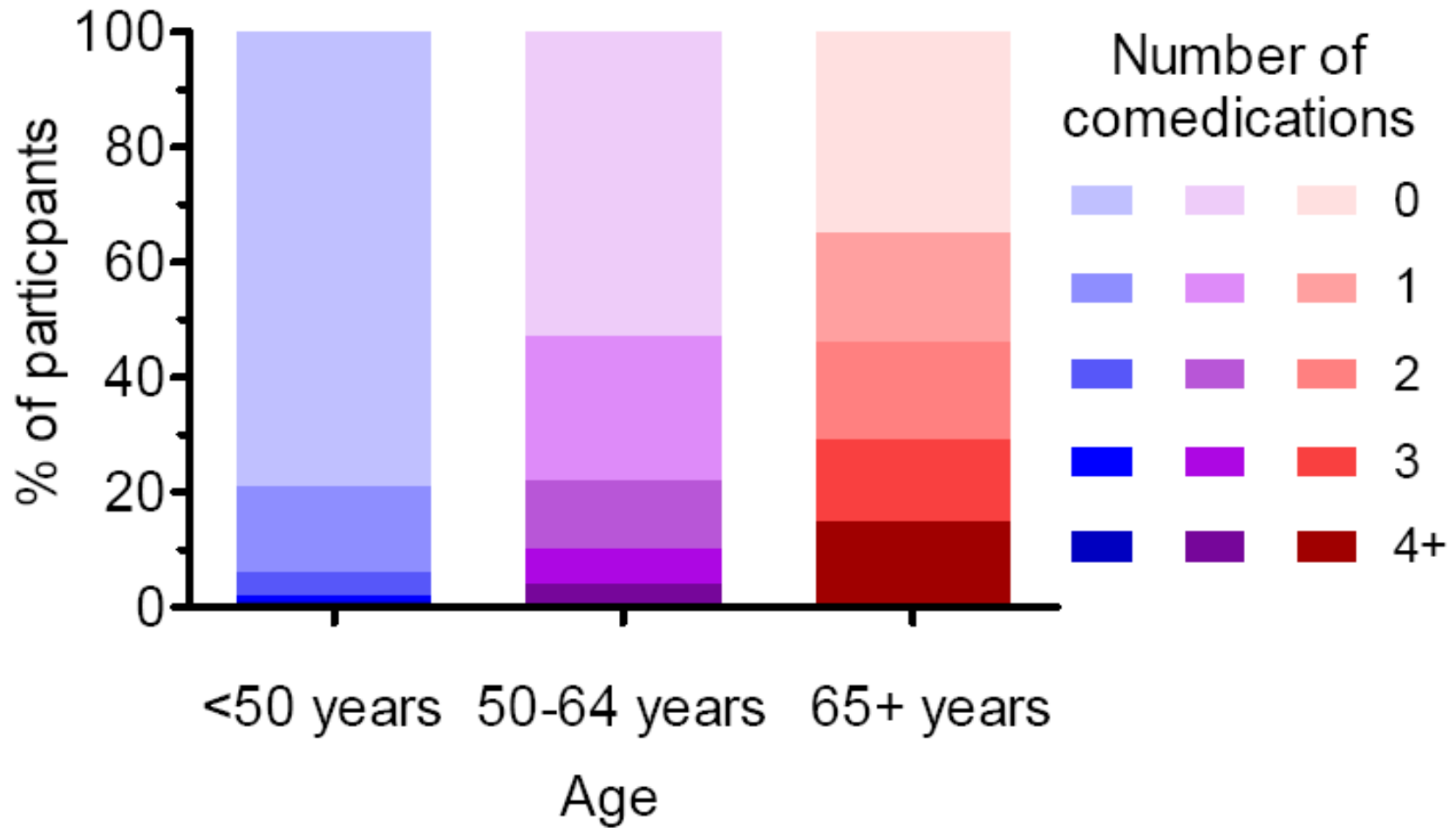


# Potencial de interacciones de los ARV

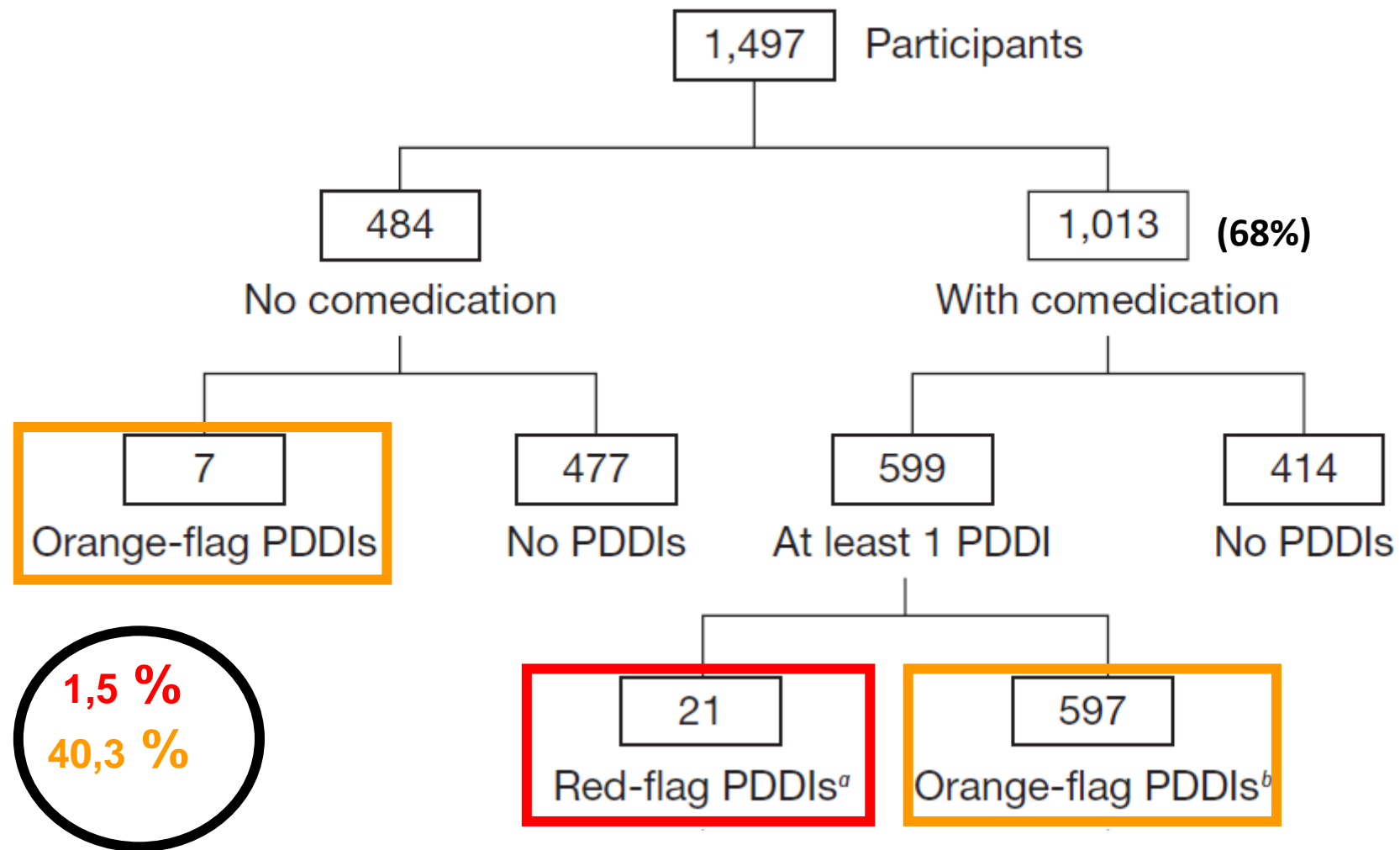
- **ITIAN** → **ESCASO**
  - Eliminación renal, con o sin conjugación previa
- **ITINN** → **IMPORTANTE**
  - Todos se metabolizan: sustratos del CYP
  - **Inductores** (CYP, Gp-P, UDPGT). Inhiben algún isozima del CYP →
- **IP/r** **MUY IMPORTANTE**
  - **Todos se metabolizan**: sustratos del CYP
  - Inhibidores potentes del CYP. Variable Gp-P y UDPGT).
- **Inhibidor de la fusión (enfuvirtida)** **ESCASO**
  - Vía parenteral. Catabolismo de las proteínas y aminoácidos →
- **Inhibidores de CCR5 (maraviroc)** **ESCASO**
  - Metabolismo: sustrato CYP. No inductor, ni inhibidor →
- **Inhibidores integrasa (raltegravir)** **ESCASO**
  - Metabolismo: sustrato de UGT. No inductor, ni inhibidor

