HIV TREATMENT: SINGLE TABLET REGIMENS

1 Tablet - Once Daily

Brand Names		NRTI Backbone		Anchor Antiretroviral				HIVinfo Rating*	Considerations	Monitor
		1st NRTI	2nd NRTI	Integrase Inhibitor	N-NRTI	PI	PK Booster			
	**Biktarvy**	**Emtricitabine** 200mg	**Tenofovir TAF** 25mg	**Bictegravir** 50mg				A1	✓ w/ or w/o food. Take 2 hrs before or after Ca/cations ✓ Good Lipid profile- consider for high cardiac risk ✓ Not recommended in < 30ml/min, severe hepatic impairment. CI w/ dofetilde or rifampin ✓ Severe acute exacerbation of Hep B upon d/c	Renal function
	**Triumeq**	**Lamivudine** 300 mg	**Abacavir** 600 mg	**Dolutegravir** 50 mg				A1	✓ W or w/o food. Take 2 hrs before or 6 hrs after Ca ✓ HLA-B*5701 has to be –ve before giving abacavir ✓ No major CYP drug interactions ☺ ✓ Largest size tablet ✓ CI w/ dofetilde or rifampin	HLA-B*5701
	**Stribild**	**Emtricitabine** 200 mg	**Tenofovir TDF** 300 mg	**Elvitegravir** 150 mg			**Cobicistat** 150 mg	B1	✓ Take with food. Take 2 hrs before/after Ca/cations ✓ TDF → Can use until 70 mL/min ✓ TAF → Can use until 30 mL/min ