

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Acenocoumarol ACE	ATV, FPV, IDV, SQV, EFV, LPV/r, TPV, DRV, ETR		B: let op toxiciteit ACE, monitor INR	2D	
	RTV		B: let op effectiviteit ACE	2D	
	EVG/c, COBI		B: monitor INR	0D	
Acetylsalicylzuur ASA	TPV		B: let toxiciteit ASA	0E	
Aciclovir ACI	IDV		B: let op nefrotoxiciteit IDV	4D	[1]
Adefovir	SQV		B: let op effectiviteit SQV	3E	[2]
Albendazol ALB	RTV, LPV/r		B: let op effectiviteit ALB	3C	[3]
Alfentanil ALF	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit ALF	0B	
Alfuzosine AFU	ATV, FPV, DLV, IDV, SQV, LPV/r, TPV, DRV, RTV, EVG/c, COBI	Ja		0D	[4]
	EFV, ETR, NVP		B: let op effectiviteit AFU	0C	[4]
Algedraat ALG	DDC, IDV, ATV, TPV, EVG/c, RAL, DTG, BIC		B: geef ARV middel 2 uur voor of na ALG	3E	
Allopurinol ALO	DDI		B: let op toxiciteit DDI	3E	[5, 6]
Alprazolam ALP	ATV, FPV, IDV, SQV, LPV/r, TPV, DRV, EVG/c, RTV, COBI	Ja	A: temazepam of lorazepam	0B	[7]
Amfetamine AMF	RTV, LPV/r, EVG/c, COBI	Ja		2F	[8, 9]
Amiodaron AMI	RTV, TPV, DRV	Ja	A: andere PI	0E	[10]
	EVG/c, COBI	Ja		0E	[10]
	IDV		B: let op toxiciteit AMI, meet spiegel AMI	2E	[10, 11]
	ATV, FPV, SQV, LPV/r		B: let op toxiciteit AMI, meet spiegel AMI	0E	[10]
	EFV, NVP, ETR		B: let of effectiviteit AMI; meet spiegel AMI	0D	[10]
Amitriptyline AMT	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit AMT A: (es)citalopram of gabapentin	0D	
Amlodipine AML	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: start met lage dosis AML	3C	[12]

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Antacida ANT	DDC, IDV, ATV, TPV, RAL, EVG/c, DTG, BIC		B: geef HIV middel 2 uur voor of na ANT	3E	[13, 14]
Anticonceptiepil, -ring, -pleister, -implantaat AC	NVP, RTV, LPV/r, FPV, TPV, DRV, ATV, EVG/c, COBI		B: ETR, RPV, RAL, DTG, BIC of kies alternatieve methode van anticonceptie A: Medroxyprogesteron parenteraal	3E	[15-19]
	EFV	Ja	A: Medroxyprogesteron parenteraal	3F	[17, 20-23]
Apixaban APX	RTV, LPV/r, EVG/c, COBI, ATV (zonder RTV)	Ja	A: ander HIV middel: DTG, RAL, RPV, BIC	0D	
	EFV, NVP, ETR		B: let op effectiviteit APX	0D	
(fos)Aprepitant APE	RTV, LPV/r, EVG/c, COBI		B: let op voor toxiciteit APE	0C	
Aripiprazol (oraal) ARI	RTV, DRV, LPV/r, EVG/c, COBI		B: start met 50% van ARI dosis	2D	[24]
	EFV, NVP, ETR		B: let op effectiviteit ARI	0C	
Artemeter ART	EFV, NVP, ETR		B: let op effectiviteit ART	0D	[25, 26]
Atazanavir ATV	SQV	Ja		3E	[27, 28]
	EVG/c	Ja		0E	
	MRV		B: verlaag MRV dosering naar 150mg 2dd	3C	
	DRV		B: geef ATV 300mg 1dd + DRV/r 600/100mg 2dd	3E	
	IDV		B: let op toxiciteit IDV & ATV	0C	
	LPV/r		B: geef ATV 300mg 1dd + LPV/r 400/100 2dd	3E	[29]
	TPV	Ja		0E	
	EFV, NVP, ETR		B: geef ATV/r 400/200 mg 1dd	3E	[30, 31]
	TDF		B: geef ATV/r 300/100 mg 1dd	3E	[32]
TAF		B: geef TAF 10mg	3C		
Atomoxetine (ATM)	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit op toxiciteit ATM	0D	

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Atorvastatine ATR	ATV, FPV, IDV, RTV, SQV, LPV/r, DRV, EVG/c, COBI		B: start met lage dosis ATR (10mg) & let op ATR toxiciteit	3E	[33, 34]
	TPV		B: start met lage dosis ATR (10mg) & let op toxiciteit ATR A: rosuvastatine (start met 5mg)	3E	[35]
	NVP, EFV		B: Let op effectiviteit ATR	3E	[36]
Atovaquon ATO	ZDV		B: let op toxiciteit ZDV	4E	[37]
	LPV/r, RTV (niet met ATV), NVP, EFV, ETR		B: let op effectiviteit ATO, benadruk regelmatige inname ATO met vetrijke maaltijd	3C	[38, 39]
Avanafil AVA	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: maximaal 100mg AVA/48 uur	0D	
Barnidipine BAR	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit BAR A: lage dosis amlopidipine	0B	
Bepridil BEP	RTV, LPV/r, ATV, TPV, DRV, EVG/c, COBI	Ja		0E	
	EFV, ETR, NVP		B: let of effectiviteit BEP	0D	
Bexaroteen BEX	EFV, NVP, ATV		B: let op effectiviteit HIV middel A: geef RTV-boosted PI	2F	[40]
Bortezomib BOR	RTV, COBI, EVG/c, LPV/r		B: let op toxiciteit BOR	0D	
Bosentan BOS	ATV, FPV, EFV, IDV, NVP, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI, DRV/c, ETR, BIC, RPV	Ja	A: RAL, DTG	0F	[41, 42]
Budesonide BUD	RTV, TPV, LPV/r, EVG/c, COBI		B: let op toxiciteit BUD A: beclomethason	2E	[43-47]
Buprenorfine BUF	ATV		B: let op toxiciteit BUF A: LPV/r, DRV, FPV, EVG/c, RAL	2D	[48-54]
	EFV, NVP, ETR		B: let op effectiviteit BUF A: LPV/r, DRV, FPV, EVG/c, RAL	3C	[48-54]
Bupropion BUP	EFV, NVP, LPV/r, RTV		B: let op effectiviteit BUP	0D	[55-59]
Calcium zouten CAL	RAL, EVG/c, DTG, BIC		Dien HIV middel minimaal 2 uur voor CAL	1E	[14, 60, 61]

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Carbamazepine CAR	ATV, FPV, SQV, LPV/r, TPV		B: let op toxiciteit CAR en effectiviteit PI A: valproïnezuur of amitriptyline	0E	[62, 63]
	DRV		B: let op toxiciteit CAR	3D	
	DTG		B: verhoog DTG dosering naar 2 dd 50mg	3E	[64]
	RAL		B: verhoog dosering RAL naar 2 dd 800mg	0E	
	MRV		B: verhoog dosering MRV naar 2 dd 600mg	0E	
	EFV, ETR, NVP, RPV, EVG/c, COBI, BIC	Ja	A: valproïnezuur, lamotrigine, levetiracetam	3E	[65-67]
	IDV, RTV		B : let op toxiciteit CAR en effectiviteit PI A: valproïnezuur of amitriptyline	2E	[68, 69]
Carbasalaatcalcium CAB	TPV		B: let op toxiciteit CAB	0E	
Caspofungine CAS	NVP, EFV, ETR		B: verhoog CAS naar 70 mg/dag	0E	
Chloordiazepoxide CHL	RTV, LPV/r, EVG/c, COBI		A: temazepam of lorazepam	0C	
Chloorpromazine CHP	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit CHP	0D	
Chloroquine CHO	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit CHO	0B	
Ciclesonide CLE	RTV, TPV, LPV/r, EVG/c, COBI		B: let op toxiciteit CLE A: beclomethason	0E	[46, 47]
Ciclosporine CIC	ATV, RTV, DRV, LPV/r, IDV, FPV, SQV, EVG/c, COBI		B: let op toxiciteit CIC en ARV; monitor CIC spiegels	2D	[70-73]
	TPV		B: monitor CIC bloedspiegels	0E	
	NVP, EFV, ETR		B: let op effectiviteit CIC; monitor CIC spiegels	2E	[72, 74]
Cidofovir CID	TDF	Ja		0E	
Cimetidine CIM	TPV, IDV		B: let op effectiviteit PI	0E	
	ATV		B: let op effectiviteit ATV A: ATV/r 300mg 1dd	0E	
	RPV		B: geef CIM 4 uur na of 12 uur voor RPV	3E	

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Cinacalcet CIN	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit CIN	0D	
Cladribine CLD	3TC, FTC	Ja		0E	
Clarithromycine CLA	ATV		B: verlaag CLA met 50% A: azitromycine	3C	
	FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit CLA en ARV; maximaal 1 gram CLA per dag A: azitromycine	0B, 3C	[75, 76] [77-80]
	MRV		B: verlaag MRV dosering naar 2 dd 150mg A: azitromycine	0C	
	NVP		B: let op toxiciteit hydroxymetaboliet van CLA	1C	[81]
	ETR	Ja	B: geldt alleen voor M. avium infectie A: azitromycine	3E	
	RPV		B: let op toxiciteit RPV A: azitromycine	0C	
Clindamycine CLI	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit CLI	0C	
Globazam CLB	ETR		B; let op toxiciteit CLB	1C	[82]
Clomipramine CLP	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit CLP A: (es)citalopram	0D	[83]
Clonazepam CLO	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit CLO A: temazepam of lorazepam	0C	
Clopidogrel CLP	TPV		B: let op toxiciteit CLP	0E	
	RTV, COBI, EVG/c, ATV (zonder RTV), ETR	Ja	A: prasugrel	3E	[84-87]
Clorazepinezuur CLR	RTV, LPV/r, EVG/c, COBI	Ja	A: temazepam of lorazepam	0C	
Clotrimazol CLT (vaginaal)	DRV		B: let op toxiciteit DRV	0C	
Clozapine CLZ	RTV, EFV, NVP, ETR, LPV/r		B: let op effectiviteit CLZ	0D	[88]
Cobicistat COBI	RTV, EFV, ETR, NVP	Ja		3E	[89]

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Colchicine COL	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit COL; start met maximale dosering COL van 0.5 mg 1dd	0E	
Cyclofosfamide CYF	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV		B: let op effectiviteit CYF	0E	[90]
Daclatasvir DAC	EFV, ETR, NVP		B: geef DAC 1 dd 90mg A: DTG, RAL, RPV, DRV/r, BIC	3E	[91]
	ATV/r, EVG/c		B: geef DAC 1 dd 30mg A: DTG, RAL, RPV, DRV/r, BIC	3E	[91]
Dabigatran DAB	EVG/c, DRV/c, COBI, ATV (zonder RTV)		B: let op toxiciteit DAB A: RTV-boosted PRs, DTG, RPV, RAL, BIC	3D	[92-95]
Darifenacine DAR	RTV, LPV/r, EVG/c, COBI	Ja		0E	
Darunavir DRV	LPV/r, SQV	Ja	A: andere PI combinatie	3E	
	IDV		A: verlaag IDV dosering naar 600mg 2dd	3E	
	MRV		B: verlaag MRV dosering naar 2dd 150mg of 1dd 300mg A: FPV/r, TPV/r	3C	[96]
	FPV, TPV	Ja	A: andere PI combinatie	0E	
	EVG/c	Ja		3E	
	TAF		B: geef TAF 10mg	3C	
	NVP, ETR		B: kan niet samen met DRV/c	3E	
	EFV		B: kan niet samen met DRV/c; geef DRV/r 2 dd 600/100mg A: bij 1dd DRV/r vervang EFV door ETR, NVP of RPV	3E	[97]
Daunorubicine DAU	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit DAU	0E	
Dexamethason DEX	ATV, FPV, IDV, NVP, RTV, SQV, LPV/r, EFV, TPV, DRV, ETR, MRV, EVG/c, COBI		B: let op effectiviteit ARV middel	0E	
	RPV	Ja	A: ander HIV middel	0E	
Dexamethason oogdruppels DEX	RTV, LPV/r, ATV, EVG/c, COBI		B: let op toxiciteit DEX	1E	[98]

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Dexamfetamine DAM	RTV, LPV/r, DRV/c, EVG/c, COBI	Ja		2F	[8, 9]
Dextropropoxyfeen PRX	RTV, LPV/r, EVG/c, COBI	Ja		0D	
Diazepam DIA	RTV, LPV/r	Ja	A: temazepam of lorazepam	0B	
	ATV, FPV, IDV, SQV, TPV, DRV, ETR, EVG/c, COBI		A: let op toxiciteit DIA B: temazepam of lorazepam	0C	
Diclofenac DIC	TDF		B: monitor nierfunctie A: TAF	1D	[99]
Didanosine DDI	TDF		B: verlaag DDI naar 250 mg (als gewicht > 60kg) of 125 mg (als gewicht < 60kg)	3E	[5, 100-102]
Digoxine DIG	RTV, LPV/r, DRV, RPV, EVG/c, COBI		B: let op toxiciteit DIG; meet DIG spiegels	2D	
	TPV		B: let op effectiviteit DIG	0D	
Diltiazem DIL	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit DIL; start met lage dosis	3C	[12]
Dipyridamol DIP	TPV		B: let op toxiciteit DIP	0E	
Disopyramide DSP	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit DSP	0F	
	EFV, ETR, NVP		B: let op effectiviteit DSP	0D	
Disulfiram DIS	RTV, FPV, LPV/r (drank)	Ja	A: tabletten	0C	
	TPV	Ja		0C	
Docetaxel DOC	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit DOC	0D	[103-105]
Dolutegravir DTG	EFV, NVP, TPV		B: verhoog DTG dosering naar 2 dd 50mg	3E	[106-108]
	ETR	Ja		3E	
Domperidon DOM	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit DOM A: metoclopramide	0C	

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Dosulepine DOS	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit DOS A: (es)citalopram	0D	
Doxazosine DOX	RTV, LPV/r, EVG/c, COBI, ATV		B: let op toxiciteit DOX	1D	[4, 109]
	NVP, EFV, ETR		B: let op effectiviteit DOX	0C	[4]
Doxepine DOE	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit DOE A: (es)citalopram	0D	
Doxorubicine DOX	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit DOX	2E	[90, 110]
Dutasteride DUT	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit DUT	0C	[4]
	EFV, NVP, ETR		B: let op effectiviteit DUT	0C	[4]
Edoxaban EDX	RTV, LPV/r, EVG/c, COBI		B: verlaag EDX dosering naar 1 dd 30mg A: ander HIV middel: DTG, RAL, RPV, BIC	0D	
Efavirenz EFV	MRV		B: verhoog MRV dosering naar 2 dd 600mg A: NVP	3E	[111]
	ATV		B: geef ATV/r 400/200 mg 1dd	3E	[30, 31]
	FPV		B: geef FPV/r 700/100mg 2dd	3E	[112]
	EVG/c, COBI, BIC, DRV/c	Ja		0E	
	DTG		B: geef DTG 2 dd 50mg	3E	[108]
	LPV/r		B: verhoog LPV/r naar 600/150 mg 2dd	3E	
	NVP, ETR	Ja		4E	[113]
	DRV		B: geef DRV/r 2 dd 600/100mg	3E	[97]
Eletriptan ELE	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit ELE A: ander triptan	0D	
Eltrombopag ELT	LPV/r, RTV		B: let op effectiviteit ELT	0D	

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Elvitegravir/cobicistat EVG/c	MRV		B: verlaag MRV dosering naar 1 dd 300mg of 2 dd 150mg	0D	[115]
	ATV, DRV, EFV, ETR FPV, IDV, LPV/r, NVP, RAL, RPV, SQV, RTV	Ja		3E	
Emtricitabine FTC	3TC	Ja		0E	
Encaïnide ENC	RTV, LPV/r, EVG/c, COBI	Ja	A: ander ARV	0F	
Enfuvirtide T20	TPV		A: let op toxiciteit TPV	0D	[116]
Enzalutamide ENZ	ATV, DRV, ETR, FPV, IDV, LPV/r, NVP, RPV, SQV, RTV, BIC, EVG/c, DRV/c, COBI	Ja		0E	
	DTG		B: geef DTG 2 dd 50mg	0E	
	RAL		B: verhoog dosering RAL naar 2 dd 800mg (2 tabletten van 400mg)	0E	
Eplerenon EPL	RTV, LPV/r, EVG/c, COBI	Ja		0D	
	ATV		B: let op toxiciteit EPL	0C	
	EFV, NVP, ETR		B: let op effectiviteit EPL	0C	
Ergotamine ERG	RTV, TPV, ATV, FPV, IDV, SQV, LPV/r, DRV, EVG/c, COBI	Ja	A: paracetamol of sumatriptan	2D	[117-123]
Erytromycine ERY	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, MRV, RPV, EVG/c, COBI		B: let op toxiciteit ERY of anti-HIV middel	0C	
Esomeprazol ESO	IDV, TPV		A: SQV, DRV, LPV/r, FPV B: let op effectiviteit IDV, TPV	3E	[124-126]
	ATV, RPV	Ja	A: H2 antagonist of ander HIV middel	0E	[127, 128]
Ethosuximide ETH	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit ETH	0E	
Etonogestrel ETN	EFV, NVP, ETR	Ja		3E	