## **Principales interacciones PK de interés en atención primaria**

# Polimedicación según la edad en VIH



# Prevalence of comedICATIONS and effect of potential drug-drug interactions in the Swiss HIV Cohort Study



# Prevalence of comedications and effect of potential drug–drug interactions in the Swiss HIV Cohort Study

Immunosuppressants 4%

Hormones 3%

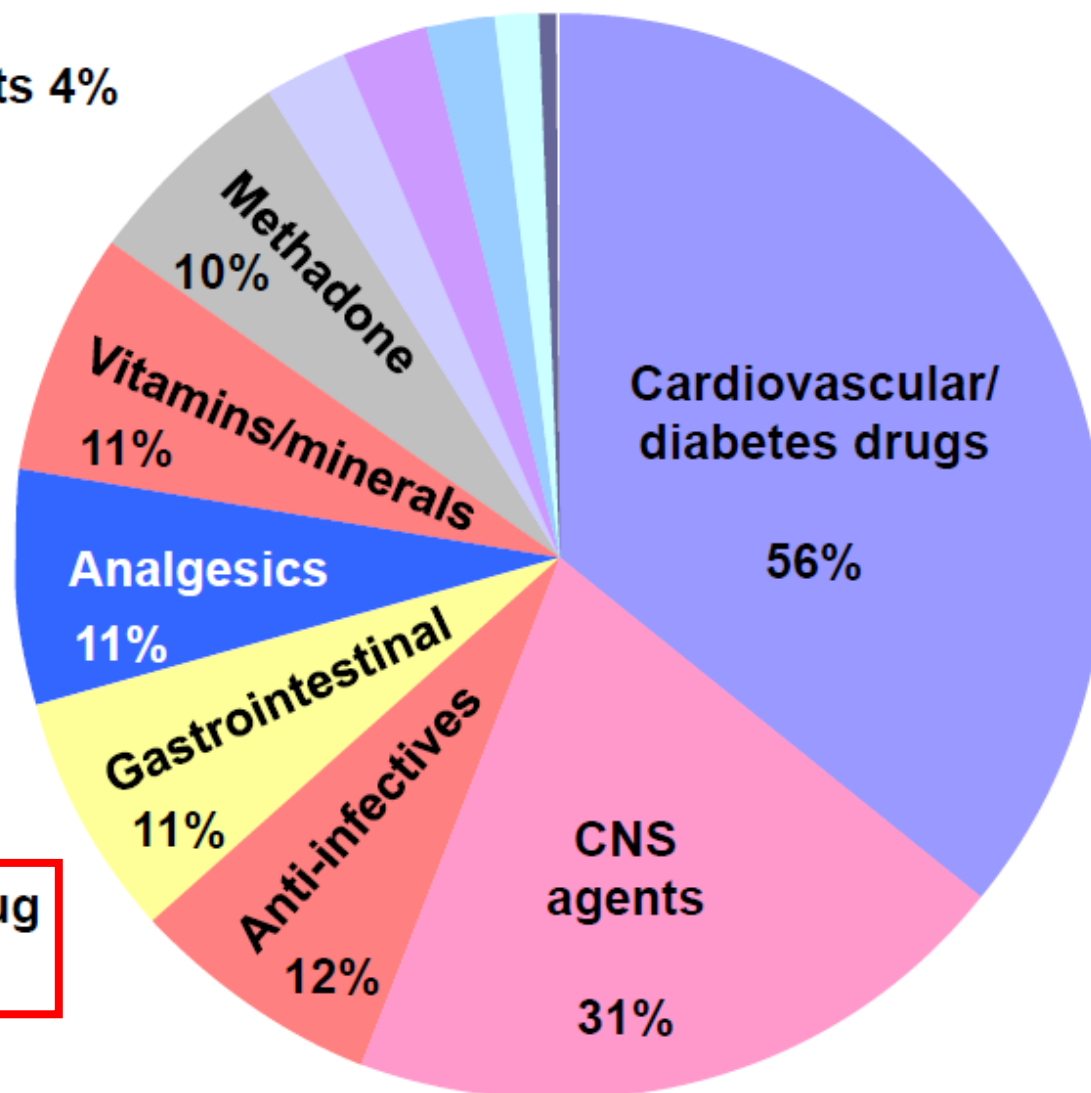
Bronchodilators 3%

Antihistamines 2%

Herbals 1%

**Co-medication:  
1013/1497 (68%)**

**At least 1 drug–drug  
interaction in 40%**



# **Fármacos con elevado potencial de interacciones con los ARV (ITINN , IP/r)**

## **Sustratos de CYP450 + estrecho margen terapéutico**

- **Estatinas (esp. simvastatina)**
- **Antiarrítmicos, anticoagulantes orales...**
- **SNC: Anticomiciales, algunas benzodiazepinas (esp. midazolam, triazolam), antidepresivos**
- **Derivados ergóticos (migraña)**
- **Metadona**
- **Sildenafil**
- **Anticonceptivos orales**

# ARV – Hipolipemiantes

	Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
CARDIOVASCULAR DRUGS	atorvastatin	↑	↑	↑	↑	↓	↓	↓*	↔	↔
	fluvastatin	↔*	↔*	↔*	↔*		↑*		↔*	↔*
	pravastatin	↔*	↑	↔	↔	↓	↓*	↔*	↔	↔
	rosuvastatin	↑	↑*	↑	↑	↔	↑*	↔	↔	↔
	simvastatin	↑	↑	↑	↑	↓	↓*	↓*	↔	↔

IP/r

ITIN  
N

- ↑ = elevated exposure of non-HIV drug
- ↓ = decreased exposure of non-HIV drug
- ↔ = no significant effect
- E = elevated exposure of HIV drug
- D = decreased exposure of HIV drug
- \* = prediction based on metabolic profiles of the drugs only, no clinical data from interaction study, absence of \* indicates that clinical data are available
- \*\* = effect with unboosted ATV. Boosted ATV ↓ lamotrigine and ethinylestradiol

- red = these drugs should not be coadministered
- amber = potential interaction which may require close monitoring or alteration of drug dosage or timing of administration
- green = no clinically significant interaction expected

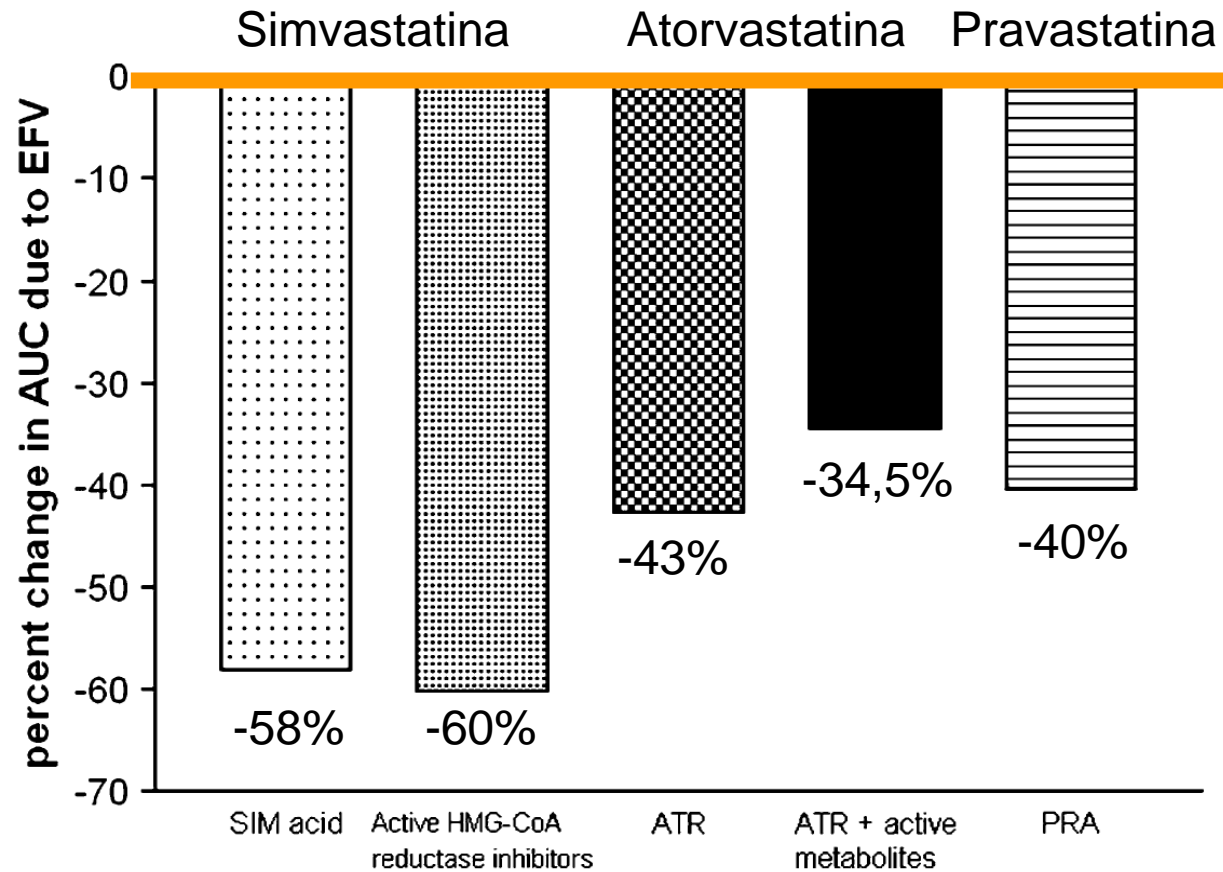
# ARV – Hipolipemiantes

Lipid Lowering Agents	Atazanavir	Darunavir	Lopinavir	Efavirenz	Nevirapine	Raltegravir
Atorvastatin	□	□	□	□	□	◇
Ezetimibe	□	◇	◇	◇	◇	◇
Fluvastatin	◇	◇	◇	□	◇	◇
Lovastatin	●	●	●	□	□	◇
Pravastatin	◇	□	◇	□	◇	◇
Rosuvastatin	□	□	□	◇	◇	◇
Simvastatin	●	●	●	□	□	◇