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Etoposide ETO	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit ETO	0E	
Etravirine ETR	EFV, NVP, TPV, EVG/c, COBI, BIC	Ja		3E	[129]
	DTG	Ja	B: ETR kan wel met DTG gegeven worden in combinatie met DRV/r, ATV/r of LPV/r	3E	
	FPV/r		A: let op toxiciteit FPV	3C	
	IDV, ATV, FPV		B: geef IDV, FPV met lage-dosis RTV; ATV/r 1 dd 400/200mg	3E	
	DRV/c	Ja	A: DRV/r	3D	
	MRV		B: verhoog MRV dosering naar 2 dd 600mg A: vervang ETR door NVP	3E	[130, 131]
Everolimus EVE	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: houd rekening met dosisverlaging EVE; monitor EVE spiegels	0E	
	NVP, EFV, ETR		B: houd rekening met dosisverhoging EVE; monitor EVE spiegels	0E	
Famotidine FAM	TPV, IDV		B: let op effectiviteit PI	0E	
	ATV		B: let op effectiviteit ATV A: ATV/r 300/100 mg 1dd	0E	
	RPV		B: geef FAM 4 uur na of 12 uur voor RPV	0D	
Felodipine FEL	ATV, FPV, IDV, RTV, SQV, LPV/r, DRV, EVG/c, COBI		B: let op toxiciteit FEL A: lage dosis amlodipine	0C	
	TPV		B: let op toxiciteit FEL A: lage dosis amlodipine	2C	[132]
Fenobarbital FEB	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV		B: let op effectiviteit PI A: valproïnezuur, lamotrigine of levetiracetam	1E	[133]
	MRV		B: verhoog MRV dosering naar 2 dd 600mg	0E	
	RAL		B: verhoog dosering naar 2 dd 800mg	0E	
	DTG		B: verhoog dosering naar 2 dd 50mg	0E	

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Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	EFV, ETR, NVP, RPV, EVG/c, COBI, BIC	Ja	A: valproïnezuur, lamotrigine of levetiracetam	0E	
Fenprocoumon FEP	ATV, FPV, IDV, SQV, EFV, LPV/r, TPV, DRV, ETR		B: let op toxiciteit FEP, monitor INR	0D	
	RTV		B: let op effectiviteit FEP	0D	
	EVG/c, COBI		B: monitor INR	0D	
Fentanyl FET	RTV, LPV/r, EVG/c, COBI		B: start met lage dosis FET	3E	[134]
Fenytoïne FEN	ATV, FPV, IDV, SQV, TPV, DRV		B: let op effectiviteit PI A: valproïnezuur, lamotrigine of levetiracetam	0E	
	LPV/r		B: let op effectiviteit LPV/r en FEN A: valproïnezuur, lamotrigine of levetiracetam	3E	[135]
	RTV		B: let op effectiviteit RTV en FEN A: valproïnezuur, lamotrigine of levetiracetam	0E	
	DTG		B: verhoog dosering naar 2 dd 50mg	0E	
	RAL		B: verhoog dosering naar 2 dd 800mg	0E	
	MRV		B: verhoog MRV dosering naar 2 dd 600mg	0E	
	EFV, ETR, NVP, RPV, EVG/c, COBI, BIC	Ja	A: valproïnezuur, lamotrigine of levetiracetam	2E	[136, 137]
Finasteride FIN (1 mg)	EFV, NVP		B: let op effectiviteit FIN	0A	
	ATV, FPV, DLV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit FIN	0D	
Flecainide FLE	RTV, LPV/r, TPV	Ja	A: ander ARV	0E	
	EVG/c, COBI		B: let op toxiciteit FLE		
	EFV, NVP, ETR		B: let op effectiviteit FLE	0D	
Fluconazol FLC	TPV		B: FLC maximaal 200mg 1dd	3E	[80]
	EVG/c, COBI		B: let op toxiciteit FLC	0D	

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	NVP		B: let op hepatotoxiciteit NVP	0D	[138, 139]
	ETR		B: let op toxiciteit ETR	3C	[140]
	ZDV		B: let op toxiciteit ZDV	0D	[141, 142]
Fluoxetine FLO	RTV (200mg 2dd of hoger)		B: RTV 100 mg 2dd of minder A: (es)citalopram	2F	[83, 143]
	NVP		B: let op verminderde effectiviteit FLO	2D	[144]
Fluticason FLT	LPV/r, RTV, TPV, DRV, EVG/c, COBI		B: let op toxiciteit FLT A: beclomethason	2E	[44, 46, 47, 145-152]
Fluvastatine FLV	ATV, FPV, IDV, RTV, SQV, LPV/r, DRV		B: mogelijke hogere dosis FLV nodig	0E	
	ETR		B: let op toxiciteit FLV	0D	
	NVP, EFV		B: dosis FLV onbekend	0E	
Fluvoxamine FVX	NVP		B: let op verminderde effect FVX	2E	[144]
Fosamprenavir FPV	EFV, NVP		B: geef FPV met lage dosis RTV (700/100 mg 2dd)	3E	[112]
	LPV/r	Ja		3E	[153-155]
	EVG/c, COBI	Ja		0E	
	TPV, DRV, MRV	Ja	Andere PI combinatie	3E	[156]
	ETR		B: let op toxiciteit FPV	3C	
Fusidinezuur FUS	RTV, SQV, LPV/r, EVG/c, COBI		B: let op toxiciteit of FUS, RTV en SQV	1C	[157]
Galantamine GAL	RTV, LPV/r		B: let op toxiciteit GAL	0C	
Ganciclovir GAN	ZDV		B: let op beenmergtoxiciteit; stop ZDV	4E	[158]
	DDI ec		B: let op toxiciteit DDI	3E	[5, 158]
Ginkgo biloba GB	EFV, ATV, IDV, FPV		B: let op effectiviteit HAART, monitor spiegels A: ATV/r, IDV/r, FPV/r	3E	[159, 160]

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Glecaprevir/ pibrentasvir GP	EFV, ETR, NVP, ATV, ATV/r, DRV/c, DRV/r, LPV/r	Ja	B: geef andere HIV therapie	3E	
Glibenclamide, Gliclazide, Glimepiride GLI	RTV, LPV/r		B: let op toxiciteit GLI	0C	[161]
Halofantrine HAF	TPV	Ja		0E	
Haloperidol HAL	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit HAL	0D	
	EFV, ETR, NVP		B: let op effectiviteit HAL	0C	
Ibuprofen IBU	TDF		B: let op toxiciteit TDF A: TAF	1C	[162]
Idelalisib IDL	ETR, NVP, EFV	Ja	B: geef ander HIV middel	0D	
Ifosfamide IFO	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV		B: let op effectiviteit IFO	0E	
Ijzer zouten IJ	RAL, EVG/c, DTG, BIC		B; geef HIV middel minimaal 2 uur voor IJ	3E	[14]
Imipramine IMI	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit IMI A: (es)citalopram	0D	[83]
Indinavir IDV	ATV		B: let op hyperbilirubinemie	0D	
	TPV	Ja		0E	
	DRV		B: verlaag IDV naar 600mg 2dd	3E	
	EVG/c, COBI	Ja		0E	
	MRV		B: verlaag MRV dosering naar 2 dd 150mg A: FPV/r of TPV/r	3C	
	NVP, EFV		B: verhoog IDV naar 1000 mg 0Dd of voeg lage dosis RTV toe	3E	[114, 163]
Irinotecan IRI	ATV	Ja		0D	
	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit IRI	3E	[164]
	EFV, ETR, NVP		B: let op effectiviteit IRI	0E	
Isavuconazol (ISA)	RTV, COBI, EVG/c, LPV/r		B: let op toxiciteit ISA, meet spiegels ISA	3D	
	EFV, NVP, ETR		B: let op effectiviteit ISA, meet spiegels	3D	
Isotretinoïne ISO	RTV, LPV/r, EVG/c		B: let op toxiciteit ISO	0C	

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Isradipine ISR	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit ISR A: lage dosis amlodipine	0B	
Itraconazol ITR	IDV		B: verlaag IDV naar 600 mg 0Dd	3C	
	FPV, RTV, SQV, ATV, TPV, DRV, EVG/c, COBI		B: let op toxiciteit ITR en GIV middel; maximale dosis ITR: 200 mg 1dd	0C	
	MRV		B: verlaag MRV dosering naar 2 dd 150mg	0C	
	EFV, NVP, ETR		B: let op effectiviteit ITR; monitor ITR plasma concentraties	0D	[165-167]
	TAF		B: geef TAF 10mg	0C	
	LPV/r		B: let op toxiciteit ITR; geef ITR 200 mg 1dd	2C	[168, 169]
Ivabradine IVA	RTV, LPV/r, EVG/c, COBI	Ja		0D	
	EFV, NVP, ETR		B: let op effectiviteit IVA	0D	
	FPV, ATV,		B: let op toxiciteit IVA	0C	
Ivacaftor IVC	RTV, LPV/r, EVG/c, COBI		B: verlaag IVC dosering naar 150mg 2x/week	3D	[170]
Ivacaftor + lumacaftor (ORK)	RPV, EVG/c, DRV/c, COBI, ATV, BIC	Ja	B: ander HIV middel; bij PIs boosten met RTV	0E	
	DTG, RAL		B: doe TDM van DTG of RAL	0D	
Ivermectine IVE	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit IVE	0C	
Ketoconazol KET	FPV, RTV, SQV, LPV/r, ATV, TPV, DRV, EVG/c, COBI		B: let op toxiciteit KET en HIV middel; maximale dosis KET: 200 mg 1dd	0 + 3C	[171-174]
	IDV		B: verlaag IDV naar 600mg 0Dd	3C	
	MRV		B: verlaag MRV dosering naar 2 dd 150mg	3C	
	TAF		B: geef TAF 10mg	0C	
	NVP, EFV, ETR	Ja	A: fluconazol	0D	[175]
Kinidine QID	RTV, TPV, ATV, DRV	Ja	A: IDV	0F	
	EVG/c, COBI	Ja		0F	

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	FPV, SQV, LPV/r		B: let op toxiciteit QID A: IDV	0F	
	EFV, ETR, NVP		B: let op effectiviteit QID	0D	
Kinine KIN	LPV/r		B: let op effectiviteit KIN	0D	[176]
	RTV, EVG/c, COBI		B: let op toxiciteit KIN	0D	[177]
Kool, geactiveerd KOL	ZDV, DDI, ABC, TDF, TAF, 3TC, FTC, ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI, NVP, EFV, ETR, RAL, RPV, DTG, BIC	Ja		0E	[178]
Lacidipine LAC	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit LAC A: lage dosis amlodipine	0B	
Lamivudine 3TC	FTC	Ja		0E	
Lamotrigine LAM	LPV/r, RTV		B: verdubbel dosering LAM	0D	
Lansoprazol LAN	IDV, TPV		B: let op effectiviteit HIV middel A: LPV, SQV, DRV, FPV of een H2 antagonist	3E	[124-126]
	ATV, RPV	Ja	A: H2-antagonist of ander HIV middel	3E	[179]
Ledipasvir LDV	TDF		B: mag niet samen met RTV of COBI gebruikt worden	0D	
Lercanidipine LER	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit LER A: lage dosis amlodipine	0B	
Levothyroxine LEV	RTV, LPV/r		B: let op effectiviteit LEV	2C	[180, 181]
	IDV		B: let op toxiciteit LEV	1C	[182]
Lidocaïne LID (systemisch)	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, EVG/c, COBI		B: let op toxiciteit LID	0E	
	DRV	Ja	A: andere PI	0E	
	EFV, ETR, NVP		B: let op effectiviteit LID	0D	

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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Lomitapide LOM	RTV, COBI	Ja		0D	
Loperamide LOP	TPV		B: let op effectiviteit TPV	3E	[183]
Lopinavir/ritonavir LPV/r	ATV		B: geef ATV 300mg 1dd + LPV/r 400/100mg 2dd	3E	[29]
	FPV	Ja		3E	[154, 155]
	EVG/c, COBI	Ja		0E	
	MRV		B: verlaag MRV dosering naar 2 dd 150mg A: FPV/r of TPV/r	3C	
	TPV, DRV	Ja	A: Andere PI combinatie	3E	
	TAF		B: geef TAF 10mg	3C	
	EFV, NVP		B: verhoog LPV/r naar 600/150 mg 2dd	3E	
Lumefantrine LUM	LPV/r, RTV, TPV, EVG/c, COBI		B: let op toxiciteit LUM	3D	[184-186]
	NVP, EFV, ETR		B: let of effectiviteit LUM	3D	[26, 186]
Lurasidon LUR	RTV, LPV/r, ATV, EVG/c, COBI	Ja		1D	[187]
Magnesium zouten Mg	RAL, EVG/c, DTG, BIC		Dien HIV middel minimaal 2 uur voor Mg	1E	[14, 60, 61]
Maprotiline MAP	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit MAP A: (es)citalopram	0D	[83]
Maraviroc MRV	EFV, ETR		B: verhoog MRV dosering naar 2 dd 600mg A: vervang NNRTI door NVP	3E	[111, 130, 131]
	ATV, DRV, IDV, LPV/r, SQV, RTV, EVG/c, COBI		B: verlaag MRV dosering naar 2 dd 150mg of 1 dd 300mg	3C	[96, 115, 130, 188]
	FPV/r	Ja	A: andere PI	3E	[156]
Mebendazol MEB	RTV, LPV/r		B: let op effectiviteit MEB	0C	[3]
Metformine MTF	EVG/c, DTG, COBI, BIC		B: let op toxiciteit MTF	3D	[189-192]
Methadon MET	ABC, NVP, RTV, EFV, LPV/r, TPV, DRV		B: let op effectiviteit MET A: FPV, RAL, ETR, EVG/c	4C	[193-196] [51, 197-206]

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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	ATV		B: let op ECG veranderingen	2E	[207]
	ZDV		B: let op toxiciteit ZDV	3E	
Methotrexaat MTX	TDF		B: controleer nierfunctie A: TAF	0D	
Methylprednis(ol)on MPR	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit MPR	3C	[208, 209]
	EFV		B: let of effectiviteit MPR	3C	[209]
Metoprolol MTP	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit MTP A: atenolol	0C	
	TPV	Ja		0E	
Metronidazol MEN	Drank van RTV, FPV, LPV/r		A: FPV, RTV of LPV/r tabletten	0B	
Midazolam MID (oraal)	ATV, FPV, IDV, RTV, LPV/r, TPV, DRV, SQV, EVG/c, COBI	Ja	A: temazepam of lorazepam	2E	[210]
	NVP, EFV		B: Let of effectiviteit MID	0B	
Midazolam (parenteraal)	ATV, FPV, IDV, RTV, LPV/r, TPV, DRV, SQV, EVG/c, COBI		B: let op toxiciteit MID A: verminder MID dosis met 50%	1D	[211]
	NVP, EFV		B: let op effectiviteit MID	0B	
Minocycline MIN	ATV		B: let of effectiviteit ATV	3E	[212]
Mitotaan MIT	ATV, DRV, ETR, FPV, IDV, LPV/r, NVP, RPV, SQV, RTV, BIC, EVG/c, DRV/c, COBI	Ja		0E	
	DTG		B: geef DTG 2 dd 50mg	0E	
	RAL		B: verhoog dosering RAL naar 2 dd 800mg (2 tabletten van 400mg)	0E	
Mometason MOM	LPV/r, RTV, EVG/c, COBI		B: let op toxiciteit MOM A: belomethason	0E	
Morfine MOR	RTV, LPV/r		B: let op effectiviteit MOR	0C	
Multivitamine supplementen MUL	RAL, EVG/c, DTG, BIC		B: geef HIV middel minimaal 2 uur voor MUL	3E	
Mycofenolzuur	ABC, DDI		B: let op toxiciteit ABC & DDI	0C	

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	ZDV, D4T		B: let op effectiviteit ZDV & D4T	0E	
Naproxen NAP	TDF		B: let op toxiciteit TDF A: TAF	0C	
Netupitant NET	RTV, COBI, EVG/c, LPV/r		B: let op toxiciteit NET	0D	
	EFV, ETR, NVP	Ja	B: geef ander HIV middel	0D	
Nevirapine NVP	IDV		B: verhoog IDV naar 1000 mg 0Dd of voeg lage dosis RTV toe	3E	[163]
	FPV		B: geef FPV/r 700/100mg 2dd	3E	[112]
	LPV/r		B: verhoog LPV/r naar 600/150 mg 2dd	3E	
	EFV, ETR, EVG/c, COBI, BIC	Ja		4E	[113]
	DTG		B: geef DTG 50mg 2dd	0E	[107]
	ATV		B: geef ATV/r 400/200 mg 1dd	3E	[30, 31]
	DRV/c		A: DRV/r	0D	
Nicardipine NIC	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit NIC A: lage dosis amlodipine	0B	
Nifedipine NIF	IDV, RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit NIF A: lage dosis amlodipine	2D	[213, 214]
	ATV, FPV, SQV, TPV, DRV		B: let op toxiciteit NIF A: lage dosis amlodipine	0B	
Nimodipine NIM	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit NIM A: lage dosis amlodipine	0B	
Nisoldipine NIS	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit NIS A: lage dosis amlodipine	0B	
Nitrendipine NIT	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit NIT A: lage dosis amlodipine	0B	
Nizatidine NIZ	ATV		B: let op effectiviteit ATV A: ATV/r 300/100mg 1dd	0E	
	TPV, IDV		B: let op effectiviteit PI	0E	
	RPV		B: geef NIZ 4 uur na of 12 uur voor RPV	0D	

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Nortriptyline NOR	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit NOR, overweeg dosisreductie NOR A: (es)citalopram	0D	[83]
Olanzapine OLA	RTV, LPV/r, FPV		B: let op effectiviteit OLA	0D	[215, 216]
Olapararib OLP	RTV, COBI, EVG/c, LPV/r, DRV/c		B: verlaag OLP dosering naar 2 dd 100-150mg/dag	0D	
	ETR, EFV, NVP	Ja	B: geef ander HIV middel	0E	
Omeprazol OME	IDV, TPV		B: let op effectiviteit HIV middel A: LPV, SQV, DRV, FPV, RAL of een H2-antagonist	3E	[124-126, 217-219]
	ATV, RPV	Ja	A: H2-antagonist of ander HIV middel	3E	[128, 219-222]
Oxcarbazepine (OXC)	RPV, EVG/c, COBI, BIC	Ja	A: valproïnezuur, lamotrigine, levetiracetam	0E	
	DTG		B: verhoog dosering naar 2 dd 50mg	0E	
	RAL		B: verhoog dosering naar 2 dd 800mg	0E	
Oxycodon OXY	LPV/r, RTV		B: let op verminderde werking OXY	3D	
Paclitaxel PAC	ATV, FPV, IDV, RTV, SQV, LPV/r, TRV, DRV, EVG/c, COBI		B: let op toxiciteit PAC	2E	[223]
Palbociclib PAL	RTV, COBI, EVG/c, LPV/r		B: let op toxiciteit PAL	0D	
	EFV, ETR, NVP	Ja	B; geef ander HIV middel	0E	
Panobinostat PAB	RTV, COBI, EVG/c, LPV/r, DRV/c		B: start met 10mg PAB	0D	
	EFV, ETR, NVP	Ja	B: vervang hiv middel	0E	
Pantoprazol PAN	IDV, TPV		B: let op effectiviteit HIV middel A: LPV, SQV, DRV, FPV of een H2-antagonist	3E	[124-126]
	ATV, RPV	Ja	A: H2-antagonist of ander HIV middel	3E	[128]
Perfenazine PER	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit PER	0D	

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Pethidine PET	RTV, LPV/r, EVG/c, COBI	Ja		0D	
Pimozide PIM	RTV, LPV/r, ATV, TPV, DRV, IDV, FPV, SQV, EVG/c, COBI	Ja		0D	
Piroxicam PIR	RTV, LPV/r, EVG/c, COBI	Ja	A: diclofenac of ibuprofen	0D	
Posaconazol POS	ETR		B: let op toxiciteit ETR	0D	
	EVG/c, COBI		B: let op toxiciteit POS	0D	
	EFV, NVP		B: let op effectiviteit POS	0D	
	ATV/r, FPV/rtv		B: let op toxiciteit PI & verminderde effectiviteit POS	3E	[224]
Pravastatine PRA	RTV, LPV/r, NVP, EFV, TPV, FPV		B: let op effectiviteit PRA A: verhoog maximum dosis PRA naar 80 mg/dag	3C	[33, 36, 225]
	DRV		B: let op toxiciteit PRA A: lage dosis PRA	3E	
Prazepam PIA	RTV, LPV/r, EVG/c, COBI		A: temazepam of lorazepam	0D	
Prednis(ol)on PRE	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit PRE	3C	[208, 209]
	EFV, NVP, ETR		B: let of effectiviteit PRE	3C	[209]
Probenecide PRO	ZDV		B: let op toxiciteit ZDV	3E	
Promethazine PRM	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit PRM	0D	
Propafenon PRP	RTV, TPV, LPV/r	Ja	A: andere PI	0E	
	ATV, FPV, IDV, SQV, DRV, EVG/c, COBI		B: let op toxiciteit PRP	0D	
	EFV, ETR, NVP		B: let op effectiviteit PRP	0D	
Propranolol PRL	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit (PRL) A: atenolol	0C	
Pyrimethamine PYR	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit PYR	0E	
Quetiapine QUE	ATV, IDV, FPV, TPV, RTV, LPV/r, SQV, DRV, EVG/c, COBI	Ja		0D	[109, 226, 227]
	NVP, EFV, ETR		B: let op effectiviteit QUE	0D	

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Rabeprazol RAB	ATV, RPV	Ja	A: H2-antagonist of ander HIV middel	3E	[128]
	IDV, TPV		B: let op effectiviteit HIV middel A: LPV, SQV, DRV, FPV of een H2-antagonist	3E	[124-126]
Ranitidine RAN	TPV, IDV		B: let op effectiviteit PI	0E	
	ATV		B: let op effectiviteit ATV A: ATV/r 300/100 mg 1dd	3E	[220]
	RPV		B: geef RAN 4 uur na of 12 uur voor RPV	0D	
Repaglinide REP	RTV, LPV/r	Ja		0D	[161]
Ribavirine RIB	DDI, d4T	Ja	A: TDF, ABC	4F	[228-236]
	ZDV	Ja	A: TDF, ABC	3E	
Ribociclib RIB	EVG/c, COBI, DRC/c, RTV, LPV/r		B: verlaag dosis RIB met 1 dosisniveau	0D	
	EFV, NVP, ETR	Ja	B: geef ander HIV middel	0E	
Rifabutine RFB	ATV, FPV, IDV, RTV, LPV/r, TPV, DRV, SQV		B: verlaag dosis RFB naar 300mg 3 x per week of 150mg/dag A: ETR, NVP, EFV	3E	[80, 237-252]
	RPV		B: verhoog RPV dosering naar 1 dd 50mg A: NVP, ETR, EFV	0E	
	EVG/c, COBI, BIC	Ja	A: RAL of DTG	0E	
	EFV		B: verhoog RFB naar 450 mg 1dd; monitor EFV spiegels A: NVP, ETR	3E	[253]
Rifampicine RIF	FPV, IDV, SQV, ATV, TPV, DRV, ETR, RPV, EVG/c, COBI, BIC	Ja		3E	[237, 254-260]
	LPV/r		A: LPV/r 400/100 mg 2dd of LPV/r 400/400 mg 2dd B: bepaal spiegels LPV	3E	[261, 262]
	MRV		A: verhoog dosering MRV naar 2 dd 600mg	3E	[130]
	EFV		B: EFV 600mg & bepaal EFV spiegel	3E	[257, 263, 264]

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	NVP	Ja	B: EFV 600 mg	3E	[265-269]
	DTG		B; verhoog dosis DTG naar 2 dd 50mg	3E	[270]
	RAL		B: verhoog dosering RAL naar 2 dd 800mg (2 tabletten van 400mg)	3E	[271, 272]
Risperidon RIS	IDV, RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit RIS	2D	[273-276]
	EFV, ETR, NVP		B: let op effectiviteit RIS	0C	
Ritonavir RTV	COBI	Ja		3E	
Rivaroxaban RIV	RTV, LPV/r, EVG/c, COBI, ATV (zonder RTV)	Ja	A: ander HIV middle: DTG, RAL, RPV, BIC	1D	[277-279]
	EFV, NVP, ETR		B: let op effectiviteit RIV	1D	[280]
Rosuvastatine ROS	LPV/r, RTV, TPV, DRV, EVG/c, COBI		B: let op toxiciteit ROS; start met lage dosis	3C	[35, 281-284]
	ATV		B: let op toxiciteit ATV	3C	[285]
Salmeterol SAL	ATV, FPV, DLV, IDV, SQV, LPV/r, TPV, DRV, RTV, EVG/c, COBI		A: formoterol	0E	
Saquinavir SQV	ATV	Ja		3E	[27, 28]
	EVG/c, COBI	Ja		0E	
	MRV		B: verlaag MRV dosering naar 2 dd 150mg A: FPV/r of TPV/r	3C	
	TPV, DRV	Ja	A: andere PI combinatie	3E	
Sertindol STR	DRV, RTV, LPV/r, EVG/c, COBI	Ja		0F	
	EFV, ETR, NVP		B: let op effectiviteit STR	0C	
Sertraline SER	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit SER A: (es)citalopram of andere PI	0D	[83]
	DRV (met RTV)		B: let op effectiviteit SER	3D	
Sildenafil SIL (Viagra)	ATV, FPV, IDV, SQV, TPV, DRV		B: let op toxiciteit SIL; start met 25 mg SIL 1dd	3D	[286-288]
	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit SIL; maximum 25 mg SIL per 48 uur	0D	[287, 289]

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	ETR, EFV, NVP		B: let op verminderde werking SIL	3B	
Sildenafil SIL (Revatio)	ATV, FPV, IDV, SQV, TPV, DRV, RTV, LPV/r, EVG/c, COBI	Ja		0F	
	EFV, ETR, NVP		B: let op verminderde werking SIL	3E	
Silodosine SID	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit SID	0D	[4]
	ETR, EFV, NVP		B: let op effectiviteit SID	0C	[4]
Simvastatine SIM	ATV, FPV, IDV, RTV, SQV, LPV/r, EVG/c, TPV, DRV, COBI	Ja	A: andere statine	3E	[33]
	EFV, NVP, ETR		B: let op verminderde werking SIM	3E	[36, 290]
(tem)Sirolimus SIR	ATV, FPV, IDV, RTV, SQV, LPV/r, DRV, EVG/c, COBI		B: houd rekening met dosisverlaging SIR; monitor SIR spiegels	0E	
	TPV		B: monitor SIR spiegels	0E	
	NVP, EFV, ETR		B: houd rekening met dosisverhoging SIR; monitor SIR spiegels	0E	
Solifenacine SOL	RTV, LPV/r, EVG/c, DRV/c, COBI		B: let op toxiciteit SOL, maximale dosis SOL 5mg 1dd	0C	
Sonidegib SON	RTV, LPV/r, EVG/c, DRV/c, COBI		B: verlaag dosering SON naar 200mg per 2 dagen	0D	
	EFV, NVP, ETR		B: verhoog dosering tot 400-800mg/dag	0E	
Stavudine D4T	ZDV	Ja		4E	
St. Janskruid	ATV, FPV, EFV, RTV, SQV, LPV/r, TPV, DRV, MRV, ETR, RPV, EVG/c, DTG, COBI, BIC	Ja		0E	[292]
	IDV, NVP	Ja		3E	[293]
Sucralfaat SUCL	RAL, EVG/c, DTG, BIC		Dien HIV middel minimaal 2 uur voor SUC	1E	[14, 60, 61]
Tacrolimus TAC	ATV, IDV, RTV, DRV, LPV/r, SQV, FPV, EVG/c, COBI		B: houd rekening met dosisverlaging TAC; monitor TAC spiegels A: RAL, MRV, RPV	2E	[294-302]

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
	TPV		B: monitor TAC bloedspiegels A: RAL, MRV, RPV	1E	[299-301]
	EFV, NVP, ETR		B: houd rekening met dosisverhoging TAC; monitor TAC spiegels A: RAL, MRV, RPV	2E	[299-301]
Tadalafil TAD (Cialis)	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: incidenteel gebruik: maximaal TAD 10 mg per 3 dagen; dagelijks gebruik: maximaal 2,5mg TAD per dag A: sildenafil 25 mg 1dd of per 48 uur	0D	[303]
	EFV, ETR, NVP		B: let op verminderde werking TAD	0B	
Tadalafil TAD (Adcirca)	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI	Ja		0F	[4]
	EFV, ETR, NVP		B: let op verminderde werking TAD	0B	[4]
Tamoxifen TAM	RTV, LPV/r, EVG/c, COBI		B: let op toegenomen toxiciteit TAM & verminderde effectiviteit TAM	0C	
	EFV, NVP, ETR	Ja	B: geef ander HIV middel	0E	
Tamsulosine TAS	RTV, LPV/r, EVG/c, COBI		B: let op bijwerkingen TAS	0D	[4, 109]
	EFV, NVP, ETR		B: let op effectiviteit TAS	0C	[4]
Telitromycine TLT	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit TLT of anti-HIV middel	0C	
Tenofovir alafenamide TAF	EVG/c, COBI, DRV/c, RTV, ATV (zonder RTV)		B: verlaag TAF dosering naar 1 dd 10mg	3C	
Tenofovir disoproxyfumarate TDF	DDI		B: verlaag DDI naar 250 mg (als gewicht > 60kg) of 125 mg (als gewicht < 60kg)	3E	[5, 100-102]
	ATV		B: geeft ATV/r 300/100 mg 1dd	3E	[32]
Terazosine TER	RTV, LPV/r, EVG/c, COBI		B: let op bijwerkingen TER	0D	
	EFV, ETR, NVP		B: let op effectiviteit TER	0C	
Tetrabenazine TEB	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit TEB	0D	

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Thalidomide THA	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit THA	0C	
Theofylline THE	RTV, LPV/r		B: verhoog THE dosis met 100%	3C	
	TPV, EFV, ETR, NVP		B: monitor verlaagde THE spiegel; let op effectiviteit THE	0C	
Tiabendazol THI	RTV, LPV/r		B: let op toxiciteit en effectiviteit THI	0C	
Ticagrelor TIC	RTV, LPV/r, EVG/c, COBI, ATV (zonder RTV)	Ja	A: Prasugrel of ander HIV middel: DTG, RAL, RPV, BIC	0E	[87, 304]
	ETR, EFV, NVP		B: let op effectiviteit TIC	0D	[86]
Tiotixeen TIO	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit TIO	0C	
Tipranavir TPV	FPV, LPV/r, SQV	Ja		3E	
	ATV, IDV, DRV, EVG/c, COBI, BIC	Ja		0E	
	T20		B: let op toxiciteit TPV	0D	[116]
	DTG		B: geef DTG 2 dd 50mg	3E	[108]
	ETR	Ja		3E	
Tofacitinib TOF	RTV, COBI, EVG/c, LPV/r, DRV/c		B: verlaag TOF dosis met 50%	0D	
Tolbutamide TOL	RTV, LPV/r		B: let op toxiciteit TOL	0C	
Tolterodine TOT	RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit TOT	0D	
Topiramaat TOP	EFV, ETR, NVP		B: let op effectiviteit TOP	0C	
Tramadol TRD	RTV, LPV/r, EVG/c, DRV/c, COBI		B: let op toxiciteit en effectiviteit TRD	0C	
Trabectedine TRB	RTV, LPV/r, EVG/c, DRV/c, COBI		B: let op toxiciteit TRB	0C	
	EFV, NVP, ETR	Ja	B: ander HIV middel		
Trazodon TRA	ATV, FPV, IDV, SQV, TPV, DRV	Ja	A: (es)citalopram of paroxetine	0D	[83]
	RTV, LPV/r, EVG/c, DRV/c, COBI	Ja	A: (es)citalopram	0D	[83, 305]

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Triamcinolon (TRJ) (niet dermatica)	LPV/r, RTV, EVG/c, COBI, DRV/c		B: let op toxiciteit TRJ A: methylprednisolon	1E	[306-309]
Triazolam (TRI)	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI	Ja	A: temazepam of lorazepam	0D	
Tyrosine kinase remmers-1 (TKI-1)*	LPV/r, RTV, EVG/c, COBI, DRV/c		B: kies ander HIV middel of verlaag dosering TKI-1	0D	
	EFV, NVP, ETR		B: kies ander HIV middel of verhoog dosering TKI-1	0D	
Tyrosine kinase remmers-2 (TKI-2)**	EFV, NVP, ETR		B: kies ander HIV middel of verhoog dosering TKI-2	0D	
Tyrosine kinase remmers-3 (TKI-3)***	LPV/r, RTV, EVG/c, COBI, DRV/c		B: kies ander HIV middel of verlaag dosering TKI-3	0D	
Valaciclovir VAC	IDV		B: let op toxiciteit IDV	0C	
Valganciclovir VGC	ZDV, DDI		B: let op toxiciteit ZDV & DDI	3E	
Valproïnezuur VAL	ZDV		B: let op toxiciteit ZDV	4E	[310]
	LPV/r, RTV, EFV, NVP		B: let op effectiviteit VAL	2D	[311, 312]
	DTG		B: let op effectiviteit DTG; doe TDM DTG	1C	[313]
Vardenafil VAR	ATV, FPV, IDV, SQV, TPV		B: verlaag VAR naar 2.5 mg 1dd A: sildenafil	0D	
	LPV/r, RTV, DRV, EVG/c, COBI		B: verlaag VAR naar 2.5 mg 1x per 3 dagen A: sildenafil	0D	
	ETR, EFV, NVP		B: let op verminderde werking VAR	0B	
Velpatasvir (VEL) als onderdeel van Epclusa® of Vosevi®	EFV, ETR, NVP	Ja	B: geef andere HIV therapie	3E	
Venlafaxine VEN	ATV, FPV, EFV, IDV, SQV, TPV, DRV, RTV, LPV/r, EVG/c, COBI		B: let op toxiciteit VEN A: (es)citalopram of paroxetine	0D	[83]
Venetoclax VET	EVG/c, COBI, DRV/c, RTV, LPV/r, EFV, ETR, NVP	Ja		0E	
Verapamil VER	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit VER A: lage dosis amlodipine	0B	

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
Vinblastine, Vincristine, vinorelbine VIN	ATV, FPV, IDV, RTV, SQV, LPV/r, TPV, DRV, EVG/c, COBI		B: let op toxiciteit VIN	2E	[90, 314-316]
Voriconazol VOR	FPV, LPV/r, DRV		B: let in 1 ^e instantie op toxiciteit VOR; daarna op effectiviteit VOR A: ATV unboosted	1F	[317-319]
	RTV	Ja	A: ATV unboosted	3E	[319]
	EVG/c, COBI		B: let op toxiciteit VOR	0D	
	NVP	Ja	A: ATV unboosted	3E	[318]
	EFV		B: verhoog VOR dosering naar 2 dd 400mg en verlaag EFV dosering naar 1 dd 300mg A: ETR	3E	[140, 320, 321]
	MRV		B: geef 2 dd 150mg MRV	0C	
	TPV	Ja	A: ATV unboosted	0E	
Vortioxetine VRX	RTV, EVG/c, DRV/c, COBI		B: let op toxiciteit VRX; verlaag 50% van dosering VRX	0D	
Voxilaprevir VOX	EFV, ETR, NVP, ATV/r, LPV/r	Ja	B: geef andere HIV therapie	3E	
Warfarine WAR	ATV, FPV, IDV, SQV, LPV/r, ETR		B: houd rekening met dosisverlaging WAR	0D	
	RTV, EFV, NVP		B: houd rekening met dosisverhoging WAR	2D	[322-326]
	EVG/c		B: monitor INR nauwkeurig; verhoog WAR dosering	1D	[327]
	TPV		B: monitor INR nauwkeurig	0D	
Zidovudine ZDV	D4T	Ja		4E	
Zolpidem ZOL	EVG/c, COBI		B: let op toxiciteit ZOL	0D	
Zonisamide ZON	EFV, ETR, NVP		B: let op effectiviteit ZON	0C	

Opmerking: deze tabel is samengesteld op basis van produkt monografieën, relevante literatuur, congrespresentaties en klinische praktijk. Bedenk dat de informatie over interacties continu aan verandering onderhevig is; het wordt aanbevolen om een klinisch farmacoloog of apotheker te raadplegen wanneer een interactie wordt vermoed. Veel adviezen zijn gebaseerd op theoretische overwegingen en zijn dus niet gebaseerd op gecontroleerd klinisch onderzoek.