● **Contraindicado (OJO simvastatina e IPs)**

Posible toxicidad grave con simvastatina + IP/r

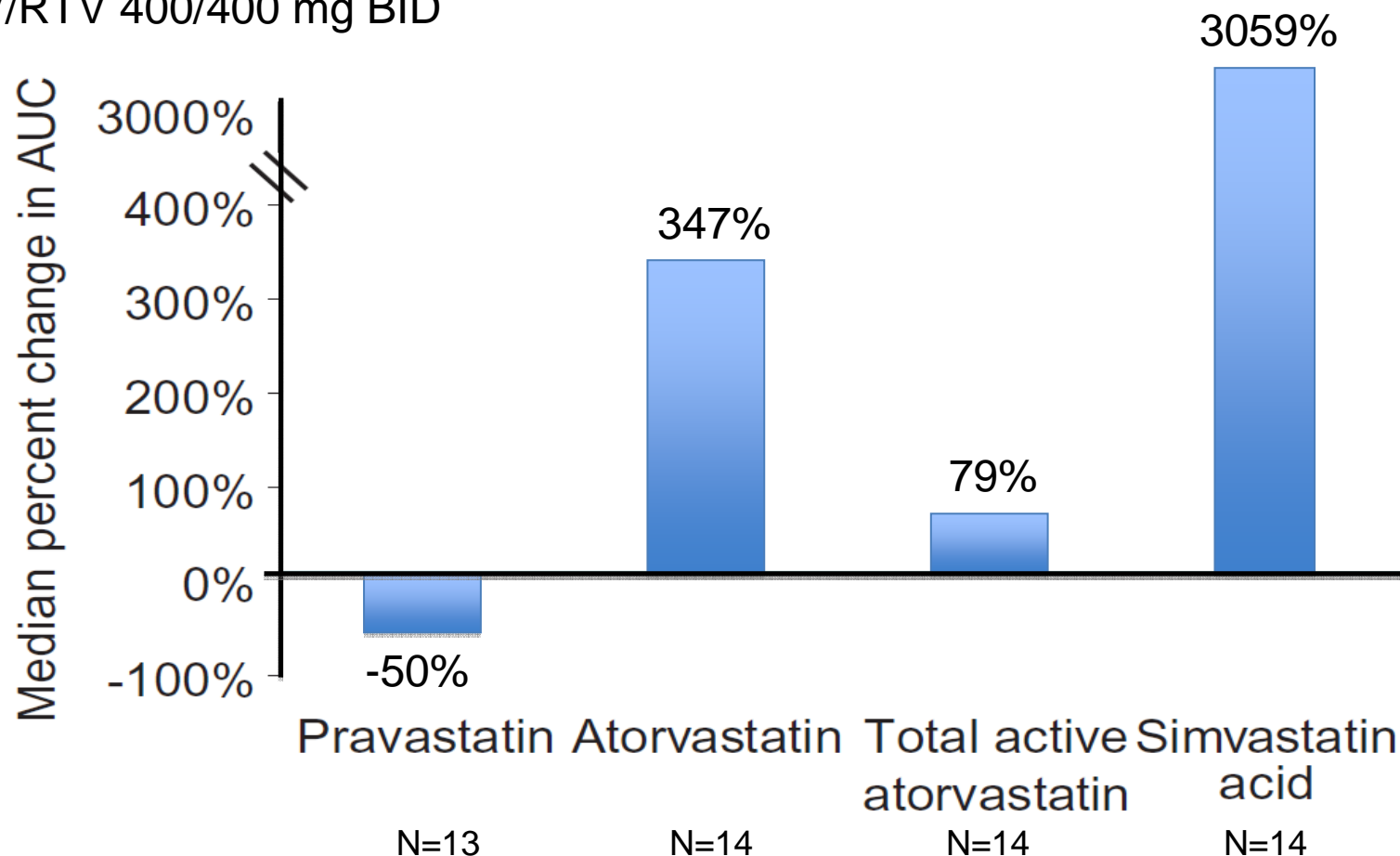
## ACTG 5108: Efecto de Efavirenz en AUC<sub>24h</sub> de simvastatina, atorvastatina y pravastatina