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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* onder TKIs-1 worden verstaan TKIs die interactie met remmers en inductoren geven: afatinib, axitinib, bosutinib, ceritinib, cobimetinib, crizotinib, dasatinib, erlotinib, gefitinib, ibrutinib, lapatinib, midostaurine, nilotinib, pazopanib, ruxolitinib, sunitinib.

** onder TKIs-2 worden verstaan TKIs die alleen interactie met inductoren geven: cabozantinib, imatinib, nintedanib, osimertinib, ponatinib, sorafenib

** onder TKIs-3 worden verstaan TKIs die alleen interactie met remmers geven: dabrafenib, regorafenib

LEGENDA bij de tabel

- * afkortingen van geneesmiddelen staan in hoofdletters achter de volledige naam
- ** afkortingen van anti-HIV middelen: 3TC = lamivudine; ABC = abacavir; ATV = atazanavir; BIC = bictegravir; D4T = stavudine; COBI = cobicistat; DDI ec = didanosine enteric-coated capsules; DRV = darunavir; DTG = dolutegravir; EFV = efavirenz; ETR = etravirine (TMC125); EVG/c = elvitegravir/cobicistat; FPV = fosamprenavir; FTC = emtricitabine; IDV = indinavir; LPV/r = lopinavir/ritonavir; MRV = maraviroc; NVP = nevirapine; RAL = raltegravir; RPV = rilpivirine; RTV = ritonavir; SQV = saquinavir; T20 = enfuvirtide; TAF = tenofovir alafenamide; TDF = tenofovir disoproxil fumarate; TPV = tipranavir; ZDV = zidovudine
- Andere afkortingen: ARV = antiretroviraal middel; PI: Protease inhibitor; NNRTI: non-nucleoside reverse transcriptase inhibitor

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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REFERENTIES

1. Herman JS, Ives NJ, Nelson M, Gazzard BG, Easterbrook PJ. **Incidence and risk factors for the development of indinavir-associated renal complications.** *JAntimicrobChemother* 2001; 48(3):355-360.
2. Fletcher CV, Jiang H, Brundage RC, Acosta EP, Haubrich R, Katzenstein D, et al. **Sex-based differences in saquinavir pharmacology and virologic response in AIDS Clinical Trials Group Study 359.** *JInfectDis* 2004; 189(7):1176-1184.
3. Corti N, Heck A, Rentsch K, Zingg W, Jetter A, Stieger B, et al. **Effect of ritonavir on the pharmacokinetics of the benzimidazoles albendazole and mebendazole: an interaction study in healthy volunteers.** *EurJClin Pharmacol* 2009; 65(10):999-1006.
4. Kreutzwiser D, Tseng A. **Drug interactions between antiretrovirals and drugs used to treat benign prostatic hyperplasia/lower urinary tract symptoms.** *Expert Opin Drug Metab Toxicol* 2016; 12(10):1211-1224.
5. Ray AS, Olson L, Fridland A. **Role of purine nucleoside phosphorylase in interactions between 2',3'-dideoxyinosine and allopurinol, ganciclovir, or tenofovir.** *AntimicrobAgents Chemother* 2004; 48(4):1089-1095.
6. Boelaert JR, Dom GM, Huitema AD, Beijnen JH, Lange JM. **The boosting of didanosine by allopurinol permits a halving of the didanosine dosage.** *AIDS* 2002; 16(16):2221-2223.
7. Greenblatt DJ, von Moltke LL, Daily JP, Harmatz JS, Shader RI. **Extensive impairment of triazolam and alprazolam clearance by short-term low-dose ritonavir: the clinical dilemma of concurrent inhibition and induction.** *JClinPsychopharmacol* 1999; 19(4):293-296.
8. Henry JA, Hill IR. **Fatal interaction between ritonavir and MDMA.** *The Lancet* 1998; 352:1751-1752.
9. Harrington RD, Woodward JA, Hooton TM, Horn JR. **Life-threatening interactions between HIV-1 protease inhibitors and the illicit drugs MDMA and gamma-hydroxybutyrate.** *ArchInternMed* 1999; 159(18):2221-2224.
10. Naccarato M, Yoong D, la Porte C, Fong I. **Amiodarone and concurrent antiretroviral therapy: a case report and review of the literature.** *Antivir Ther* 2014; 19(4):329-339.
11. Lohman JJHM, Reichert LJM, Degen LPM. **Antiretroviral therapy increases serum concentrations of amiodarone.** *The Annals of Pharmacotherapy* 1999; 33:645-646.
12. Glesby MJ, Aberg JA, Kendall MA, Fichtenbaum CJ, Hafner R, Hall S, et al. **Pharmacokinetic interactions between indinavir plus ritonavir and calcium channel blockers.** *ClinPharmacolTher* 2005; 78(2):143-153.
13. Ramanathan S, Mathias A, Wei X, Shen G, Koziara J, Cheng A, et al. **Pharmacokinetics of once-daily boosted elvitegravir when administered in combination with Acid-reducing agents.** *J Acquir Immune Defic Syndr* 2013; 64(1):45-50.
14. Song I, Borland J, Arya N, Wynne B, Piscitelli S. **Pharmacokinetics of dolutegravir when administered with mineral supplements in healthy adult subjects.** *J Clin Pharmacol* 2015; 55(5):490-496.
15. Mildvan D, Yarrish R, Marshak A, Hutman HW, McDonough M, Lamson M, et al. **Pharmacokinetic interaction between nevirapine and ethinyl estradiol/norethindrone when administered concurrently to HIV-infected women.** *JAcquirImmuneDeficSyndr* 2002; 29(5):471-477.
16. Ouellet D, Hsu A, Qian J, Locke CS, Eason CJ, Cavanaugh JH, et al. **Effect of ritonavir on the pharmacokinetics of ethinyl oestradiol in healthy female volunteers.** *BrJClinPharmacol* 1998; 46(2):111-116.

Klinisch relevante interacties met anti- HIV middelen

Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen

Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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17. Cohn SE, Park JG, Watts DH, Stek A, Hitti J, Clax PA, et al. **Depo-medroxyprogesterone in women on antiretroviral therapy: effective contraception and lack of clinically significant interactions.** *ClinPharmacolTher* 2007; 81(2):222-227.
18. Sekar VJ, Lefebvre E, Guzman SS, Felicione E, De Pauw M, Vangeneugden T, et al. **Pharmacokinetic interaction between ethinyl estradiol, norethindrone and darunavir with low-dose ritonavir in healthy women.** *AntivirTher* 2008; 13(4):563-569.
19. Zhang J, Chung E, Yones C, Persson A, Mahnke L, Eley T, et al. **The effect of atazanavir/ritonavir on the pharmacokinetics of an oral contraceptive containing ethinyl estradiol and norgestimate in healthy women.** *Antivir Ther* 2011; 16(2):157-164.
20. Sevinsky H, Eley T, Persson A, Garner D, Yones C, Nettles R, et al. **The effect of efavirenz on the pharmacokinetics of an oral contraceptive containing ethinyl estradiol and norgestimate in healthy HIV-negative women.** *Antivir Ther* 2011; 16(2):149-156.
21. Carten ML, Kiser JJ, Kwara A, Mawhinney S, Cu-Uvin S. **Pharmacokinetic interactions between the hormonal emergency contraception, levonorgestrel (Plan B), and Efavirenz.** *Infect Dis Obstet Gynecol* 2012; 2012:137192.
22. Scarsi KK, Darin KM, Nakalema S, Back DJ, Byakika-Kibwika P, Else LJ, et al. **Unintended Pregnancies Observed With Combined Use of the Levonorgestrel Contraceptive Implant and Efavirenz-based Antiretroviral Therapy: A Three-Arm Pharmacokinetic Evaluation Over 48 Weeks.** *Clin Infect Dis* 2016; 62(6):675-682.
23. Scarsi K, Lamorde M, Darin K, Penchala SD, Else L, Nakalema S, et al. **Efavirenz- but not nevirapine-based antiretroviral therapy decreases exposure to the levonorgestrel released from a sub-dermal contraceptive implant.** *Journal of the International AIDS Society* 2014; 17(4 Suppl 3):19484.
24. Aung GL, O'Brien JG, Tien PG, Kawamoto LS. **Increased aripiprazole concentrations in an HIV-positive male concurrently taking duloxetine, darunavir, and ritonavir.** *AnnPharmacother* 2010; 44(11):1850-1854.
25. Huang L, Parikh S, Rosenthal PJ, Lizak P, Marzan F, Dorsey G, et al. **Concomitant efavirenz reduces pharmacokinetic exposure to the antimalarial drug artemether-lumefantrine in healthy volunteers.** *J Acquir Immune Defic Syndr* 2012; 61(3):310-316.
26. Byakika-Kibwika P, Lamorde M, Mayito J, Nabukeera L, Namakula R, Mayanja-Kizza H, et al. **Significant pharmacokinetic interactions between artemether/lumefantrine and efavirenz or nevirapine in HIV-infected Ugandan adults.** *The Journal of antimicrobial chemotherapy* 2012; 67(9):2213-2221.
27. Boffito M, Kurowski M, Kruse G, Hill A, Benzie AA, Nelson MR, et al. **Atazanavir enhances saquinavir hard-gel concentrations in a ritonavir-boosted once-daily regimen.** *AIDS* 2004; 18(9):1291-1297.
28. Boffito M, Back D, Kurowski M, Dickinson L, Kruse G, Hill A, et al. **Pharmacokinetics of saquinavir hard gel/ritonavir with atazanavir or fosamprenavir in HIV+ patients.** *5th International Workshop on Clinical Pharmacology of HIV Therapy Rome, Italy April 1-3, 2004 Abstract 45* 2004.
29. Pham PA, Flexner C, Parsons T, Vasist L, Fuchs E, Carson K, et al. **Beneficial pharmacokinetic interaction between atazanavir and lopinavir/ritonavir.** *JAcquirImmuneDeficSyndr* 2007; 45(2):201-205.
30. Poirier JM, Guiard-Schmid JB, Meynard JL, Bonnard P, Zouai O, Lukiana T, et al. **Critical drug interaction between ritonavir-boosted atazanavir regimen and non-nucleoside reverse transcriptase inhibitors.** *AIDS* 2006; 20(7):1087-1089.
31. Dailly E, Tribut O, Tattevin P, Arvieux C, Perre P, Raffi F, et al. **Influence of tenofovir, nevirapine and efavirenz on ritonavir-boosted atazanavir pharmacokinetics in HIV-infected patients.** *EurJ ClinPharmacol* 2006; 62(7):523-526.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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32. Taburet AM, Piketty C, Chazallon C, Vincent I, Gerard L, Calvez V, et al. **Interactions between atazanavir-ritonavir and tenofovir in heavily pretreated human immunodeficiency virus-infected patients.** *Antimicrob Agents Chemother* 2004; 48(6):2091-2096.
33. Fichtenbaum CJ, Gerber JG, Rosenkranz SL, Segal Y, Aberg JA, Blaschke T, et al. **Pharmacokinetic interactions between protease inhibitors and statins in HIV seronegative volunteers: ACTG Study A5047.** *AIDS* 2002; 16(4):569-577.
34. Castro JG, Gutierrez L. **Rhabdomyolysis with acute renal failure probably related to the interaction of atorvastatin and delavirdine.** *AmJMed* 2002; 112(6):505.
35. Pham PA, la Porte CJ, Lee LS, van Heeswijk R, Sabo JP, Elgadi MM, et al. **Differential effects of tipranavir plus ritonavir on atorvastatin or rosuvastatin pharmacokinetics in healthy volunteers.** *Antimicrob Agents Chemother* 2009; 53(10):4385-4392.
36. Gerber JG, Rosenkranz SL, Fichtenbaum CJ, Vega JM, Yang A, Alston BL, et al. **Effect of Efavirenz on the Pharmacokinetics of Simvastatin, Atorvastatin, and Pravastatin: Results of AIDS Clinical Trials Group 5108 Study.** *JAcquirImmuneDeficSyndr* 2005; 39(3):307-312.
37. Lee BL, Tauber MG, Sadler B, Goldstein D, Chambers HF. **Atovaquone inhibits the glucuronidation and increases the plasma concentrations of zidovudine.** *ClinPharmacolTher* 1996; 59(1):14-21.
38. van Luin M, Van Der Ende ME, Richter C, Visser M, Faraj D, van der Ven A, et al. **Lower atovaquone/proguanil concentrations in patients taking efavirenz, lopinavir/ritonavir or atazanavir/ritonavir.** *AIDS* 2010; 24(8):1223-1226.
39. Calderon MM, Penzak SR, Pau AK, Kumar P, McManus M, Alfaro RM, et al. **Efavirenz but Not Atazanavir/Ritonavir Significantly Reduces Atovaquone Concentrations in HIV-Infected Subjects.** *Clin Infect Dis* 2016; 62(8):1036-1042.
40. Desnoyer A, Kaied FA, Descamps D, Yeni P, Descamps V, Le BC, et al. **Deleterious pharmacokinetic interaction between bexarotene and efavirenz.** *AIDS* 2010; 24(14):2296-2298.
41. Beau-Salinas F, Garot D, Le GC, Jonville-Béra AP, Ingremeau V, utret-Leca E. **Possible reduction in indinavir serum concentrations by bosentan.** *TherDrug Monit* 2005; 27(6):822-823.
42. Dingemans J, van Giersbergen PL, Patat A, Nilsson PN. **Mutual pharmacokinetic interactions between bosentan and lopinavir/ritonavir in healthy participants.** *AntivirTher* 2010; 15(2):157-163.
43. Sagir A, Wettstein M, Oette M, Erhardt A, Haussinger D. **Budesonide-induced acute hepatitis in an HIV-positive patient with ritonavir as a co-medication.** *AIDS* 2002; 16(8):1191-1192.
44. Foisy MM, Yakiwchuk EM, Chiu I, Singh AE. **Adrenal suppression and Cushing's syndrome secondary to an interaction between ritonavir and fluticasone: a review of the literature.** *HIV Med* 2008; 9(6):389-396.
45. Frankel JK, Packer CD. **Cushing's syndrome due to antiretroviral-budesonide interaction.** *Ann Pharmacother* 2011; 45(6):823-824.
46. Boyd SD, Hadigan C, McManus M, Chairez C, Nieman LK, Pau AK, et al. **Influence of low-dose ritonavir with and without darunavir on the pharmacokinetics and pharmacodynamics of inhaled beclomethasone.** *J Acquir Immune Defic Syndr* 2013; 63(3):355-361.
47. Saberi P, Phengrasamy T, Nguyen DP. **Inhaled corticosteroid use in HIV-positive individuals taking protease inhibitors: a review of pharmacokinetics, case reports and clinical management.** *HIV medicine* 2013; 14(9):519-529.
48. Bruce RD, Altice FL. **Three case reports of a clinical pharmacokinetic interaction with buprenorphine and atazanavir plus ritonavir.** *AIDS* 2006; 20(5):783-784.
49. Bruce RD, Altice FL, Moody DE, Morse GD, Andrews L, Lin SN, et al. **Pharmacokinetic interactions between buprenorphine/naloxone and once-daily lopinavir/ritonavir.** *JAcquirImmuneDeficSyndr* 2010; 54(5):511-514.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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50. McCance-Katz EF, Moody DE, Smith PF, Morse GD, Friedland G, Pade P, et al. **Interactions between buprenorphine and antiretrovirals. II. The protease inhibitors nelfinavir, lopinavir/ritonavir, and ritonavir.** *Clin Infect Dis* 2006; 43 Suppl 4:S235-S246.
51. Sekar V, Tomaka F, Lefebvre E, De Pauw M, Vangeneugden T, van den Brink W, et al. **Pharmacokinetic interactions between darunavir/ritonavir and opioid maintenance therapy using methadone or buprenorphine/naloxone.** *J Clin Pharmacol* 2011; 51(2):271-278.
52. Gruber VA, Rainey PM, Moody DE, Morse GD, Ma Q, Prathikanti S, et al. **Interactions between buprenorphine and the protease inhibitors darunavir-ritonavir and fosamprenavir-ritonavir.** *Clin Infect Dis* 2012; 54(3):414-423.
53. Bruce RD, Winkle P, Custodio JM, Wei LX, Rhee MS, Kearney BP, et al. **The pharmacokinetic and pharmacodynamic interactions between buprenorphine/naloxone and elvitegravir/cobicistat in subjects receiving chronic buprenorphine/naloxone treatment.** *J Acquir Immune Defic Syndr* 2013; 63(4):480-484.
54. Douglas Bruce R, Moody DE, Chodkowski D, Andrews L, Fang WB, Morrison J, et al. **Pharmacokinetic interactions between buprenorphine/naloxone and raltegravir in subjects receiving chronic buprenorphine/naloxone treatment.** *The American journal of drug and alcohol abuse* 2013; 39(2):80-85.
55. Hesse LM, von Moltke LL, Shader RI, Greenblatt DJ. **Ritonavir, efavirenz, and nelfinavir inhibit CYP2B6 activity in vitro: potential drug interactions with bupropion.** *Drug Metab Dispos* 2001; 29(2):100-102.
56. Park-Wyllie LY, Antoniou T. **Concurrent use of bupropion with CYP2B6 inhibitors, nelfinavir, ritonavir and efavirenz: a case series.** *AIDS* 2003; 17(4):638-640.
57. Hesse LM, Greenblatt DJ, von Moltke LL, Court MH. **Ritonavir has minimal impact on the pharmacokinetic disposition of a single dose of bupropion administered to human volunteers.** *J Clin Pharmacol* 2006; 46(5):567-576.
58. Hogeland GW, Swindells S, McNabb JC, Kashuba AD, Yee GC, Lindley CM. **Lopinavir/ritonavir reduces bupropion plasma concentrations in healthy subjects.** *Clin Pharmacol Ther* 2007; 81(1):69-75.
59. Robertson SM, Maldarelli F, Nataraajan V, Formentini E, Alfaro RM, Penzak SR. **Efavirenz induces CYP2B6-mediated hydroxylation of bupropion in healthy subjects.** *J Acquir Immune Defic Syndr* 2008; 49(5):513-519.
60. Roberts JL, Kiser JJ, Hindman JT, Meditz AL. **Virologic failure with a raltegravir-containing antiretroviral regimen and concomitant calcium administration.** *Pharmacotherapy* 2011; 31(10).
61. Moss DM, Siccardi M, Murphy M, Piperakis MM, Khoo SH, Back DJ, et al. **Divalent metals and pH alter raltegravir disposition in vitro.** *Antimicrob Agents Chemother* 2012; 56(6):3020-3026.
62. Bates DE, Herman RJ. **Carbamazepine toxicity induced by lopinavir/ritonavir and nelfinavir.** *Ann Pharmacother* 2006; 40(6):1190-1195.
63. Mateu-de Antonio J, Grau S, Gimeno-Bayon JL, Carmona A. **Ritonavir-induced carbamazepine toxicity.** *Ann Pharmacother* 2001; 35(1):125-126.
64. Song L, Weller S, Patel J, Borland J, Wynne B, Choukour M, et al. **Effect of carbamazepine on dolutegravir pharmacokinetics and dosing recommendation.** *Eur J Clin Pharmacol* 2016; 72(6):665-670.
65. Goicoechea M, Best B, Capparelli E, Haubrich R. **Concurrent use of efavirenz and oxcarbazepine may not affect efavirenz plasma concentrations.** *Clin Infect Dis* 2006; 43(1):116-117.
66. Ji P, Damle B, Xie J, Unger SE, Grasela DM, Kaul S. **Pharmacokinetic interaction between efavirenz and carbamazepine after multiple-dose administration in healthy subjects.** *J Clin Pharmacol* 2008; 48(8):948-956.