**Menor eficacia hipolipemiante de las estatinas asociadas a EFV o NVP**

## ACTG A5047: Interacciones PK entre IP/r y estatinas

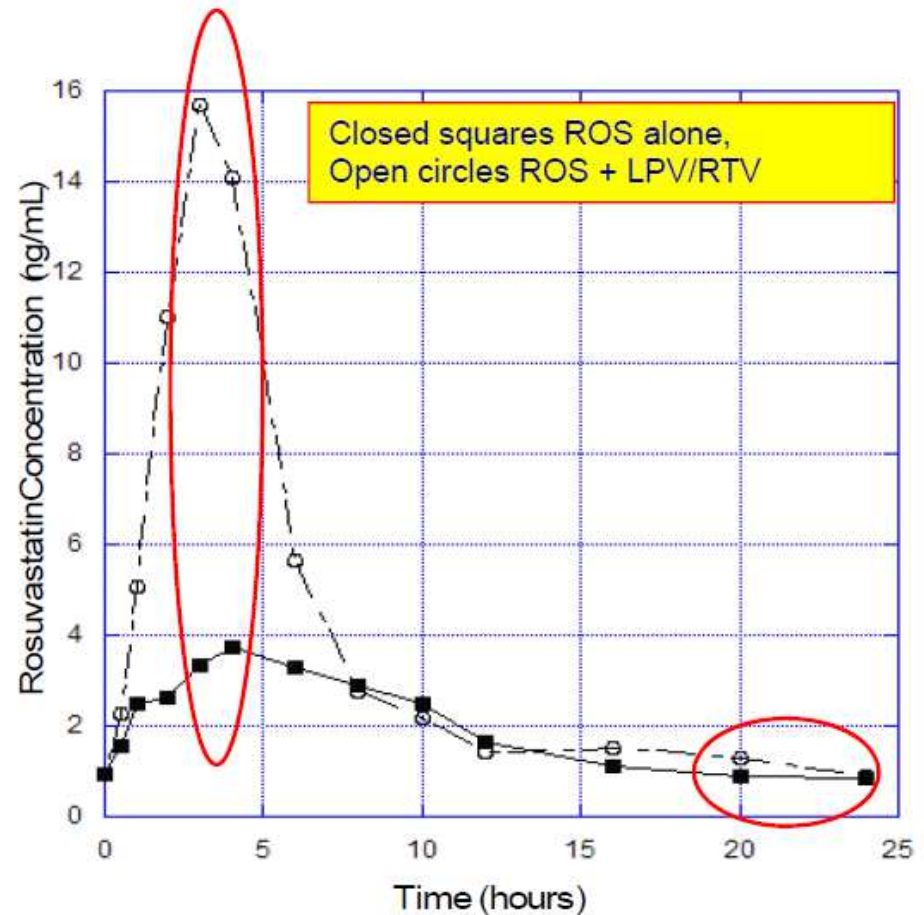
SQV/RTV 400/400 mg BID



**Posible toxicidad grave (rabdomiolisis) al asociar simvastatina e IP/r**

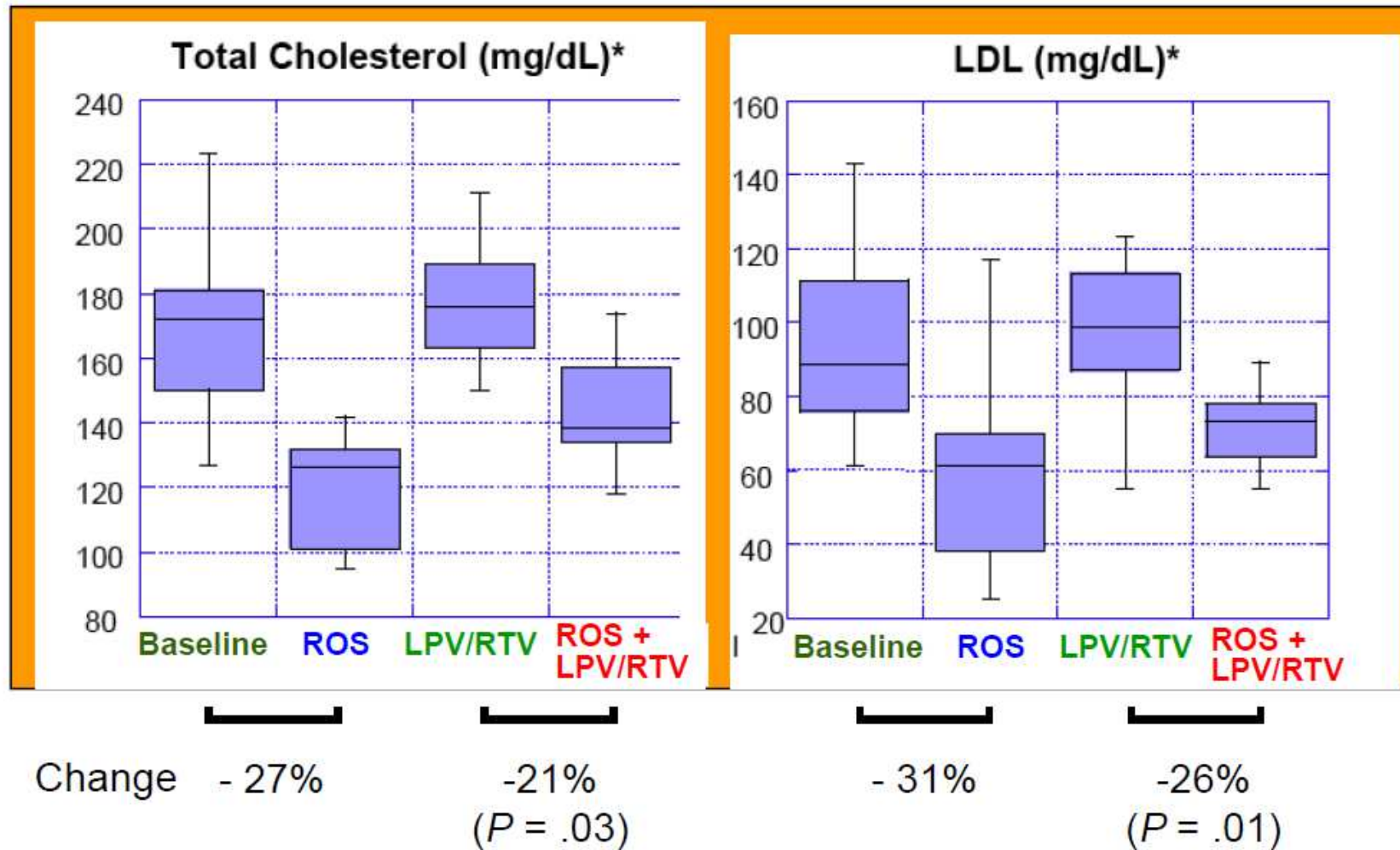
# Rosuvastatina – LPV/r

- In 15 healthy volunteers receiving ROS, 20 mg/d, LPV/r caused a:
  - 4.7-fold increase in ROS C<sub>max</sub>,
  - 2.1-fold increase in ROS AUC;
  - C<sub>min</sub> unchanged
- Half-life unchanged; argues against CYP-mediated interaction
- Is there a role for transporters?



➤ adverse effects such as myalgias, rhabdomyolysis, elevated creatinine phosphokinase (CPK) (2 patients), and hepatic dysfunction

# Rosuvastatina – LPV/r: ↓ el efecto de la estatina



# Recomendaciones Hipolipemiantes + IP/r oITINN

DRUG CLASS	DRUG	DOSE	SIDE EFFECTS	ADVISE ON USE OF STATIN TOGETHER WITH ART	
				use with PI/r	use with NNRTI
Statin <sup>(i)</sup>	Atorvastatin <sup>(iii)</sup>	10-80 mg qd	Gastrointestinal symptoms, headache, insomnia, rhabdomyolysis (rare) and toxic hepatitis	Start with low dose <sup>(v)</sup> (max: 40 mg)	Consider higher dose <sup>(vi)</sup>
	Fluvastatin <sup>(iii)</sup>	20-80 mg qd		Consider higher dose <sup>(vi)</sup>	Consider higher dose <sup>(vi)</sup>
	Pravastatin <sup>(iii)</sup>	20-80 mg qd		Consider higher dose <sup>(vi,vii)</sup>	Consider higher dose <sup>(vi)</sup>
	Rosuvastatin <sup>(ii)</sup>	5-40 mg qd		Start with low dose <sup>(v)</sup> (max: 20 mg)	Start with low dose <sup>(v)</sup>
	Simvastatin <sup>(iii)</sup>	10-40 mg qd		<b>Contraindicated</b>	Consider higher dose <sup>(vi)</sup>
Cholesterol uptake↓ <sup>(i)</sup>	Ezetimibe <sup>(iv)</sup>	10 mg qd	Gastrointestinal symptoms	No known drug-drug interactions with ART	

**Simvastatina contraindicada con IP/r**

# ARV – Cardiovascular

	Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
CARDIOVASCULAR DRUGS	atorvastatin	↑	↑	↑	↑	↓	↓	↓*	↔	↔
	fluvastatin	↔*	↔*	↔*	↔*		↑*		↔*	↔*
	pravastatin	↔*	↑	↔	↔	↓	↓*	↔*	↔	↔
	rosuvastatin	↑	↑*	↑	↑	↔	↑*	↔	↔	↔
	simvastatin	↑	↑	↑	↑	↓	↓*	↓*	↔	↔
	amlodipine	↑*(iii)	↑*	↑*	↑*	↓*	↓*	↓*	↔*	↔
	diltiazem	↑(iii)	↑*	↑	↑	↓	↓*	↓	E*	↔
	metoprolol	↑*	↑*	↑*	↑*	↔*	↔*	↔*	↔*	↔*
	verapamil	↑*(iii)	↑*	↑*	↑*	↓*	↓*	↓*	E*	↔*
	warfarin	↑ or ↓*	↓	↓	↓	↓	↑ or ↓*	↑*	↑ or ↓*	↔*

- ↑ = elevated exposure of non-HIV drug
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- E = elevated exposure of HIV drug
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iii ECG monitoring is recommended

# ARV – Cardiovascular

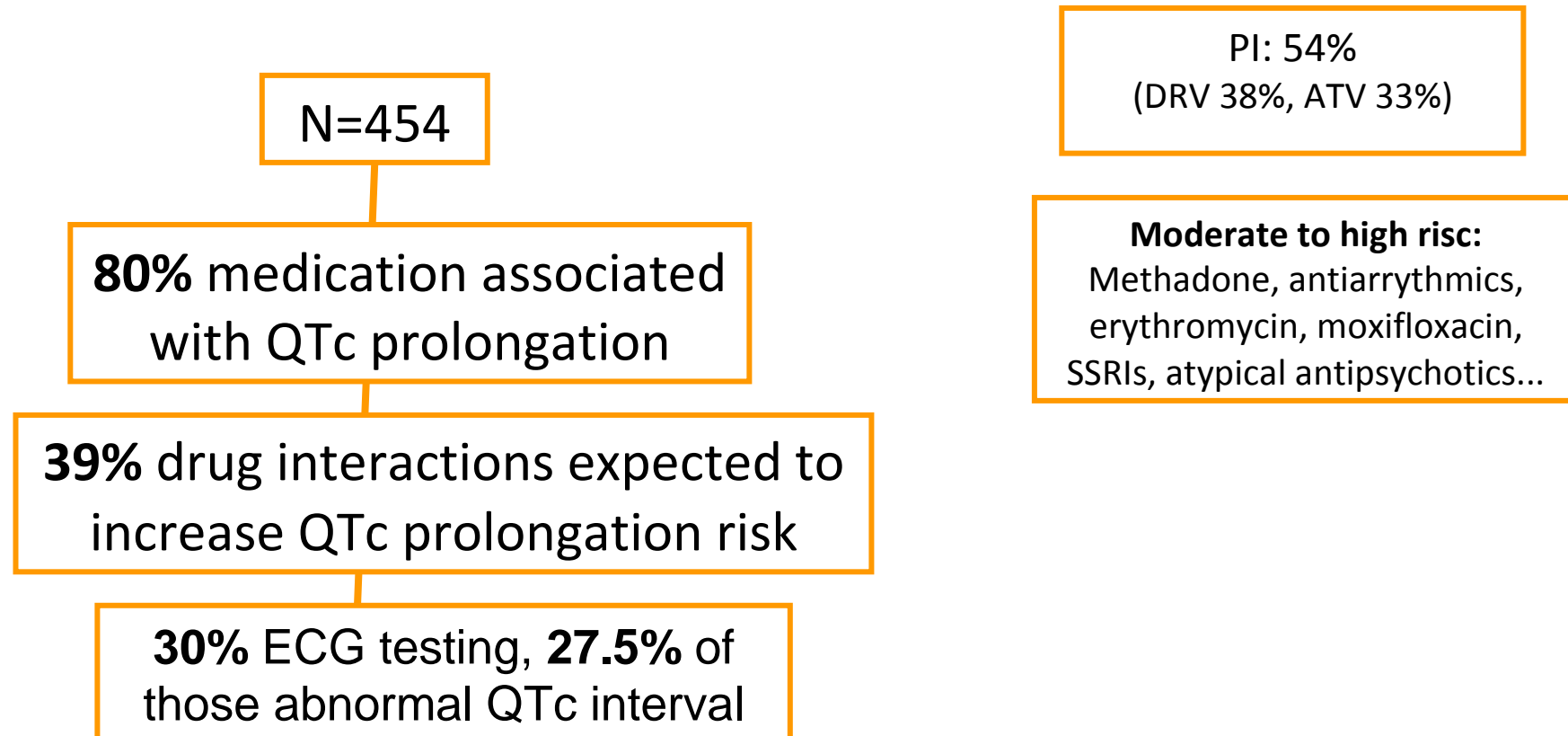
	Non-HIV drugs	ATV	DRV	LPV	RTV (iii)	EFV	ETV	NVP	MVC	RAL
CARDIOVASCULAR DRUGS	atorvastatin	↑	↑	↑	↑	↓	↓	↓*	↔	↔
	fluvastatin	↔*	↔*	↔*	↔*		↑*		↔*	↔*
	pravastatin	↔*	↑	↔	↔	↓	↓*	↔*	↔	↔
	rosuvastatin	↑	↑*	↑	↑	↔	↑*	↔	↔	↔
	simvastatin	↑	↑	↑	↑	↓	↓*	↓*	↔	↔
	amlodipine	↑*(iii)	↑*	↑*	↑*	↓*	↓*	↓*	↔*	↔
	diltiazem	↑(iii)	↑*	↑	↑	↓	↓*	↓	E*	↔
	metoprolol	↑*	↑*	↑*	↑*	↔*	↔*	↔*	↔*	↔*
	verapamil	↑*(iii)	↑*	↑*	↑*	↓*	↓*	↓*	E*	↔*
	warfarin	↑ or ↓*	↓	↓	↓	↓	↑ or ↓*	↑*	↑ or ↓*	↔*