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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67. Zhu M, Kaul S, Nandy P, Grasela DM, Pfister M. **Model-based approach to characterize efavirenz autoinduction and concurrent enzyme induction with carbamazepine.** *AntimicrobAgents Chemother* 2009; 53(6):2346-2353.
68. Hugen PWH, Burger DM, Brinkman K, Hofstede ter HJM, Schuurman R, Koopmans PP, et al. **Carbamazepine-indinavir interaction causes antiretroviral therapy failure.** *The Annals of Pharmacotherapy* 2000; 34(4):465-470.
69. Berbel GA, Latorre IA, Porta EJ, Martinez SA, Perez MD, Siaz DR, et al. **Protease inhibitor-induced carbamazepine toxicity.** *ClinNeuropharmacol* 2000; 23(4):216-218.
70. Vogel M, Voigt E, Michaelis HC, Sudhop T, Wolff M, Turler A, et al. **Management of drug-to-drug interactions between cyclosporine A and the protease-inhibitor lopinavir/ritonavir in liver-transplanted HIV-infected patients.** *Liver Transpl* 2004; 10(7):939-944.
71. Guaraldi G, Cocchi S, Codeluppi M, Di Benedetto F, Bonora S, Motta A, et al. **Pharmacokinetic interaction between Amprenavir/Ritonavir and FosAmprenavir on cyclosporine in two patients with human immunodeficiency virus infection undergoing orthotopic liver transplantation.** *TransplantProc* 2006; 38(4):1138-1140.
72. Gruber SA, Doshi MD, Cincotta E, Brown KL, Singh A, Morawski K, et al. **Preliminary experience with renal transplantation in HIV+ recipients: low acute rejection and infection rates.** *Transplantation* 2008; 86(2):269-274.
73. Brinkman K, Huysman F, Burger DM. **Pharmacokinetic interaction between saquinavir and cyclosporine.** *Annals of Internal Medicine* 1998; 129(11):914-915.
74. Tseng A, Nguyen ME, Cardella C, Humar A, Conly J. **Probable interaction between efavirenz and cyclosporine.** *AIDS* 2002; 16(3):505-506.
75. Boruchoff SE, Sturgill MG, Grasing KW, Seibold JR, McCrea J, Winchell GA, et al. **The steady-state disposition of indinavir is not altered by the concomitant administration of clarithromycin.** *Clinical Pharmacology & Therapeutics* 2000; 67(4):351-359.
76. Ouellet D, Hsu A, Qian J, Lamm JE, Cavanaugh JH, Leonard JM, et al. **Effect of fluoxetine on pharmacokinetics of ritonavir.** *Antimicrobial agents and chemotherapy* 1998; 42(12):3107-3112.
77. Amsden GW, Nafziger AN, Foulds G, Cabelus LJ. **A study of the pharmacokinetics of azithromycin and nelfinavir when coadministered in healthy volunteers.** *JClinPharmacol* 2000; 40(12 Pt 2):1522-1527.
78. Ouellet D, Hsu A, Granneman GR, Carlson G, Cavanaugh J, Guenther H, et al. **Pharmacokinetic interaction between ritonavir and clarithromycin.** *ClinPharmacolTher* 1998; 64(4):355-362.
79. Sekar VJ, Spinosa-Guzman S, De Paepe E, De Pauw M, Vangeneugden T, Lefebvre E, et al. **Darunavir/ritonavir pharmacokinetics following coadministration with clarithromycin in healthy volunteers.** *JClinPharmacol* 2008; 48(1):60-65.
80. la Porte CJ, Sabo JP, Elgadi M, Cameron DW. **Interaction studies of tipranavir-ritonavir with clarithromycin, fluconazole, and rifabutin in healthy volunteers.** *AntimicrobAgents Chemother* 2009; 53(1):162-173.
81. Prime K, French P. **Neuropsychiatric reaction induced by clarithromycin in a patient on highly active antiretroviral therapy (HAART).** *Sex TransmInfect* 2001; 77(4):297-298.
82. Naccarato M, Yoong D, Kovacs C, Gough K. **A case of a potential drug interaction between clobazam and etravirine-based antiretroviral therapy.** *Antivir Ther* 2012; 17(3):589-592.
83. Gutierrez MM, Rosenberg J, Abramowitz W. **An evaluation of the potential for pharmacokinetic interaction between escitalopram and the cytochrome P450 3A4 inhibitor ritonavir.** *ClinTher* 2003; 25(4):1200-1210.
84. Sharma GK, Megaly M. **Etravirine as a culprit of recurrent drug-eluting in-stent restenosis in an HIV patient.** *Int J Cardiol* 2016; 219:117-118.
85. Metzger NL, Momary KM. **A patient with HIV and tuberculosis with diminished clopidogrel response.** *Int J STD AIDS* 2014; 25(7):532-534.

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
-----------------------	--------------------	----	-------------------------------	---------------	------

86. Bravo I, Alvarez H, Marino A, Clotet B, Molto J. **Recurrent coronary disease in HIV-infected patients: role of drug-drug interactions.** *Br J Clin Pharmacol* 2018; 84(7):1617-1619.
87. Hauguel-Moreau M, Boccara F, Boyd A, Salem JE, Brugier D, Curjol A, et al. **Platelet reactivity in human immunodeficiency virus infected patients on dual antiplatelet therapy for an acute coronary syndrome: the EVERE2ST-HIV study.** *Eur Heart J* 2017; 38(21):1676-1686.
88. Penzak SR, Grimsley SR, Jann MW. **Comment: significant interactions with new antiretrovirals and psychotropic drugs.** *The Annals of Pharmacotherapy* 1999; 33(December):1372-1373.
89. Marzolini C, Gibbons S, Khoo S, Back D. **Cobicistat versus ritonavir boosting and differences in the drug-drug interaction profiles with co-medications.** *The Journal of antimicrobial chemotherapy* 2016; 71(7):1755-1758.
90. Vaccher E, Spina M, Di Gennaro G, Talamini R, Nasti G, Schioppa O, et al. **Concomitant cyclophosphamide, doxorubicin, vincristine, and prednisone chemotherapy plus highly active antiretroviral therapy in patients with human immunodeficiency virus-related, non-Hodgkin lymphoma.** *Cancer* 2001; 91(1):155-163.
91. Ross LL, Song IH, Arya N, Choukour M, Zong J, Huang SP, et al. **No clinically significant pharmacokinetic interactions between dolutegravir and daclatasvir in healthy adult subjects.** *BMC infectious diseases* 2016; 16:347.
92. Kumar P, Gordon LA, Brooks KM, George JM, Kellogg A, McManus M, et al. **Differential Influence of the Antiretroviral Pharmacokinetic Enhancers Ritonavir and Cobicistat on Intestinal P-Glycoprotein Transport and the Pharmacokinetic/Pharmacodynamic Disposition of Dabigatran.** *Antimicrob Agents Chemother* 2017; 61(11).
93. Gordon LA, Kumar P, Brooks KM, Kellogg A, McManus M, Alfaro RM, et al. **Antiretroviral Boosting Agent Cobicistat Increases the Pharmacokinetic Exposure and Anticoagulant Effect of Dabigatran in HIV-Negative Healthy Volunteers.** *Circulation* 2016; 134(23):1909-1911.
94. Barco S, Coppens M, van den Dool EJ, van de Kerkhof D, Stroobants AK, Middeldorp S. **Successful co-administration of dabigatran etexilate and protease inhibitors ritonavir/lopinavir in a patient with atrial fibrillation.** *Thromb Haemost* 2014; 112(4):836-838.
95. Kakadiya PP, Higginson RT, Fulco RP. **Ritonavir-Boosted Protease Inhibitors but Not Cobicistat Appear Safe in HIV-Positive Patients Ingesting Dabigatran.** *Antimicrob Agents Chemother* 2018; 62(2).
96. Okoli C, Siccardi M, Thomas-William S, Dufty N, Khonyongwa K, Ainsworth J, et al. **Once daily maraviroc 300 mg or 150 mg in combination with ritonavir-boosted darunavir 800/100 mg.** *The Journal of antimicrobial chemotherapy* 2012; 67(3):671-674.
97. Soon GH, Shen B, Yong EL, Pham P, Flexner C, Lee L. **Pharmacokinetics of darunavir at 900 milligrams and ritonavir at 100 milligrams once daily when coadministered with efavirenz at 600 milligrams once daily in healthy volunteers.** *Antimicrob Agents Chemother* 2010; 54(7):2775-2780.
98. Molloy A, Matheson NJ, Meyer PA, Chatterjee K, Gkrania-Klotsas E. **Cushing's syndrome and adrenal axis suppression in a patient treated with ritonavir and corticosteroid eye drops.** *AIDS* 2014; 28(10):1337-1339.
99. Bickel M, Khaykin P, Stephan C, Schmidt K, Buettner M, Amann K, et al. **Acute kidney injury caused by tenofovir disoproxil fumarate and diclofenac co-administration.** *HIV medicine* 2013; 14(10):633-638.
100. Blanchard JN, Wohlfeiler M, Canas A, King K, Lonergan JT. **Pancreatitis treated with didanosine and tenofovir disoproxil fumarate.** *Clin Infect Dis* 2003; 37(5):e57-e62.
101. Pecora FP, Kirian MA. **Effect of tenofovir on didanosine absorption in patients with HIV.** *Ann Pharmacother* 2003; 37(9):1325-1328.

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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102. Martinez E, Milinkovic A, de Lazzari E, Ravasi G, Blanco JL, Larrousse M, et al. **Pancreatic toxic effects associated with co-administration of didanosine and tenofovir in HIV-infected adults.** *Lancet* 2004; 364(9428):65-67.
103. Koolen SL, Oostendorp RL, Beijnen JH, Schellens JH, Huitema AD. **Population pharmacokinetics of intravenously and orally administered docetaxel with or without co-administration of ritonavir in patients with advanced cancer.** *BrJ Clin Pharmacol* 2010; 69(5):465-474.
104. Mir O, ssard-Diana B, Louet AL, Loulergue P, Viard JP, Langlois A, et al. **Severe toxicity related to a pharmacokinetic interaction between docetaxel and ritonavir in HIV-infected patients.** *BrJ Clin Pharmacol* 2010; 69(1):99-101.
105. Loulergue P, Mir O, Allali J, Viard JP. **Possible pharmacokinetic interaction involving ritonavir and docetaxel in a patient with Kaposi's sarcoma.** *AIDS* 2008; 22(10):1237-1239.
106. Bodeau S, Nguyen-Khac E, Solas C, Bennis Y, Capron D, Duverlie G, et al. **Patients treated with first-generation HCV protease inhibitors exhibit high ribavirin concentrations.** *J Clin Pharmacol* 2015; 55(5):517-524.
107. Dailly E, Allavena C, Gregoire M, Reliquet V, Bouquie R, Billaud E, et al. **Influence of nevirapine administration on the pharmacokinetics of dolutegravir in patients infected with HIV-1.** *The Journal of antimicrobial chemotherapy* 2015; 70(12):3307-3310.
108. Song I, Borland J, Chen S, Guta P, Lou Y, Wilfret D, et al. **Effects of enzyme inducers efavirenz and tipranavir/ritonavir on the pharmacokinetics of the HIV integrase inhibitor dolutegravir.** *Eur J Clin Pharmacol* 2014; 70(10):1173-1179.
109. Hammond KP, Nielsen C, Linnebur SA, Langness JA, Ray G, Maroni P, et al. **Priapism Induced by Boceprevir-CYP3A4 Inhibition and alpha-Adrenergic Blockade: Case Report.** *Clin Infect Dis* 2014; 58(1):e35-38.
110. Toffoli G, Corona G, Cattarossi G, Boiocchi M, Di Gennaro G, Tirelli U, et al. **Effect of highly active antiretroviral therapy (HAART) on pharmacokinetics and pharmacodynamics of doxorubicin in patients with HIV-associated non-Hodgkin's lymphoma.** *Ann Oncol* 2004; 15(12):1805-1809.
111. Abel S, Jenkins TM, Whitlock LA, Ridgway CE, Muirhead GJ. **Effects of CYP3A4 inducers with and without CYP3A4 inhibitors on the pharmacokinetics of maraviroc in healthy volunteers.** *British journal of pharmacology* 2008; 65 Suppl 1:38-46.
112. DeJesus E, Piliro PJ, Summers K, Wire MB, Stein DS, Masterman A, et al. **Interaction between fosamprenavir, with and without ritonavir, and nevirapine in human immunodeficiency virus-infected subjects.** *Antimicrob Agents Chemother* 2006; 50(9):3157-3159.
113. Veldkamp AI, Harris M, Montaner JS, Moyle G, Gazzard B, Youle M, et al. **The steady-state pharmacokinetics of efavirenz and nevirapine when used in combination in human immunodeficiency virus type 1-infected persons.** *J Infect Dis* 2001; 184(1):37-42.
114. Aarnoutse RE, Grintjes KJ, Telgt DS, Stek M, Jr., Hugen PW, Reiss P, et al. **The influence of efavirenz on the pharmacokinetics of a twice-daily combination of indinavir and low-dose ritonavir in healthy volunteers.** *Clin Pharmacol Ther* 2002; 71(1):57-67.
115. Rajanathan S, Abel S, Tweedy S, West S, Hui J, Kearney BP. **Pharmacokinetic interaction of ritonavir-boosted elvitegravir and maraviroc.** *J Acquir Immune Defic Syndr* 2010; 53(2):209-214.
116. Raffi F, Battegay M, Rusconi S, Opravil M, Blick G, Steigbigel RT, et al. **Combined tipranavir and enfuvirtide use associated with higher plasma tipranavir concentrations but not with increased hepatotoxicity: sub-analysis from RESIST.** *AIDS* 2007; 21(14):1977-1980.
117. Mortier E, Pouchot J, Vinceneux P, Lalande M. **Ergotism related to interaction between nelfinavir and ergotamine.** *AmJMed* 2001; 110(7):594.
118. Pardo RC, Yebra M, Borrallo M, Vega A, Ramos A, Montero MC. **Irreversible coma, ergotamine, and ritonavir.** *Clin Infect Dis* 2003; 37(5):e72-e73.