+ **ITINN** = menor eficacia terapéutica  
 + **IP/r** = mayor toxicidad potencialmente grave

iii ECG monitoring is recommended

# Frequency of electrocardiogram testing among HIV-infected patients at risk for medication-induced QTc prolongation

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# ARV – Fármacos Neuropsiquiatría

	Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
CNS DRUGS	diazepam	↑*	↑*	↑*	↑*	↓*	↑*	↓*	↔*	↔*
	midazolam	↑	↑	↑	↑	↑			↔	↔
	triazolam	↑	↑	↑	↑	↑			↔*	↔*
	citalopram	↑*	↑*	↑*	↑*	↓*	↑*	↓*	↔*	↔*
	mirtazapine	↑*	↑*	↑*	↑*	↓*	↓*	↓*	↔*	↔*
	paroxetine	↑*	↓	↑*	↑	↔	↔	↔*	↔*	↔*
	sertraline	↑*	↓	↑*	↑	↓	↓*	↓*	↔*	↔*
	pimozide	↑	↑	↑	↑	↑			↔*	↔*
	carbamazepine	↑D	↑	↑D	↑	↓D	D	↓D	D	D
	lamotrigine	↔**	↔*	↓	↓	↔*	↔*	↔*	↔*	↔*
	phenytoin	D	D	D	↓	↓D	D	↓D	D	D

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CNS DRUGS	diazepam	↑*	↑*	↑*	↑*	↓*	↑*	↓*	↔*	↔*
	midazolam	↑	↑	↑	↑	↑			↔	↔
	triazolam	↑	↑	↑	↑	↑			↔*	↔*
	citalopram	↑*	↑*	↑*	↑*	↓*	↑*	↓*	↔*	↔*
	mirtazapine	↑*	↑*	↑*	↑*	↓*	↓*	↓*	↔*	↔*
	paroxetine	↑*	↓	↑*	↑	↔	↔	↔*	↔*	↔*
	sertraline	↑*	↓	↑*	↑	↓	↓*	↓*	↔*	↔*
	pimozide	↑	↑	↑	↑	↑			↔*	↔*
	carbamazepine	↑D	↑	↑D	↑	↓D	D	↓D	D	D
	lamotrigine	↔**	↔*	↓	↓	↔*	↔*	↔*	↔*	↔*
phenytoin	D	D	D	↓	↓D	D	↓D	D	D	

↑ = elevated exposure of non-HIV drug  
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	Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
CNS DRUGS	diazepam	↑*	↑*	↑*	↑*	↓*	↑*	↓*	↔*	↔*
	midazolam	↑	↑	↑	↑	↑			↔	↔
	triazolam	↑	↑	↑	↑	↑			↔*	↔*
	citalopram	↑*	↑*	↑*	↑*	↓*	↑*	↓*	↔*	↔*
	mirtazapine	↑*	↑*	↑*	↑*	↓*	↓*	↓*	↔*	↔*
	paroxetine	↑*	↓	↑*	↑	↔	↔	↔*	↔*	↔*
	sertraline	↑*	↓	↑*	↑	↓	↓*	↓*	↔*	↔*
	pimozide	↑	↑	↑	↑	↑			↔*	↔*
	carbamazepine	↑D	↑	↑D	↑	↓D	D	↓D	D	D
	lamotrigine	↔**	↔*	↓	↓	↔*	↔*	↔*	↔*	↔*
phenytoin	D	D	D	↓	↓D	D	↓D	D	D	

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# ARV – Antidepresivos

## Antidepresivos tricíclicos

(amitriptilina, imipramina, desimipramina, doxepina, nortriptilina)

- Monitorizar signos de toxicidad con IP/r:
  - Efectos secundarios anticolinérgicos (ortostatismo, sedación)
  - Aumento de peso
  - Alteraciones conducción cardíaca (prolongación QT) (sobredosis)
- Monitorizar eficacia con ITINN

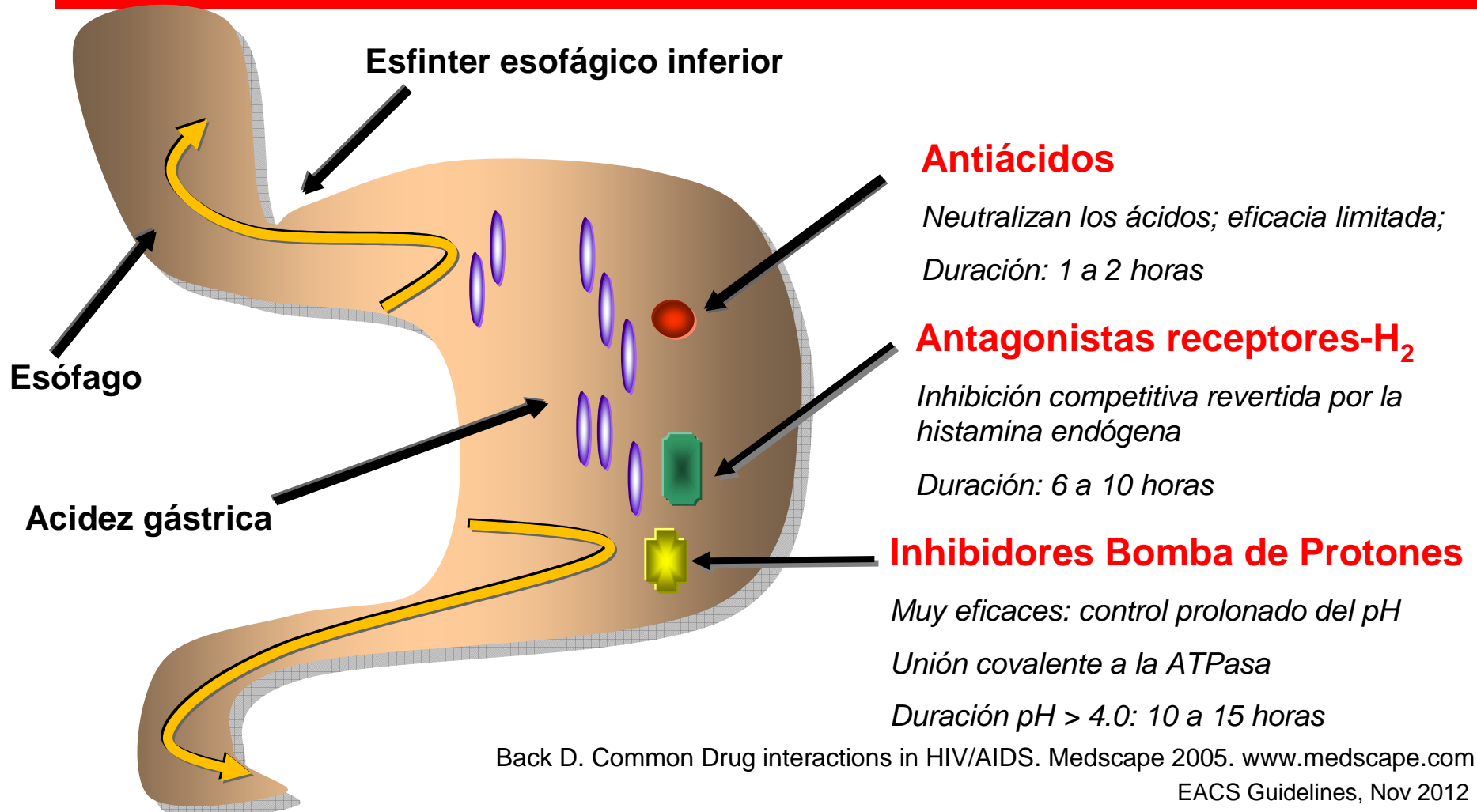
## Antidepresivos inhibidores de la recaptación de serotonina