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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119. Baldwin ZK, Ceraldi CC. **Ergotism associated with HIV antiviral protease inhibitor therapy.** *JVascSurg* 2003; 37(3):676-678.
120. Tribble MA, Gregg CR, Margolis DM, Amirkhan R, Smith JW. **Fatal ergotism induced by an HIV protease inhibitor.** *Headache* 2002; 42(7):694-695.
121. Frohlich G, Kaplan V, mann-Vesti B. **Holy fire in an HIV-positive man: a case of 21st-century ergotism.** *CMAJ* 2010; 182(4):378-380.
122. Rosenthal E, Sala F, Chichmanian RM, Batt M, Cassuto JP. **Ergotism related to concurrent administration of ergotamine tartrate and indinavir.** *JAMA* 1999; 281(11):987.
123. Caballero-Granado FJ, Viciano P, Cordero E, Gomez-Vera MJ, del NM, Lopez-Cortes LF. **Ergotism related to concurrent administration of ergotamine tartrate and ritonavir in an AIDS patient.** *AntimicrobAgents Chemother* 1997; 41(5):1207.
124. Ford SL, Wire MB, Lou Y, Baker KL, Stein DS. **Effect of antacids and ranitidine on the single-dose pharmacokinetics of fosamprenavir.** *AntimicrobAgents Chemother* 2005; 49(1):467-469.
125. Winston A, Back D, Fletcher C, Robinson L, Unsworth J, Tolowinska I, et al. **Effect of omeprazole on the pharmacokinetics of saquinavir-500 mg formulation with ritonavir in healthy male and female volunteers.** *AIDS* 2006; 20(10):1401-1406.
126. Shelton MJ, Ford SL, Borland J, Lou Y, Wire MB, Min SS, et al. **Coadministration of esomeprazole with fosamprenavir has no impact on steady-state plasma amprenavir pharmacokinetics.** *JAcquirImmuneDeficSyndr* 2006; 42(1):61-67.
127. Saberi P, Ranatunga DK, Quesenberry CP, Silverberg MJ. **Clinical implications of the nelfinavir-proton pump inhibitor drug interaction in patients with human immunodeficiency virus.** *Pharmacotherapy* 2011; 31(3):253-261.
128. Zhu L, Persson A, Mahnke L, Eley T, Li T, Xu X, et al. **Effect of low-dose omeprazole (20 mg daily) on the pharmacokinetics of multiple-dose atazanavir with ritonavir in healthy subjects.** *J Clin Pharmacol* 2011; 51(3):368-377.
129. Scholler-Gyure M, Kakuda TN, Witek J, Akuma SH, De Smedt G, Spittaels K, et al. **Steady-state pharmacokinetics of etravirine and lopinavir/ritonavir melt extrusion formulation, alone and in combination, in healthy HIV-negative volunteers.** *J Clin Pharmacol* 2013; 53(2):202-210.
130. Abel S, Back DJ, Vourvahis M. **Maraviroc: pharmacokinetics and drug interactions.** *AntivirTher* 2009; 14(5):607-618.
131. Le MP, Solas C, Garraffe R, Gagnieu MC, Muret P, Yeni P, et al. **Pharmacokinetic interaction between maraviroc and etravirine in HIV-infected patients receiving regimens containing both drugs and no ritonavir-boosted protease inhibitor.** *The Journal of antimicrobial chemotherapy* 2012; 67(11):2779-2781.
132. Izzedine H, Labbay-Vacher V, Deray G, Hulot JS. **Nelfinavir and felodipine: a cytochrome P450 3A4-mediated drug interaction.** *ClinPharmacolTher* 2004; 75(4):362-363.
133. Bonora S, Calcagno A, Fontana S, D'Avolio A, Siccardi M, Gobbi F, et al. **Clinically significant drug interaction between tipranavir-ritonavir and phenobarbital in an HIV-infected subject.** *ClinInfectDis* 2007; 45(12):1654-1655.
134. Olkkola KT, Palkama VJ, Neuvonen PJ. **Ritonavir's role in reducing fentanyl clearance and prolonging its half-life.** *Anesthesiology* 1999; 91(3):681-685.
135. Lim ML, Min SS, Eron JJ, Bertz RJ, Robinson M, Gaedigk A, et al. **Coadministration of Lopinavir/Ritonavir and Phenytoin Results in Two-Way Drug Interaction Through Cytochrome P-450 Induction.** *JAcquirImmuneDeficSyndr* 2004; 36(5):1034-1040.
136. Robertson SM, Penzak SR, Lane J, Pau AK, Mican JM. **A potentially significant interaction between efavirenz and phenytoin: a case report and review of the literature.** *ClinInfectDis* 2005; 41(2):e15-e18.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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137. Spak CW, Dhanireddy S, Kosel BW. **Clinical interaction between efavirenz and phenytoin.** *AIDS* 2008; 22(1):164-165.
138. Wakeham K, Parkes-Ratanshi R, Watson V, Ggayi AB, Khoo S, Lalloo DG. **Co-administration of fluconazole increases nevirapine concentrations in HIV-infected Ugandans.** *JAntimicrobChemother* 2010; 65(2):316-319.
139. Manosuthi W, Athichathanabadi C, Uttayamakul S, Phoorisri T, Sungkanuparph S. **Plasma nevirapine levels, adverse events and efficacy of antiretroviral therapy among HIV-infected patients concurrently receiving nevirapine-based antiretroviral therapy and fluconazole.** *BMCInfectDis* 2007; 7:14.
140. Kakuda TN, Van Solingen-Ristea R, Aharchi F, Smedt GD, Witek J, Nijs S, et al. **Pharmacokinetics and short-term safety of etravirine in combination with fluconazole or voriconazole in HIV-negative volunteers.** *J Clin Pharmacol* 2013; 53(1):41-50.
141. Uchaipichat V, Winner LK, Mackenzie PI, Elliot DJ, Williams JA, Miners JO. **Quantitative prediction of in vivo inhibitory interactions involving glucuronidated drugs from in vitro data: the effect of fluconazole on zidovudine glucuronidation.** *BrJClinPharmacol* 2006; 61(4):427-439.
142. Sahai J, Gallicano K, Pakuts A, Cameron DW. **Effect of fluconazole on zidovudine pharmacokinetics in patients infected with human immunodeficiency virus.** *JInfectDis* 1994; 169(5):1103-1107.
143. DeSilva KE, Le Flore DB, Marston BJ, Rimland D. **Serotonin syndrome in HIV-infected individuals receiving antiretroviral therapy and fluoxetine.** *AIDS* 2001; 15(10):1281-1285.
144. De Maat MM, Huitema AD, Mulder JW, Meenhorst PL, Van Gorp EC, Mairuhu AT, et al. **Drug Interaction of Fluvoxamine and Fluoxetine with Nevirapine in HIV-1-Infected Individuals.** *ClinDrug Investig* 2003; 23(10):629-637.
145. Clevenbergh P, Corcostegui M, Gerard D, Hieronimus S, Mondain V, Chichmanian RM, et al. **Iatrogenic Cushing's syndrome in an HIV-infected patient treated with inhaled corticosteroids (fluticasone propionate) and low dose ritonavir enhanced PI containing regimen.** *JInfect* 2002; 44(3):194-195.
146. Rouanet I, Peyriere H, Mauboussin JM, Vincent D. **Cushing's syndrome in a patient treated by ritonavir/lopinavir and inhaled fluticasone.** *HIVMed* 2003; 4(2):149-150.
147. Chen F, Kearney T, Robinson S, Daley-Yates PT, Waldron S, Churchill DR. **Cushing's syndrome and severe adrenal suppression in patients treated with ritonavir and inhaled nasal fluticasone.** *Sex TransmInfect* 1999; 75(4):274.
148. Hillebrand-Haverkort ME, Prummel MF, ten Veen JH. **Ritonavir-induced Cushing's syndrome in a patient treated with nasal fluticasone.** *AIDS* 1999; 13(13):1803.
149. Gillett MJ, Cameron PU, Nguyen HV, Hurley DM, Mallal SA. **Iatrogenic Cushing's syndrome in an HIV-infected patient treated with ritonavir and inhaled fluticasone.** *AIDS* 2005; 19(7):740-741.
150. Pessanha TM, Campos JM, Barros AC, Pone MV, Garrido JR, Pone SM. **Iatrogenic Cushing's syndrome in a adolescent with AIDS on ritonavir and inhaled fluticasone. case report and literature review.** *AIDS* 2007; 21(4):529-532.
151. Arrington-Sanders R, Hutton N, Siberry GK. **Ritonavir-fluticasone interaction causing Cushing syndrome in HIV-infected children and adolescents.** *PediatrInfectDisJ* 2006; 25(11):1044-1048.
152. Lewis J, Turtle L, Khoo S, Nsutebu EN. **A case of iatrogenic adrenal suppression after co-administration of cobicistat and fluticasone nasal drops.** *AIDS* 2014; 28(17):2636-2637.
153. Taburet AM, Raguin G, Le TC, Droz C, Barrail A, Vincent I, et al. **Interactions between amprenavir and the lopinavir-ritonavir combination in heavily pretreated patients infected with human immunodeficiency virus.** *ClinPharmacolTher* 2004; 75(4):310-323.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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154. Corbett AH, Patterson KB, Tien HC, Kalvass LA, Eron JJ, Ngo LT, et al. **Dose Separation Does Not Overcome the Pharmacokinetic Interaction between Fosamprenavir and Lopinavir/Ritonavir.** *Antimicrob Agents Chemother* 2006; 50(8):2756-2761.

155. Kashuba AD, Tierney C, Downey GF, Acosta EP, Vergis EN, Klingman K, et al. **Combining fosamprenavir with lopinavir/ritonavir substantially reduces amprenavir and lopinavir exposure: ACTG protocol A5143 results.** *AIDS* 2005; 19(2):145-152.

156. Vourvahis M, Plotka A, Mendes da Costa L, Fang A, Heera J. **Pharmacokinetic interaction between maraviroc and fosamprenavir-ritonavir: an open-label, fixed-sequence study in healthy subjects.** *Antimicrob Agents Chemother* 2013; 57(12):6158-6164.

157. Khaliq Y, Gallicano K, Leger R, Foster B, Badley A. **A drug interaction between fusidic acid and a combination of ritonavir and saquinavir.** *J Clin Pharmacol* 2000; 50:81-83.

158. Cimoch PJ, Lavelle J, Wong R, Griffy KG, Tarnowski TL, Casserella S, et al. **Pharmacokinetics of oral ganciclovir alone and in combination with zidovudine, didanosine, and probenecid in HIV-infected subjects.** *Journal of Acquired Immune Deficiency Syndrome and human retrovirology* 1998; 17:228-234.

159. Robertson SM, Davey RT, Voell J, Formentini E, Alfaro RM, Penzak SR. **Effect of Ginkgo biloba extract on lopinavir, midazolam and fexofenadine pharmacokinetics in healthy subjects.** *CurrMedResOpin* 2008; 24(2):591-599.

160. Wiegman DJ, Brinkman K, Franssen EJ. **Interaction of Ginkgo biloba with efavirenz.** *AIDS* 2009; 23(9):1184-1185.

161. Kaufman MB, Simionatto C. **A review of protease inhibitors-induced hyperglycemia.** *Pharmacotherapy* 1999; 19(1):114-117.

162. Duim AR, Rokx C, van Gorp EC, Rijnders BJ. **Proximal tubular dysfunction in a HIV-1 patient with coadministered tenofovir disoproxil-fumarate and ibuprofen.** *AIDS* 2015; 29(6):746-748.

163. Burger DM, Prins JM, Van Der Ende ME, Aarnoutse RE. **The effect of nevirapine on the pharmacokinetics of indinavir/ritonavir 800/100 mg BID.** *JAcquirImmuneDeficSyndr* 2004; 35(1):97-98.

164. Corona G, Vaccher E, Sandron S, Sartor I, Tirelli U, Innocenti F, et al. **Lopinavir-ritonavir dramatically affects the pharmacokinetics of irinotecan in HIV patients with Kaposi's sarcoma.** *ClinPharmacolTher* 2008; 83(4):601-606.

165. Koo HL, Hamill RJ, Andrade RA. **Drug-drug interaction between itraconazole and efavirenz in a patient with AIDS and disseminated histoplasmosis.** *ClinInfectDis* 2007; 45(6):e77-e79.

166. Huet E, Hadji C, Hulin A, Botterel F, Bretagne S, Levy Y. **Therapeutic monitoring is necessary for the association itraconazole and efavirenz in a patient with AIDS and disseminated histoplasmosis.** *AIDS* 2008; 22(14):1885-1886.

167. Andrade RA, Evans RT, Hamill RJ, Zerai T, Giordano TP. **Clinical evidence of interaction between itraconazole and nonnucleoside reverse transcriptase inhibitors in HIV-infected patients with disseminated histoplasmosis.** *AnnPharmacother* 2009; 43(5):908-913.

168. Crommentuyn KM, Mulder JW, Sparidans RW, Huitema AD, Schellens JH, Beijnen JH. **Drug-drug interaction between itraconazole and the antiretroviral drug lopinavir/ritonavir in an HIV-1-infected patient with disseminated histoplasmosis.** *ClinInfectDis* 2004; 38(8):e73-e75.

169. Hills-Nieminen C, Hughes CA, Houston S, Shafran SD. **Drug-drug interaction between itraconazole and the protease inhibitor lopinavir/ritonavir.** *AnnPharmacother* 2009; 43(12):2117-2120.

170. Liddy AM, McLaughlin G, Schmitz S, D'Arcy DM, Barry MG. **The pharmacokinetic interaction between ivacaftor and ritonavir in healthy volunteers.** *Br J Clin Pharmacol* 2017; 83(10):2235-2241.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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171. Polk RE, Crouch MA, Israel DS, Pastor A, Sadler BM, Chittick GE, et al. **Pharmacokinetic interaction between ketoconazole and amprenavir after single doses in healthy men.** *Pharmacotherapy* 1999; 19(12):1378-1384.
172. Wire MB, Ballow CH, Borland J, Shelton MJ, Lou Y, Yuen G, et al. **Fosamprenavir plus ritonavir increases plasma ketoconazole and ritonavir exposure, while amprenavir exposure remains unchanged.** *AntimicrobAgents Chemother* 2007; 51(8):2982-2984.
173. Sekar VJ, Lefebvre E, De Pauw M, Vangeneugden T, Hoetelmans RM. **Pharmacokinetics of darunavir/ritonavir and ketoconazole following co-administration in HIV-healthy volunteers.** *BrJClinPharmacol* 2008; 66(2):215-221.
174. Kaeser B, Zandt H, Bour F, Zwanziger E, Schmitt C, Zhang X. **Drug-drug interaction study of ketoconazole and ritonavir-boosted saquinavir.** *AntimicrobAgents Chemother* 2009; 53(2):609-614.
175. Sriwiriyan S, Mahatthanatrakul W, Ridditid W, Jaruratanasirikul S. **Effect of efavirenz on the pharmacokinetics of ketoconazole in HIV-infected patients.** *EurJClinPharmacol* 2007; 63(5):479-483.
176. Nyunt MM, Lu Y, El-Gasim M, Parsons TL, Petty BG, Hendrix CW. **Effects of ritonavir-boosted lopinavir on the pharmacokinetics of quinine.** *Clin Pharmacol Ther* 2012; 91(5):889-895.
177. Soyinka JO, Onyeji CO, Omoruyi SI, Owolabi AR, Sarma PV, Cook JM. **Pharmacokinetic interactions between ritonavir and quinine in healthy volunteers following concurrent administration.** *BrJClinPharmacol* 2010; 69(3):262-270.
178. Tseng AL, la Porte C, Salit IE. **Significant interaction between activated charcoal and antiretroviral therapy leading to subtherapeutic drug concentrations, virological breakthrough and development of resistance.** *Antivir Ther* 2013; 18(5):735-738.
179. Tomilo DL, Smith PF, Ogundele AB, Difrancesco R, Berenson CS, Eberhardt E, et al. **Inhibition of atazanavir oral absorption by lansoprazole gastric acid suppression in healthy volunteers.** *Pharmacotherapy* 2006; 26(3):341-346.
180. Tseng AL, Fletcher D. **Interaction between ritonavir and levothyroxine.** *AIDS* 1998; 12(16):2235-2236.
181. Touzot M, Beller CL, Touzot F, Louet AL, Piketty C. **Dramatic interaction between levothyroxine and lopinavir/ritonavir in a HIV-infected patient.** *AIDS* 2006; 20(8):1210-1212.
182. Lanzafame M, Trevenzoli M, Faggian F, Marcati P, Gatti F, Carolo G, et al. **Interaction between levothyroxine and indinavir in a patient with HIV infection.** *Infection* 2002; 30(1):54-55.
183. Mukwaya G, MacGregor T, Hoelscher D, Heming T, Legg D, Kavanaugh K, et al. **Interaction of ritonavir-boosted tipranavir with loperamide does not result in loperamide-associated neurologic side effects in healthy volunteers.** *AntimicrobAgents Chemother* 2005; 49(12):4903-4910.
184. German P, Parikh S, Lawrence J, Dorsey G, Rosenthal PJ, Havlir D, et al. **Lopinavir/ritonavir affects pharmacokinetic exposure of artemether/lumefantrine in HIV-uninfected healthy volunteers.** *AcquirImmuneDeficSyndr* 2009; 51(4):424-429.
185. Kredt T, Mauff K, Van der Walt JS, Wiesner L, Maartens G, Cohen K, et al. **Interaction between artemether-lumefantrine and nevirapine-based antiretroviral therapy in HIV-1-infected patients.** *Antimicrob Agents Chemother* 2011; 55(12):5616-5623.
186. Hoglund RM, Byakika-Kibwika P, Lamorde M, Merry C, Ashton M, Hanpithakpong W, et al. **Artemether-lumefantrine co-administration with antiretrovirals: population pharmacokinetics and dosing implications.** *Br J Clin Pharmacol* 2015; 79(4):636-649.
187. Naccarato M, Hall E, Wai A, Ostrowski M, Carvalhal A. **A case of a probable drug interaction between lurasidone and atazanavir-based antiretroviral therapy.** *Antivir Ther* 2016; 21(8):735-738.

Klinisch relevante interacties met anti- HIV middelen					
Prof. Dr. D.M. Burger, Apotheek Radboudumc Nijmegen					
Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.