(fluoxetina, citalopram, paroxetina, sertralina)

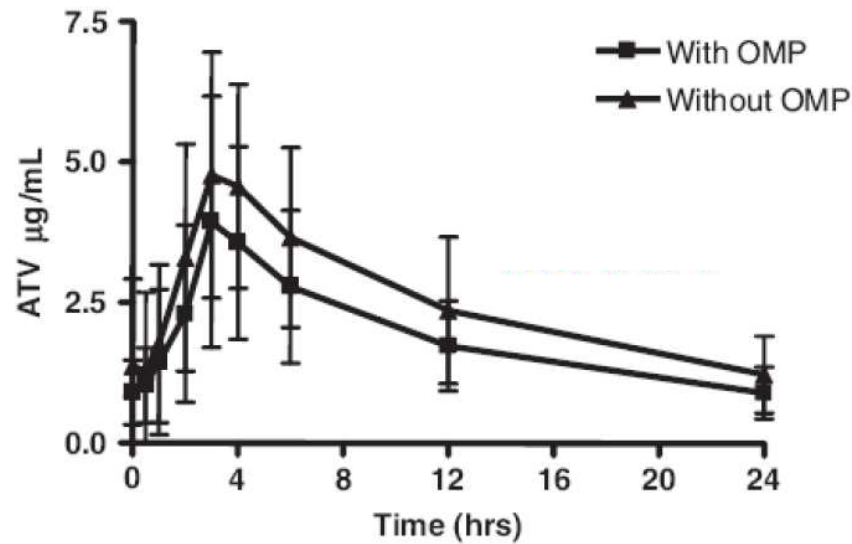
- Monitorizar signos de toxicidad con IP/r (excepto DRV y FPV) y efavirenz:
  - Síndrome serotoninérgico: alteraciones mentales (intranquilidad, agitación, confusión, desorientación, hasta coma), hiperactividad autonómica (fiebre, taquicardia, diarrea, vómitos, diaforesis y dilatación pupilar) y trastornos neuromusculares (temblores, mioclonías, rigidez, hiperreflexia, ataxia).
- Monitorizar eficacia con ITINN (excepto efavirenz) y DRV y FPV

# ARV – Fármacos que disminuyen la acidez gástrica

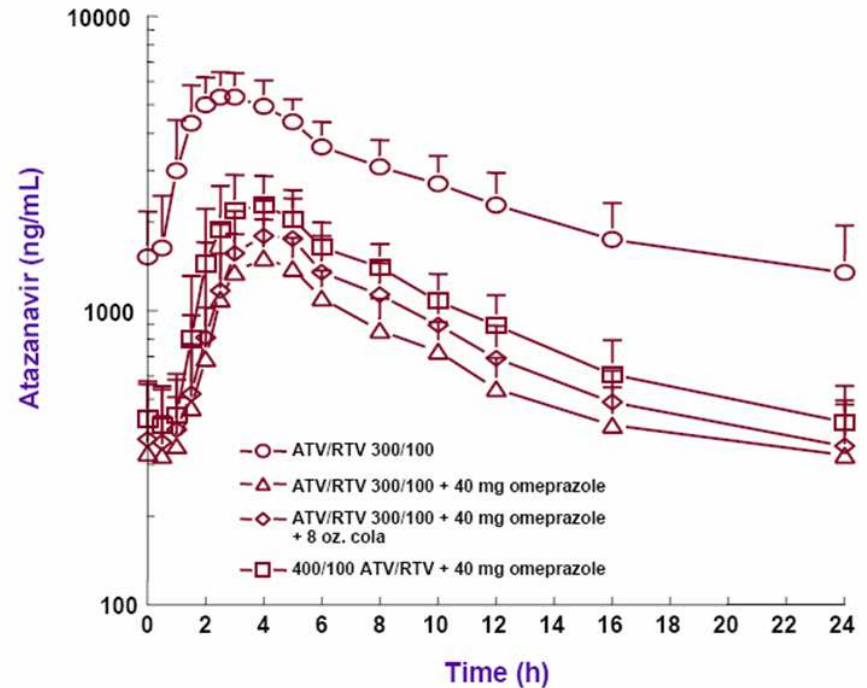
Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
antacids	D	↔	↔		↔	↔*	↔	↔*	E
PPIs	D	↔	↔	↔	↔	↔	↔	↔*	E
H2 blockers	D	↔	↔	↔	↔	↔	↔	↔*	E



# Efecto de Omeprazol sobre Atazanavir/r

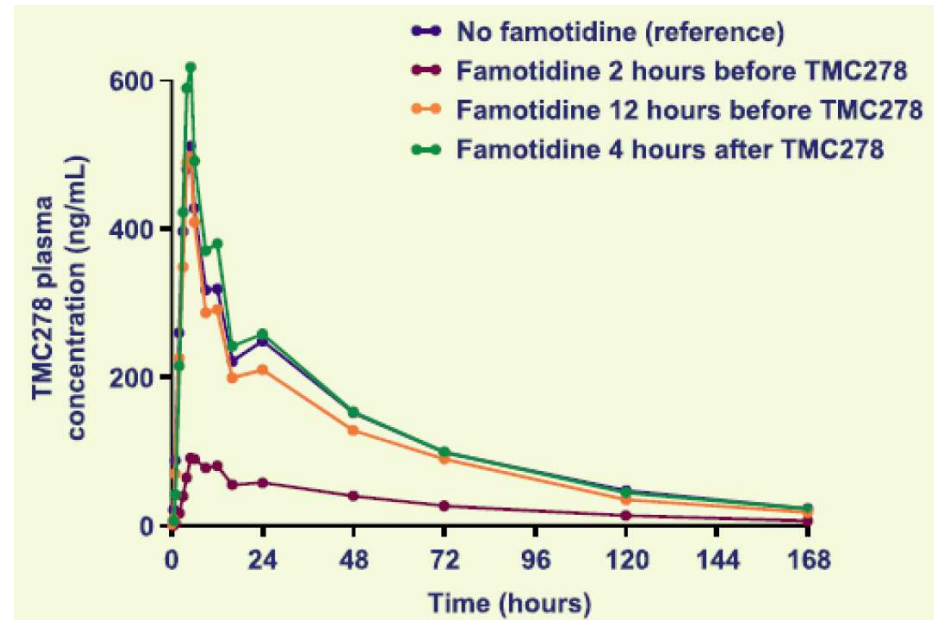
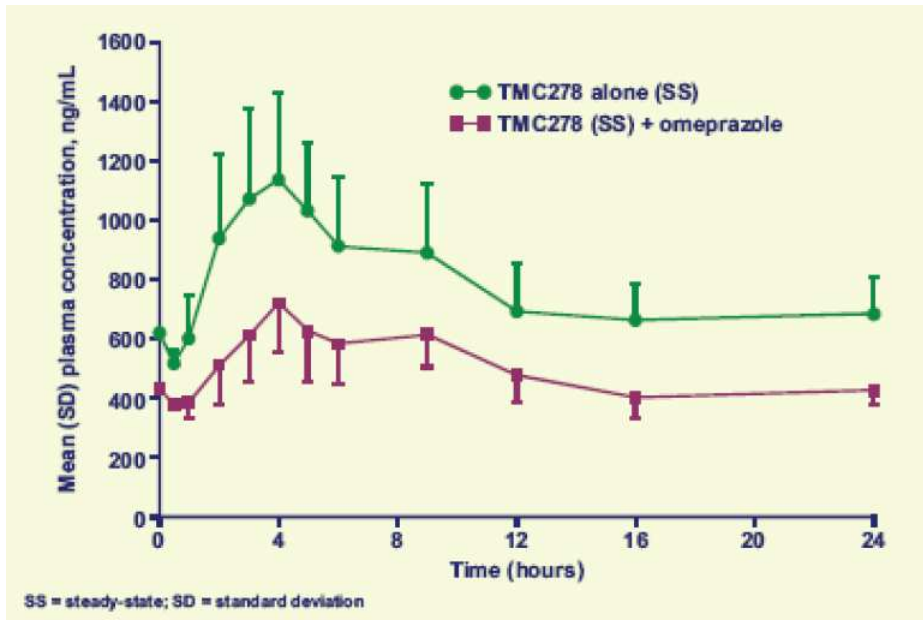


ATV/rtv 300/100 qd morning +  
 OMP 20 mg evening  
 Reduced ATV AUV by 27%



ATV/rtv 300/100 mg qd + OMP 40 mg  
 reduced ATV AUC by 76%  
 (CROI 2005, #658)

# Efecto de Omeprazol sobre Rilpivirina



**RPV + OMP 20 mg**  
Reduced RPV AUV by 40%

**contraindicado**

**RPV + Famotidina**

Administrar famotidina QD  
12 h antes o 4 horas después  
que RPV

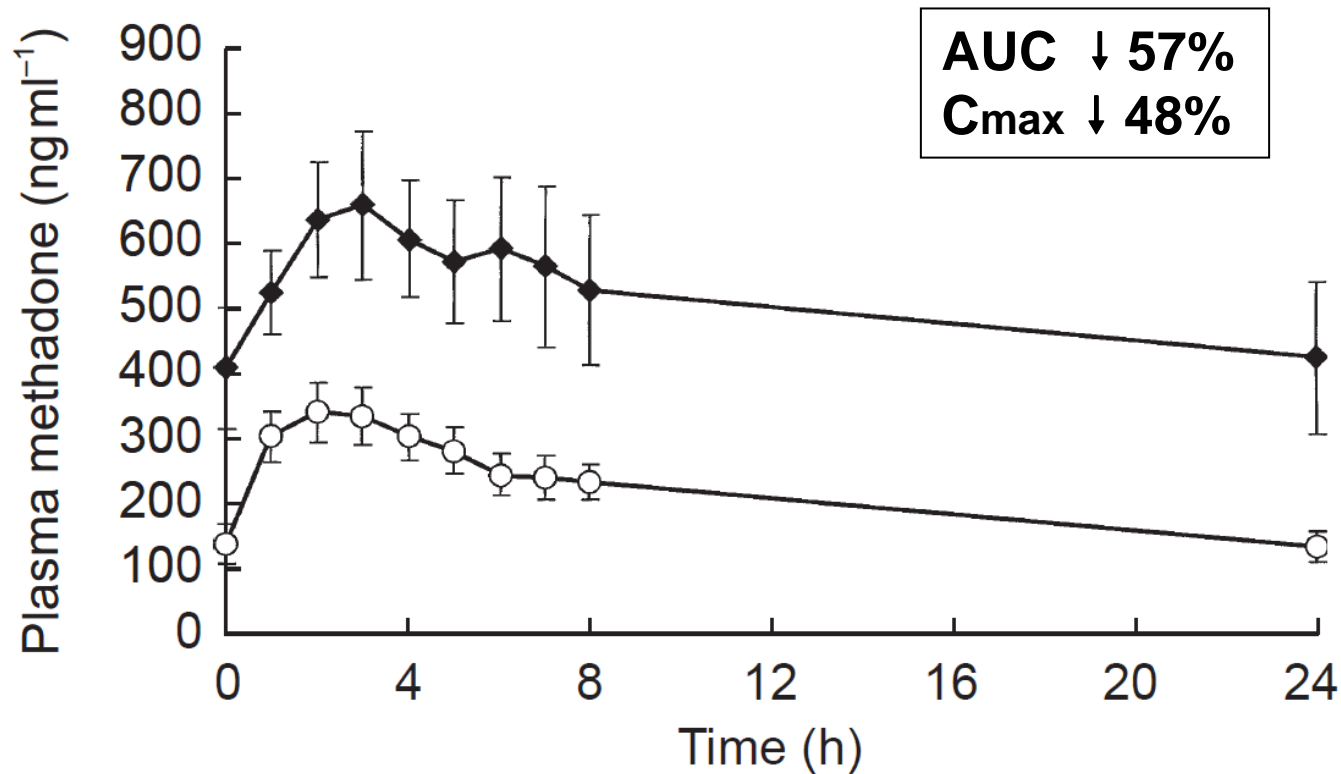
# ARV – Miscelanea

	Non-HIV drugs	ATV	DRV	LPV	RTV (iii)	EFV	ETV	NVP	MVC	RAL
MISCELLANEOUS	antacids	D	↔	↔		↔	↔*	↔	↔*	E
	PPIs	D	↔	↔	↔	↔	↔	↔	↔*	E
	H2 blockers	D	↔	↔	↔	↔	↔	↔	↔*	E
	alfuzosin	↑	↑	↑	↑	↓*	↓*	↓*	↔*	↔*
	buprenorphine	↑	↑	↔	↑	↓	↓*	↓*	↔	↔
	budesonide inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	ergot derivatives	↑	↑	↑	↑	↑	↑*		↔*	↔*
	ethinylestradiol	↑**	↓	↓	↓		↔	↓	↔	↔
	fluticasone inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	methadone	↔	↓	↓	↓	↓	↔	↓	↔*	↔
	salmeterol inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	sildenafil	↑*	↑	↑	↑	↓*	↓	↓*	↔*	↔
St John's wort	D	D	D	D	D	D	D	D	↔	

↑ = elevated exposure of non-HIV drug  
 ↓ = decreased exposure of non-HIV drug  
 ↔ = no significant effect  
 E = elevated exposure of HIV drug  
 D = decreased exposure of HIV drug

red = these drugs should not be coadministered  
 amber = potential interaction which may require close monitoring or alteration of drug dosage or timing of administration  
 green = no clinically significant interaction expected

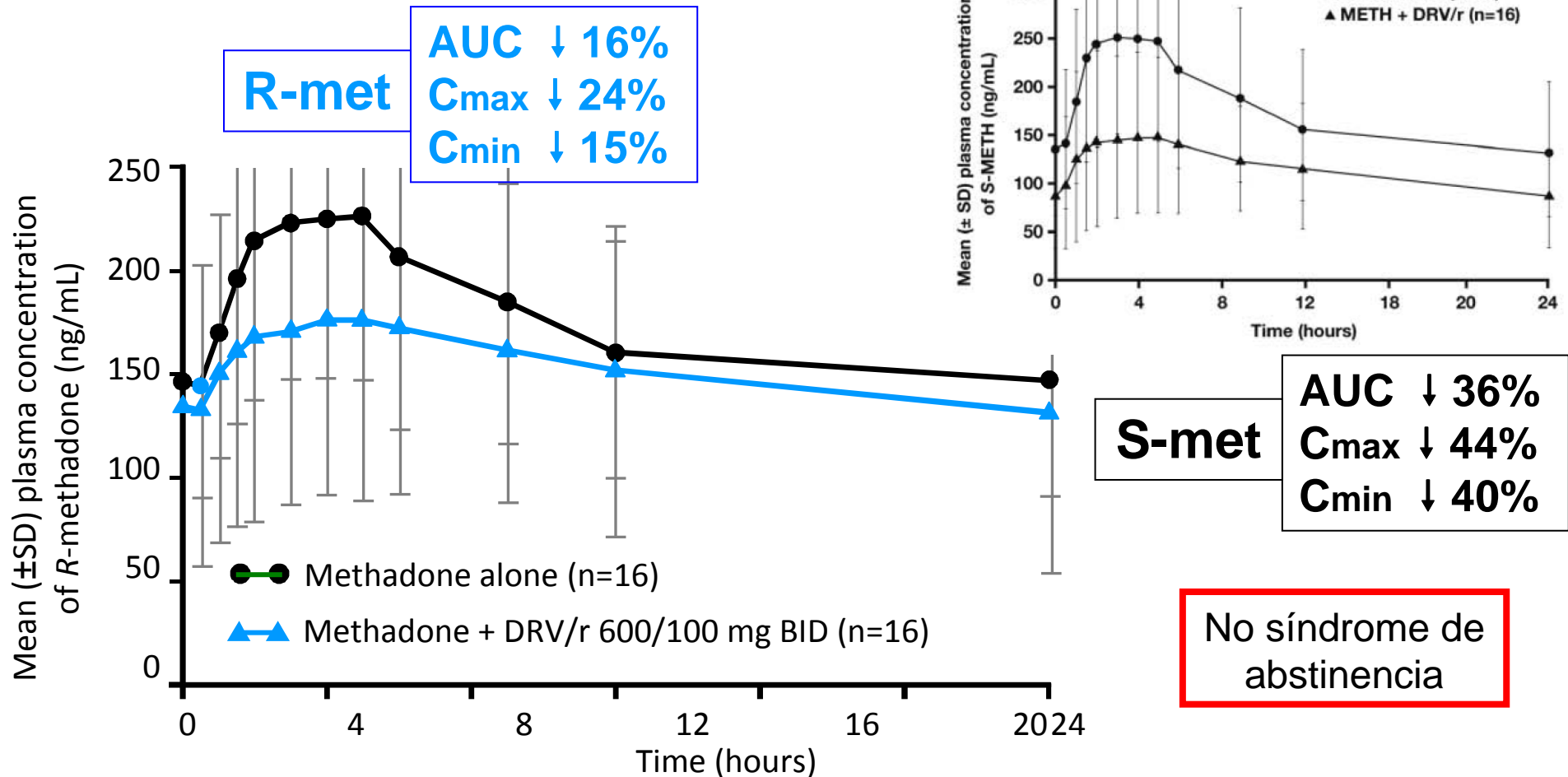
## Efecto de Efavirenz en conc. de Metadona