188. Abel S, Russell D, Taylor-Worth RJ, Ridgway CE, Muirhead GJ. **Effects of CYP3A4 inhibitors on the pharmacokinetics of maraviroc in healthy volunteers.** *BrJ Clin Pharmacol* 2008; 65 Suppl 1:27-37.
189. Song IH, Zong J, Borland J, Jerva F, Wynne B, Zamek-Gliszczyński MJ, et al. **The Effect of Dolutegravir on the Pharmacokinetics of Metformin in Healthy Subjects.** *J Acquir Immune Defic Syndr* 2016; 72(4):400-407.
190. Cattaneo D, Resnati C, Rizzardini G, Gervasoni C. **Dolutegravir and metformin: a clinically relevant or just a pharmacokinetic interaction?** *AIDS* 2018; 32(4):532-533.
191. Gervasoni C, Minisci D, Clementi E, Rizzardini G, Cattaneo D. **How Relevant is the Interaction Between Dolutegravir and Metformin in Real Life?** *J Acquir Immune Defic Syndr* 2017; 75(1):e24-e26.
192. Naccarato M, Yoong D, Fong IW. **Dolutegravir and metformin: a case of hyperlactatemia.** *AIDS* 2017; 31(15):2176-2177.
193. Bart PA, Rizzardini PG, Gallant S, Golay KP, Baumann P, Pantaleo G, et al. **Methadone blood concentrations are decreased by the administration of abacavir plus amprenavir.** *Ther Drug Monit* 2001; 23(5):553-555.
194. Clarke S, Mulcahy F, Bergin C, Reynolds H, Boyle N, Barry M, et al. **Absence of opioid withdrawal symptoms in patients receiving methadone and the protease inhibitor lopinavir-ritonavir.** *Clin Infect Dis* 2002; 34(8):1143-1145.
195. Clarke SM, Mulcahy FM, Tjia J, Reynolds HE, Gibbons SE, Barry MG, et al. **The pharmacokinetics of methadone in HIV-positive patients receiving the non-nucleoside reverse transcriptase inhibitor efavirenz.** *British Journal of Clinical Pharmacology* 2001; 51:213-217.
196. Pinzani V, Faucherre V, Peyriere H, Blayac JP. **Methadone withdrawal symptoms with nevirapine and efavirenz.** *The Annals of Pharmacotherapy* 2000; 34:405-407.
197. Geletko SM, Erickson AD. **Decreased methadone effect after ritonavir initiation.** *Pharmacotherapy* 2000; 20(1):93-94.
198. McCance-Katz EF, Rainey PM, Friedland G, Jatlow P. **The protease inhibitor lopinavir-ritonavir may produce opiate withdrawal in methadone-maintained patients.** *Clin Infect Dis* 2003; 37(4):476-482.
199. Stevens RC, Rapaport S, Maroldo-Connelly L, Patterson JB, Bertz R. **Lack of methadone dose alterations or withdrawal symptoms during therapy with lopinavir/ritonavir.** *J Acquir Immune Defic Syndr* 2003; 33(5):650-651.
200. Stocker H, Kruse G, Kreckel P, Herzmann C, Arasteh K, Claus J, et al. **Nevirapine significantly reduces the levels of racemic methadone and (R)-methadone in human immunodeficiency virus-infected patients.** *Antimicrob Agents Chemother* 2004; 48(11):4148-4153.
201. Arroyo E, Valenzuela B, Portilla J, Climent-Grana E, Perez-Ruixo JJ, Merino E. **Pharmacokinetics of methadone in human-immunodeficiency-virus-infected patients receiving nevirapine once daily.** *Eur J Clin Pharmacol* 2007; 63(7):669-675.
202. Kharasch E, Bedynek P, Walker A, Whittington D, Hoffer C. **Mechanism of Ritonavir Changes in Methadone Pharmacokinetics and Pharmacodynamics: II. Ritonavir Effects on CYP3A and P-Glycoprotein Activities.** *Clin Pharmacol Ther* 2008.
203. Kharasch E, Bedynek P, Park S, Whittington D, Walker A, Hoffer C. **Mechanism of Ritonavir Changes in Methadone Pharmacokinetics and Pharmacodynamics: I. Evidence Against CYP3A Mediation of Methadone Clearance.** *Clin Pharmacol Ther* 2008.
204. Anderson MS, Mabalot Luk JA, Hanley WD, Jin B, Riesenberger RA, Wenning LA, et al. **Effect of raltegravir on the pharmacokinetics of methadone.** *J Clin Pharmacol* 2010; 50(12):1461-1466.
205. Cao YJ, Smith PF, Wire MB, Lou Y, Lancaster CT, Causon RC, et al. **Pharmacokinetics and pharmacodynamics of methadone enantiomers after coadministration with fosamprenavir-ritonavir in opioid-dependent subjects.** *Pharmacotherapy* 2008; 28(7):863-874.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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206. Kharasch ED, Whittington D, Ensign D, Hoffer C, Bedynek PS, Campbell S, et al. **Mechanism of efavirenz influence on methadone pharmacokinetics and pharmacodynamics.** *Clin Pharmacol Ther* 2012; 91(4):673-684.
207. Gallagher DP, Kieran J, Sheehan G, Lambert J, Mahon N, Mallon PW. **Ritonavir-boosted atazanavir, methadone, and ventricular tachycardia: 2 case reports.** *Clin Infect Dis* 2008; 47(3):e36-e38.
208. Penzak SR, Formentini E, Alfaro RM, Long M, Natarajan V, Kovacs J. **Prednisolone pharmacokinetics in the presence and absence of ritonavir after oral prednisone administration to healthy volunteers.** *JAcquirImmuneDeficSyndr* 2005; 40(5):573-580.
209. Busse KH, Formentini E, Alfaro RM, Kovacs JA, Penzak SR. **Influence of antiretroviral drugs on the pharmacokinetics of prednisolone in HIV-infected individuals.** *JAcquirImmuneDeficSyndr* 2008; 48(5):561-566.
210. Palkama VJ, Ahonen J, Neuvonen PJ, Olkkola KT. **Effect of saquinavir on the pharmacokinetics and pharmacodynamics of oral and intravenous midazolam.** *Clin Pharmacol Ther* 1999; 66:33-39.
211. van Heeswijk RP, Beumont M, Kauffman RS, Garg V. **Review of drug interactions with telaprevir and antiretrovirals.** *Antivir Ther* 2013; 18(4):553-560.
212. DiCenzo R, Peterson DR, Cruttenden K, Mariuz P, Rezk NL, Hochreiter J, et al. **Effects of minocycline and valproic acid coadministration on atazanavir plasma concentrations in human immunodeficiency virus-infected adults receiving atazanavir-ritonavir.** *Antimicrob Agents Chemother* 2008; 52(9):3035-3039.
213. Rossi DR, Rathbun RC, Slater LN. **Symptomatic orthostasis with extended-release nifedipine and protease inhibitors.** *Pharmacotherapy* 2002; 22(10):1312-1316.
214. Baeza MT, Merino E, Boix V, Climent E. **Nifedipine-lopinavir/ritonavir severe interaction: a case report.** *AIDS* 2007; 21(1):119-120.
215. Penzak SR, Hon YY, Lawhorn WD, Shirley KL, Spratlin V, Jann MW. **Influence of ritonavir on olanzapine pharmacokinetics in healthy volunteers.** *J Clin Psychopharmacol* 2002; 22(4):366-370.
216. Jacobs BS, Colbers AP, Velthoven-Graafland K, Schouwenberg BJ, Burger DM. **Effect of fosamprenavir/ritonavir on the pharmacokinetics of single-dose olanzapine in healthy volunteers.** *International journal of antimicrobial agents* 2014; 44(2):173-177.
217. Burger DM, Hugen PWH, Kroon FP, Groeneveld P, Brinkman K, Foudraine NA, et al. **Pharmacokinetic interaction between the proton pump inhibitor omeprazole and the HIV protease inhibitor indinavir (letter).** *AIDS* 1998; 12(15):2080-2082.
218. Sekar VJ, Lefebvre E, De Paepe E, De Marez T, De Pauw M, Parys W, et al. **Pharmacokinetic Interaction between Darunavir Boosted with Ritonavir and Omeprazole or Ranitidine in Human Immunodeficiency Virus-Negative Healthy Volunteers.** *Antimicrob Agents Chemother* 2007; 51(3):958-961.
219. Iwamoto M, Wenning LA, Nguyen BY, Tepler H, Moreau AR, Rhodes RR, et al. **Effects of omeprazole on plasma levels of raltegravir.** *Clin Infect Dis* 2009; 48(4):489-492.
220. Klein CE, Chiu YL, Cai Y, Beck K, King KR, Causemaker SJ, et al. **Effects of acid-reducing agents on the pharmacokinetics of lopinavir/ritonavir and ritonavir-boosted atazanavir.** *J Clin Pharmacol* 2008; 48(5):553-562.
221. Fang AF, Damle BD, Labadie RR, Crownover PH, Hewlett D, Jr., Glue PW. **Significant decrease in nelfinavir systemic exposure after omeprazole coadministration in healthy subjects.** *Pharmacotherapy* 2008; 28(1):42-50.
222. Foote BS, Spooner LM, Belliveau PP. **Boceprevir: a protease inhibitor for the treatment of chronic hepatitis C.** *Ann Pharmacother* 2011; 45(9):1085-1093.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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223. Schwartz JD, Howard W, Scadden DT. **Potential interaction of antiretroviral therapy with paclitaxel in patients with AIDS-related Kaposi's sarcoma.** *AIDS* 1998; 13(2):283-284.
224. Krishna G, Moton A, Ma L, Martinho M, Seiberling M, McLeod J. **Effects of oral posaconazole on the pharmacokinetics of atazanavir alone and with ritonavir or with efavirenz in healthy adult volunteers.** *JAcquirImmuneDeficSyndr* 2009; 51(4):437-444.
225. Aberg JA, Rosenkranz SL, Fichtenbaum CJ, Alston BL, Brobst SW, Segal Y, et al. **Pharmacokinetic interaction between nelfinavir and pravastatin in HIV-seronegative volunteers: ACTG Study A5108.** *AIDS* 2006; 20(5):725-729.
226. Pollack TM, McCoy C, Stead W. **Clinically significant adverse events from a drug interaction between quetiapine and atazanavir-ritonavir in two patients.** *Pharmacotherapy* 2009; 29(11):1386-1391.
227. Hantson P, Di Fazio V, Wallemacq P. **Toxicokinetic interaction between quetiapine and antiretroviral therapy following quetiapine overdose.** *Drug Metab Lett* 2010; 4(1):7-8.
228. Kakuda TN, Brinkman K. **Mitochondrial toxic effects and ribavirin.** *Lancet* 2001; 357(9270):1802-1803.
229. Butt AA. **Fatal lactic acidosis and pancreatitis associated with ribavirin and didanosine therapy.** *AIDS Read* 2003; 13(7):344-348.
230. Bani-Sadr F, Carrat F, Pol S, Hor R, Rosenthal E, Goujard C, et al. **Risk factors for symptomatic mitochondrial toxicity in HIV/hepatitis C virus-coinfected patients during interferon plus ribavirin-based therapy.** *JAcquirImmuneDeficSyndr* 2005; 40(1):47-52.
231. Bani-Sadr F, Denoed L, Morand P, Lunel-Fabiani F, Pol S, Cacoub P, et al. **Early virologic failure in HIV-coinfected hepatitis C patients treated with the peginterferon-ribavirin combination: does abacavir play a role?** *JAcquirImmuneDeficSyndr* 2007; 45(1):123-125.
232. Vispo E, Barreiro P, Pineda JA, Mira JA, Maida I, Martin-Carbonero L, et al. **Low response to pegylated interferon plus ribavirin in HIV-infected patients with chronic hepatitis C treated with abacavir.** *AntivirTher* 2008; 13(3):429-437.
233. Laufer N, Laguno M, Perez I, Cifuentes C, Murillas J, Vidal F, et al. **Abacavir does not influence the rate of virological response in HIV-HCV-coinfected patients treated with pegylated interferon and weight-adjusted ribavirin.** *AntivirTher* 2008; 13(7):953-957.
234. Mira JA, Lopez-Cortes LF, Barreiro P, Tural C, Torres-Tortosa M, de Los SGI, et al. **Efficacy of pegylated interferon plus ribavirin treatment in HIV/hepatitis C virus co-infected patients receiving abacavir plus lamivudine or tenofovir plus either lamivudine or emtricitabine as nucleoside analogue backbone.** *JAntimicrobChemother* 2008; 62(6):1365-1373.
235. Amorosa VK, Slim J, Mounzer K, Bruno C, Hoffman-Terry M, Dorey-Stein Z, et al. **The influence of abacavir and other antiretroviral agents on virological response to HCV therapy among antiretroviral-treated HIV-infected patients.** *AntivirTher* 2010; 15(1):91-99.
236. Solas C, Pambun E, Winnock M, Salmon D, Poizot-Martin I, Dominguez S, et al. **Ribavirin and abacavir drug interaction in HIV-HCV coinfecting patients: fact or fiction?** *AIDS* 2012; 26(17):2193-2199.
237. Polk RE, Brophy DF, Israel DS, Patron R, Sadler BM, Chittick GE, et al. **Pharmacokinetic interaction between amprenavir and rifabutin or rifampin in healthy males.** *Antimicrobial agents and chemotherapy* 2001; 45(2):502-508.
238. Hamzeh FM, Benson C, Gerber J, Currier J, McCrea J, Deutsch P, et al. **Steady-state pharmacokinetic interaction of modified-dose indinavir and rifabutin.** *ClinPharmacolTher* 2003; 73(3):159-169.
239. Ford SL, Chen YC, Lou Y, Borland J, Min SS, Yuen GJ, et al. **Pharmacokinetic interaction between fosamprenavir-ritonavir and rifabutin in healthy subjects.** *AntimicrobAgents Chemother* 2008; 52(2):534-538.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
-----------------------	--------------------	----	-------------------------------	---------------	------

240. Lin HC, Lu PL, Chang CH. **Uveitis associated with concurrent administration of rifabutin and lopinavir/ritonavir (Kaletra).** *Eye* 2007; 21(12):1540-1541.
241. Boulanger C, Hollender E, Farrell K, Stambaugh JJ, Maasen D, Ashkin D, et al. **Pharmacokinetic evaluation of rifabutin in combination with lopinavir-ritonavir in patients with HIV infection and active tuberculosis.** *ClinInfectDis* 2009; 49(9):1305-1311.
242. Gallicano K, Khaliq Y, Carignan G, Tseng A, Walmsley S, Cameron DW. **A pharmacokinetic study of intermittent rifabutin dosing with a combination of ritonavir and saquinavir in patients infected with human immunodeficiency virus.** *ClinPharmacolTher* 2001; 70(2):149-158.
243. Moyle GJ, Buss NE, Goggin T, Snell P, Higgs C, Hawkins DA. **Interaction between saquinavir soft-gel and rifabutin in patients infected with HIV.** *BrJClinPharmacol* 2002; 54(2):178-182.
244. Khachi H, O'Connell R, Ladenheim D, Orkin C. **Pharmacokinetic interactions between rifabutin and lopinavir/ritonavir in HIV-infected patients with mycobacterial co-infection.** *JAntimicrobChemother* 2009; 64(4):871-873.
245. Sekar V, Lavreys L, Van de Castele T, Berckmans C, Spinosa-Guzman S, Vangeneugden T, et al. **Pharmacokinetics of darunavir/ritonavir and rifabutin coadministered in HIV-negative healthy volunteers.** *AntimicrobAgents Chemother* 2010; 54(10):4440-4445.
246. Zhang J, Zhu L, Stonier M, Coumbis J, Xu X, Wu Y, et al. **Determination of rifabutin dosing regimen when administered in combination with ritonavir-boosted atazanavir.** *The Journal of antimicrobial chemotherapy* 2011; 66(9):2075-2082.
247. Zhang X, Fettner S, Zwanziger E, Rowell L, Salgo M. **Pharmacokinetic interaction study of ritonavir-boosted saquinavir in combination with rifabutin in healthy subjects.** *Antimicrob Agents Chemother* 2011; 55(2):680-687.
248. Lan NT, Thu NT, Barrail-Tran A, Duc NH, Lan NN, Laureillard D, et al. **Randomised pharmacokinetic trial of rifabutin with lopinavir/ritonavir-antiretroviral therapy in patients with HIV-associated tuberculosis in Vietnam.** *PLoS One* 2014; 9(1):e84866.
249. Ramachandran G, Bhavani PK, Hemanth Kumar AK, Srinivasan R, Raja K, Sudha V, et al. **Pharmacokinetics of rifabutin during atazanavir/ritonavir co-administration in HIV-infected TB patients in India.** *The international journal of tuberculosis and lung disease : the official journal of the International Union against Tuberculosis and Lung Disease* 2013; 17(12):1564-1568.
250. Moultrie H, McIlleron H, Sawry S, Kellermann T, Wiesner L, Kindra G, et al. **Pharmacokinetics and safety of rifabutin in young HIV-infected children receiving rifabutin and lopinavir/ritonavir.** *The Journal of antimicrobial chemotherapy* 2015; 70(2):543-549.
251. Hennig S, Svensson EM, Niebecker R, Fourie PB, Weiner MH, Bonora S, et al. **Population pharmacokinetic drug-drug interaction pooled analysis of existing data for rifabutin and HIV PIs.** *The Journal of antimicrobial chemotherapy* 2016; 71(5):1330-1340.
252. Yapa HM, Boffito M, Pozniak A. **Critical Review: What Dose of Rifabutin Is Recommended With Antiretroviral Therapy?** *J Acquir Immune Defic Syndr* 2016; 72(2):138-152.
253. Hsu O, Hill CJ, Kim M, Tan B, O'Brien JG. **Decreased plasma efavirenz concentrations in a patient receiving rifabutin.** *Am J Health Syst Pharm* 2010; 67(19):1611-1614.
254. Acosta EP, Kendall MA, Gerber JG, Ston-Smith B, Koletar SL, Zolopa AR, et al. **Effect of concomitantly administered rifampin on the pharmacokinetics and safety of atazanavir administered twice daily.** *AntimicrobAgents Chemother* 2007; 51(9):3104-3110.
255. Burger DM, Agarwala S, Child M, Been-Tiktak A, Wang Y, Bertz R. **Effect of rifampin on steady-state pharmacokinetics of atazanavir with ritonavir in healthy volunteers.** *AntimicrobAgents Chemother* 2006; 50(10):3336-3342.
256. Mallolas J, Sarasa M, Nomdedeu M, Soriano A, Lopez-Pua Y, Blanco JL, et al. **Pharmacokinetic interaction between rifampicin and ritonavir-boosted atazanavir in HIV-infected patients.** *HIV Med* 2007; 8(2):131-134.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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257. Centers for Disease C, Prevention. **Managing Drug Interactions in the Treatment of HIV-Related Tuberculosis.** Available at: http://www.cdc.gov/tb/TB_HIV_Drugs/default.htm. Website 2007.
258. Gagliardini R, Fabbiani M, Fortuna S, Visconti E, Navarra P, Cauda R, et al. **Pharmacokinetics of etravirine in HIV-infected patients concomitantly treated with rifampin for tuberculosis.** *Infection* 2014; 42(4):775-778.
259. Roberts O, Khoo S, Owen A, Siccardi M. **Interaction of Rifampin and Darunavir-Ritonavir or Darunavir-Cobicistat In Vitro.** *Antimicrob Agents Chemother* 2017; 61(5).
260. Dickinson L, Winston A, Boffito M, Khoo S, Back D, Siccardi M. **Simulation of the impact of rifampicin on once-daily darunavir/ritonavir pharmacokinetics and dose adjustment strategies: a population pharmacokinetic approach.** *The Journal of antimicrobial chemotherapy* 2016; 71(4):1041-1045.
261. la Porte CJ, Colbers EP, Bertz R, Voncken DS, Wikstrom K, Boeree MJ, et al. **Pharmacokinetics of Adjusted-Dose Lopinavir-Ritonavir Combined with Rifampin in Healthy Volunteers.** *AntimicrobAgents Chemother* 2004; 48(5):1553-1560.
262. Nijland HMJ, L'Homme RFA, Rongen GA, van Uden P, van Crevel R, Boeree MJ, et al. **High incidence of adverse events in healthy volunteers receiving rifampicin and adjusted doses of lopinavir/ritonavir tablets.** *AIDS* 2008; 22:931-935.
263. Manosuthi W, Sungkanuparph S, Thakkinstian A, Vibhagool A, Kiertiburanakul S, Rattanasiri S, et al. **Efavirenz levels and 24-week efficacy in HIV-infected patients with tuberculosis receiving highly active antiretroviral therapy and rifampicin.** *AIDS* 2005; 19(14):1481-1486.
264. Manosuthi W, Kiertiburanakul S, Sungkanuparph S, Ruxrungtham K, Vibhagool A, Rattanasiri S, et al. **Efavirenz 600 mg/day versus efavirenz 800 mg/day in HIV-infected patients with tuberculosis receiving rifampicin: 48 weeks results.** *AIDS* 2006; 20(1):131-132.
265. Oliva J, Moreno S, Sanz J, Ribera E, Molina JA, Rubio R, et al. **Co-administration of rifampin and nevirapine in HIV-infected patients with tuberculosis.** *AIDS* 2003; 17(4):637-638.
266. Autar SR, Wit FW, Sankote J, Mahanontharit A, Anekthananon T, Moosikapun P, et al. **Nevirapine plasma concentrations and concomitant use of rifampin in patients coinfecting with HIV-1 and tuberculosis.** *AntivirTher* 2005; 10(8):937-943.
267. Ramachandran G, Hemanthkumar AK, Rajasekaran S, Padmapriyadarsini C, Narendran G, Sukumar B, et al. **Increasing nevirapine dose can overcome reduced bioavailability due to rifampicin coadministration.** *JAcquirImmuneDeficSyndr* 2006; 42(1):36-41.
268. Cohen K, Van Cutsem G, Boulle A, McIlleron H, Goemaere E, Smith PJ, et al. **Effect of rifampicin-based antitubercular therapy on nevirapine plasma concentrations in South African adults with HIV-associated tuberculosis.** *JAntimicrobChemother* 2008; 61(2):389-393.
269. Boulle A, Van Cutsem G, Cohen K, Hilderbrand K, Mathee S, Abrahams M, et al. **Outcomes of nevirapine- and efavirenz-based antiretroviral therapy when coadministered with rifampicin-based antitubercular therapy.** *JAMA* 2008; 300(5):530-539.
270. Dooley KE, Sayre P, Borland J, Purdy E, Chen S, Song I, et al. **Safety, tolerability, and pharmacokinetics of the HIV integrase inhibitor dolutegravir given twice daily with rifampin or once daily with rifabutin: results of a phase 1 study among healthy subjects.** *J Acquir Immune DeficSyndr* 2013; 62(1):21-27.
271. Burger DM, Magis-Escurra C, van den Berk GE, Gelinck LB. **Pharmacokinetics of double-dose raltegravir in two patients with HIV infection and tuberculosis.** *AIDS* 2010; 24(2):328-330.
272. Wenning LA, Hanley WD, Brainard DM, Petry AS, Ghosh K, Jin B, et al. **Effect of rifampin, a potent inducer of drug-metabolizing enzymes, on the pharmacokinetics of raltegravir.** *AntimicrobAgents Chemother* 2009; 53(7):2852-2856.
273. Kelly DV, Beique LC, Bowmer MI. **Extrapyramidal symptoms with ritonavir/indinavir plus risperidone.** *AnnPharmacother* 2002; 36(5):827-830.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
-----------------------	--------------------	----	-------------------------------	---------------	------

274. Lee SI, Klesmer J, Hirsch BE. **Neuroleptic malignant syndrome associated with use of risperidone, ritonavir, and indinavir: a case report.** *Psychosomatics* 2000; 41(5):453-454.
275. Jover F, Cuadrado JM, Andreu L, Merino J. **Reversible coma caused by risperidone-ritonavir interaction.** *ClinNeuropharmacol* 2002; 25(5):251-253.
276. Gonzalez LS, Kothari K, Kasle DA. **Three Cases of Late Onset Angioedema in Nursing Home Human Immunodeficiency Virus Patients on Ritonavir and Risperidone.** *Journal of clinical psychopharmacology* 2016; 36(1):95-97.
277. Yoong D, Naccarato M, Gough K. **Extensive Bruising and Elevated Rivaroxaban Plasma Concentration in a Patient Receiving Cobicistat-Boosted Elvitegravir.** *Ann Pharmacother* 2017; 51(8):713-714.
278. Corallo CE, Grannell L, Tran H. **Postoperative Bleeding After Administration of a Single Dose of Rivaroxaban to a Patient Receiving Antiretroviral Therapy.** *Drug Saf Case Rep* 2015; 2(1):11.
279. Lakatos B, Stoeckle M, Elzi L, Battegay M, Marzolini C. **Gastrointestinal bleeding associated with rivaroxaban administration in a treated patient infected with human immunodeficiency virus.** *Swiss medical weekly* 2014; 144:w13906.
280. Bates D, Dalton B, Gilmour J, Kapler J. **Venous thromboembolism due to suspected interaction between rivaroxaban and nevirapine.** *The Canadian journal of hospital pharmacy* 2013; 66(2):125-129.
281. Hoody D, Kiser J, Predhomme J, Flynn D, Gerber J. **Drug-drug interaction between lopinavir/ritonavir and rosuvastatin.** *14th Conference on Retroviruses and Opportunistic Infections, Los Angeles, California, February 25-28, 2007 (abstract 564)* 2007.
282. van der Lee M, Sankatsing R, Schippers E, Vogel M, Fatkenheuer G, van der Ven A, et al. **Pharmacokinetics and pharmacodynamics of combined use of lopinavir/ritonavir and rosuvastatin in HIV-infected patients.** *Antivir Ther* 2007; 12(7):1127-1132.
283. Samineni D, Desai PB, Sallans L, Fichtenbaum CJ. **Steady-state pharmacokinetic interactions of darunavir/ritonavir with lipid-lowering agent rosuvastatin.** *J Clin Pharmacol* 2012; 52(6):922-931.
284. Custodio JM, Wang H, Hao J, Lepist EI, Ray AS, Andrews J, et al. **Pharmacokinetics of cobicistat boosted-elvitegravir administered in combination with rosuvastatin.** *J Clin Pharmacol* 2014; 54(6):649-656.
285. Gervasoni C, Riva A, Rizzardini G, Clementi E, Galli M, Cattaneo D. **Potential association between rosuvastatin use and high atazanavir trough concentrations in ritonavir-treated HIV-infected patients.** *Antivir Ther* 2015; 20(4):449-451.
286. Merry C, Barry MG, Ryan M, Tjia JF, Hennessy M, Eagling VA, et al. **Interaction of sildenafil and indinavir when co-administered to HIV-positive patients.** *AIDS* 1999; 13(15):F101-F107.
287. Muirhead GJ, Wulff MB, Fielding A, Kleinermans D, Buss N. **Pharmacokinetic interactions between sildenafil and saquinavir/ritonavir.** *British Journal of Clinical Pharmacology* 2000; 50(2):99-107.
288. Sekar V, Lefebvre E, De Marez T, De Pauw M, De Paepe E, Vangeneugden T, et al. **Effect of repeated doses of darunavir plus low-dose ritonavir on the pharmacokinetics of sildenafil in healthy male subjects: phase I randomized, open-label, two-way crossover study.** *ClinDrug Investig* 2008; 28(8):479-485.
289. Hall MCS, Ahmed S. **Interaction between sildenafil and HIV-1 combination therapy.** *The Lancet* 1999; 353(june).
290. Rahman AP, Eaton SA, Nguyen ST, Bain AM, Payne KD, Bedimo R, et al. **Safety and efficacy of simvastatin for the treatment of dyslipidemia in human immunodeficiency virus-infected patients receiving efavirenz-based highly active antiretroviral therapy.** *Pharmacotherapy* 2008; 28(7):913-919.

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
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291. Jain AK, Venkataramanan R, Fridell JA, Gadomski M, Shaw LM, Ragni M, et al. **Nelfinavir, a protease inhibitor, increases sirolimus levels in a liver transplantation patient: a case report.** *Liver Transpl* 2002; 8(9):838-840.
292. Markowitz JS, Donovan JL, DeVane CL, Taylor RM, Ruan Y, Wang JS, et al. **Effect of St John's wort on drug metabolism by induction of cytochrome P450 3A4 enzyme.** *JAMA* 2003; 290(11):1500-1504.
293. Piscitelli SC, Burnstein AH, Chait D, Alfaro RM, Falloon J. **Indinavir concentrations and St John's wort.** *Lancet* 2000; 355(9203):547-548.
294. Schvarcz R, Rudbeck G, Soderdahl G, Stahle L. **Interaction between nelfinavir and tacrolimus after orthoptic liver transplantation in a patient coinfectd with HIV and hepatitis C virus (HCV).** *Transplantation* 2000; 69(10):2194-2195.
295. Jain AKB, Venkataramanan R, Shapiro R, Scantlebury VP, Potdar S, Bonham CA, et al. **Interaction between tacrolimus and antiretroviral agents in human immunodeficiency virus-positive liver and kidney transplantation patients.** *Transplantation Proceedings* 2002; 34(5):1540-1541.
296. Schonder KS, Shullo MA, Okusanya O. **Tacrolimus and lopinavir/ritonavir interaction in liver transplantation.** *AnnPharmacother* 2003; 37(12):1793-1796.
297. Hardy G, Stanke-Labesque F, Contamin C, Serre-Debeauvais F, Bayle F, Zaoui P, et al. **Protease inhibitors and diltiazem increase tacrolimus blood concentration in a patient with renal transplantation: a case report.** *EurJClinPharmacol* 2004; 60(8):603-605.
298. Pea F, Tavio M, Pavan F, Londero A, Bresadola V, Adami GE, et al. **Drop in trough blood concentrations of tacrolimus after switching from nelfinavir to fosamprenavir in four HIV-infected liver transplant patients.** *AntivirTher* 2008; 13(5):739-742.
299. Dufty NE, Gilleran G, Hawkins D, Else LJ, Taylor S. **Pharmacokinetic interaction of maraviroc with tacrolimus in a patient coinfectd with HIV and hepatitis B virus following hepatic transplant due to hepatocellular carcinoma.** *The Journal of antimicrobial chemotherapy* 2013; 68(4):972-974.
300. Bickel M, Anadol E, Vogel M, Hofmann WP, von Hentig N, Kuetscher J, et al. **Daily dosing of tacrolimus in patients treated with HIV-1 therapy containing a ritonavir-boosted protease inhibitor or raltegravir.** *JAntimicrobChemother* 2010; 65(5):999-1004.
301. Tricot L, Teicher E, Peytavin G, Zucman D, Conti F, Calmus Y, et al. **Safety and efficacy of raltegravir in HIV-infected transplant patients cotreated with immunosuppressive drugs.** *AmJTransplant* 2009; 9(8):1946-1952.
302. Han Z, Kane BM, Petty LA, Josephson MA, Sutor J, Pursell KJ. **Cobicistat Significantly Increases Tacrolimus Serum Concentrations in a Renal Transplant Recipient with Human Immunodeficiency Virus Infection.** *Pharmacotherapy* 2016; 36(6):e50-e53.
303. Garraffo R, Layrut T, Ferrando S, Durant J, Rouyre N, MacGregor TR, et al. **Effect of tipranavir/ritonavir combination on the pharmacokinetics of tadalafil in healthy volunteers.** *J Clin Pharmacol* 2011; 51(7):1071-1078.
304. Marsousi N, Samer CF, Fontana P, Reny JL, Rudaz S, Desmeules JA, et al. **Coadministration of ticagrelor and ritonavir: Toward prospective dose adjustment to maintain an optimal platelet inhibition using the PBPK approach.** *Clin Pharmacol Ther* 2016; 100(3):295-304.
305. Greenblatt DJ, von Moltke LL, Harmatz JS, Fogelman SM, Chen G, Graf JA, et al. **Short-term exposure to low-dose ritonavir impairs clearance and enhances adverse effects of trazodone.** *JClinPharmacol* 2003; 43(4):414-422.
306. Ramanathan R, Pau AK, Busse KH, Zemsanova M, Nieman L, Kwan R, et al. **Iatrogenic Cushing syndrome after epidural triamcinolone injections in an HIV type 1-infected patient receiving therapy with ritonavir-lopinavir.** *ClinInfectDis* 2008; 47(12):e97-e99.

Klinisch relevante interacties met anti- HIV middelen

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
-----------------------	--------------------	----	-------------------------------	---------------	------

307. Schwarze-Zander C, Klingmuller D, Klumper J, Strassburg CP, Rockstroh JK. **Triamcinolone and ritonavir leading to drug-induced Cushing syndrome and adrenal suppression: description of a new case and review of the literature.** *Infection* 2013; 41(6):1183-1187.
308. John G, Ollo D, Meyer P, Samer CF, Calmy A. **Pulmonary embolism and iatrogenic Cushing's syndrome after co-administration of injected-triamcinolone and ritonavir.** *AIDS* 2013; 27(17):2827-2828.
309. Maviki M, Cowley P, Marmery H. **Injecting epidural and intra-articular triamcinolone in HIV-positive patients on ritonavir: beware of iatrogenic Cushing's syndrome.** *Skeletal radiology* 2013; 42(2):313-315.
310. Lertora JJ, Rege AB, Greenspan DL, Akula S, George WJ, Hyslop NE, Jr., et al. **Pharmacokinetic interaction between zidovudine and valproic acid in patients infected with human immunodeficiency virus.** *ClinPharmacolTher* 1994; 56(3):272-278.
311. DiCenzo R, Peterson D, Cruttenden K, Morse G, Riggs G, Gelbard H, et al. **Effects of valproic acid coadministration on plasma efavirenz and lopinavir concentrations in human immunodeficiency virus-infected adults.** *AntimicrobAgents Chemother* 2004; 48(11):4328-4331.
312. Sheehan NL, Brouillette MJ, Delisle MS, Allan J. **Possible interaction between lopinavir/ritonavir and valproic Acid exacerbates bipolar disorder.** *AnnPharmacother* 2006; 40(1):147-150.
313. Palazzo A, Trunfio M, Pirriatore V, Milesi M, De Nicolo A, Alcantarini C, et al. **Lower dolutegravir plasma concentrations in HIV-positive patients receiving valproic acid.** *The Journal of antimicrobial chemotherapy* 2017.
314. Corona G, Vaccher E, Spina M, Toffoli G. **Potential hazard drug-drug interaction between boosted protease inhibitors and vinblastine in HIV patients with Hodgkin's lymphoma.** *AIDS* 2013; 27(6):1033-1035.
315. Bidon D, Bauler S, Venon MD, Dupont C. **Cobicistat-vinblastine interaction and severe peripheral neuropathy.** *AIDS* 2015; 29(9):1120-1121.
316. Cordova E, Morganti L, Odzak A, Arcondo F, Silva M, Zylberman M, et al. **Severe hypokalemia due to a possible drug-drug interaction between vinblastine and antiretrovirals in a HIV-infected patient with Hodgkin's lymphoma.** *Int J STD AIDS* 2017; 28(12):1259-1262.
317. Scherpbier HJ, Hilhorst MI, Kuipers TW. **Liver failure in a child receiving highly active antiretroviral therapy and voriconazole.** *ClinInfectDis* 2003; 37(6):828-830.
318. Purkins L, Wood N, Kleinerhans D, Love ER. **No clinically significant pharmacokinetic interactions between voriconazole and indinavir in healthy volunteers.** *BrJClinPharmacol* 2003; 56 Suppl 1:62-68.
319. Mikus G, Schowel V, Drzewinska M, Rengelshausen J, Ding R, Riedel KD, et al. **Potent cytochrome P450 2C19 genotype-related interaction between voriconazole and the cytochrome P450 3A4 inhibitor ritonavir.** *ClinPharmacolTher* 2006; 80(2):126-135.
320. Damle B, LaBadie R, Crownover P, Glue P. **Pharmacokinetic interactions of efavirenz and voriconazole in healthy volunteers.** *BrJClinPharmacol* 2008; 65(4):523-530.
321. Carbonara S, Regazzi M, Ciraci E, Villani P, Stano F, Cusato M, et al. **Long-term efficacy and safety of TDM-assisted combination of voriconazole plus efavirenz in an AIDS patient with cryptococcosis and liver cirrhosis.** *AnnPharmacother* 2009; 43(5):978-984.
322. Dionisio D, Mininni S, Bartolozzi D, Esperti F, Vivarelli A, Leoncini F. **Need for increase dose of warfarin in HIV patients taking nevirapine.** *AIDS* 2001; 15(2):277-278.
323. Gatti G, Alessandrini A, Camera M, di Biagio A, Bassetti M, Rizzo F. **Influence of indinavir and ritonavir on warfarin anticoagulant activity.** *AIDS* 1998; 12(7):825-826.
324. Knoell KR, Young TM, Cousins ES. **Potential interaction involving warfarin and ritonavir.** *AnnPharmacother* 1998; 32(12):1299-1302.
325. Newshan G, Tsang P. **Ritonavir and warfarin interaction.** *AIDS* 1999; 13(13):1788-1789.

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Interacterend middel*	Anti-HIV middel **	CI	Beleid (B) Alternatief (A)	Bewijs Effect	Ref.
-----------------------	--------------------	----	-------------------------------	---------------	------

326. Liedtke MD, Vanguri A, Rathbun RC. **A probable interaction between warfarin and the antiretroviral TRIO study regimen.** *Ann Pharmacother* 2012; 46(11):e34.

327. Good BL, Gomes DC, Fulco PP. **An unexpected interaction between warfarin and cobicistat-boosted elvitegravir.** *AIDS* 2015; 29(8):985-986.

LAATSTE EDITIE - WORDT NIET MEER BIJGEWERKT