**9/11 (82%) presentaron síntomas de abstinencia a metadona (días 8-10), requiriendo un aumento de dosis del 22% (< al 50%)**

# Efecto de Darunavir/r en conc. de Metadona

## Estereoisómero activo



## Interacciones PK metadona - ARV

- **Metadona: no modifica [ARV]**
- **Efavirenz y Nevirapina (NN):**
  - ↓ considerable de [metadona]
  - Síndrome de abstinencia a opiáceos
  - Aumento de las dosis de metadona (8-10 días)
- **Etravirina. rilpivirina (NN): No interacción valorable**
- **IP/r:**
  - ↓ notable de [metadona] (ppal. de S-metadona, escasa de R-)
  - Escasas diferencias entre los IPs (ATV/r menos interacción, TPV/r y LPV/r más.)
  - No suele requerir aumento de dosis (casos aislados)
- **Raltegravir: No interacción valorable con metadona**

# ARV – Miscelanea

	Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
MISCELLANEOUS	antacids	D	↔	↔		↔	↔*	↔	↔*	E
	PPIs	D	↔	↔	↔	↔	↔	↔	↔*	E
	H2 blockers	D	↔	↔	↔	↔	↔	↔	↔*	E
	alfuzosin	↑	↑	↑	↑	↓*	↓*	↓*	↔*	↔*
	buprenorphine	↑	↑	↔	↑	↓	↓*	↓*	↔	↔
	budesonide inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	ergot derivatives	↑	↑	↑	↑	↑	↑*		↔*	↔*
	ethinylestradiol	↑**	↓	↓	↓		↔	↓	↔	↔
	fluticasone inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	methadone	↔	↓	↓	↓	↓	↔	↓	↔*	↔
	salmeterol inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	sildenafil	↑*	↑	↑	↑	↓*	↓	↓*	↔*	↔
St John's wort	D	D	D	D	D	D	D	D	↔	

↑ = elevated exposure of non-HIV drug  
 ↓ = decreased exposure of non-HIV drug  
 ↔ = no significant effect  
 E = elevated exposure of HIV drug  
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red = these drugs should not be coadministered  
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 green = no clinically significant interaction expected

# IP/r → ↑ Corticoides (Sme. de Cushing...)

Drug	Oral	Inhaled	Topical	Eye/ear drops	Injection	Rectal
Budesonide <i>CYP3A4</i>	✓	✓				✓
Dexamethasone <i>CYP3A4</i>	✓		✓	✓	✓	
Fludrocortisone <i>CYP3A4</i>	✓					
Fluticasone <i>CYP3A4</i>		✓	✓			
Hydrocortisone <i>CYP3A4</i>			✓	✓	✓	✓
Prednisolone <i>CYP3A4</i>	✓		✓	✓	✓	✓
Beclomethasone <i>Esterase to active met</i>		✓				
Triamcinolone <i>CYP3A4</i>	✓	✓	✓		✓	
Mometasone <i>CYP3A4</i>		✓	✓			

# ARV – Miscelanea

	Non-HIV drugs	ATV	DRV	LPV	RTV <sup>(iii)</sup>	EFV	ETV	NVP	MVC	RAL
MISCELLANEOUS	antacids	D	↔	↔		↔	↔*	↔	↔*	E
	PPIs	D	↔	↔	↔	↔	↔	↔	↔*	E
	H2 blockers	D	↔	↔	↔	↔	↔	↔	↔*	E
	alfuzosin	↑	↑	↑	↑	↓*	↓*	↓*	↔*	↔*
	buprenorphine	↑	↑	↔	↑	↓	↓*	↓*	↔	↔
	budesonide inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	ergot derivatives	↑	↑	↑	↑	↑	↑*		↔*	↔*
	ethinylestradiol	↑**	↓	↓	↓		↔	↓	↔	↔
	fluticasone inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	methadone	↔	↓	↓	↓	↓	↔	↓	↔*	↔
	salmeterol inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	sildenafil	↑*	↑	↑	↑	↓*	↓	↓*	↔*	↔
St John's wort	D	D	D	D	D	D	D	D	↔	

**Absolutamente contrindicados derivados ergóticos (migraña) con IP/r : toxicidad muy grave**

# ARV – Anticonceptivos orales

	Non-HIV drugs	ATV	DRV	LPV	RTV <sup>(iii)</sup>	EFV	ETV	NVP	MVC	RAL
MISCELLANEOUS	antacids	D	↔	↔		↔	↔*	↔	↔*	E
	PPIs	D	↔	↔	↔	↔	↔	↔	↔*	E
	H2 blockers	D	↔	↔	↔	↔	↔	↔	↔*	E
	alfuzosin	↑	↑	↑	↑	↓*	↓*	↓*	↔*	↔*
	buprenorphine	↑	↑	↔	↑	↓	↓*	↓*	↔	↔
	budesonide inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*
	ergot derivatives	↑	↑	↑	↑	↑	↑*		↔*	↔*
	ethinylestradiol	↑**	↓	↓	↓		↔	↓	↔	↔
	fluticasone inhal.	↑	↑	↑	↑	↔*	↔*	↔*	↔*	↔*

- El uso de anticonceptivos hormonales no es raro en la población HIV
- Existen múltiples interacciones con los ITINN y los PI/r
- El efecto puede ser diferente en estrógenos que en progestágenos, con resultados impredecibles
- Riesgo de embarazo y/o de toxicidad
- Selección individualizada tanto del anticonceptivo y el TAR

# ARV – Otros antiinfecciosos

	Non-HIV drugs	ATV	DRV	LPV	RTV (ii)	EFV	ETV	NVP	MVC	RAL
ANTI-INFECTIVES	clarithromycin	↑E	↑	↑	↑	↓	↓E	↓	E	↔*
	fluconazole	↔	↔*	↔	↔	↔	E	E	↔	↔
	itraconazole	↑E	↑E	↑E	↑	↓	↓E	↓	E	↔
	rifabutin	↑	↑E	↑	↑	↓	D			↔
	rifampicin	D	D	D	D	D	D	D	D	D
	voriconazole	↓	↓	↓	↓	↓	↓E	↓E	↓E	E

## Interacciones relevantes entre ARV y macrólidos, algunos azoles y rifamicinas

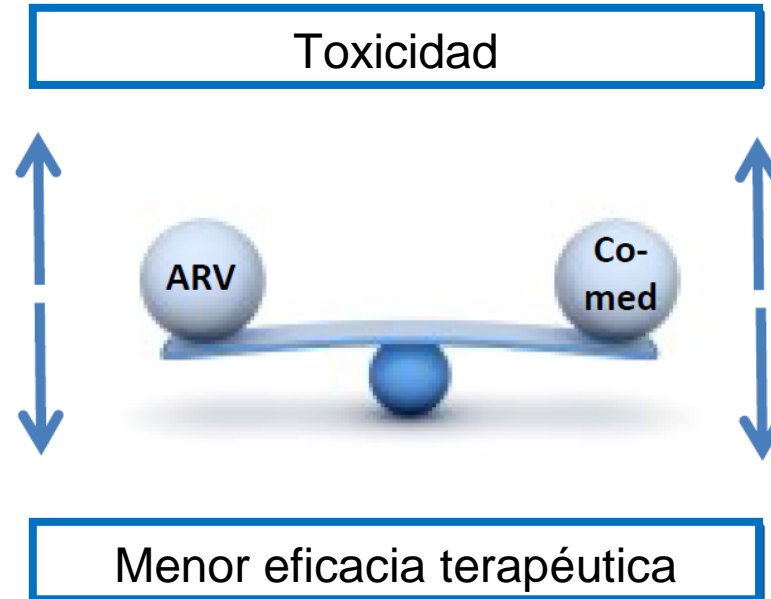
- ↑ = elevated exposure of non-HIV drug
- ↓ = decreased exposure of non-HIV drug
- ↔ = no significant effect
- E = elevated exposure of HIV drug
- D = decreased exposure of HIV drug
- \* = prediction based on metabolic profiles of the drugs only, no clinical data from interaction study, absence of \* indicates that clinical data are available
- \*\* = effect with unboosted ATV. Boosted ATV ↓ lamotrigine and ethinylestradiol

- red = these drugs should not be coadministered
- amber = potential interaction which may require close monitoring or alteration of drug dosage or timing of administration
- green = no clinically significant interaction expected



# TAR – comedificaciones

Valorar siempre la posibilidad de interacciones



- ✓ [www.interaccionesvih.com](http://www.interaccionesvih.com)
- ✓ [www.hiv-druginteractions.org](http://www.hiv-druginteractions.org)
- ✓ [www.medscape.com/druginfo/druginterchecker](http://www.medscape.com/druginfo/druginterchecker)
- ✓ [www.hivinsite.com](http://www.hivinsite.com)
- ✓ [www.clinicaloptions.com](http://www.clinicaloptions.com)
- ✓ [www.hopkins-hivguide.org](http://www.hopkins-hivguide.org)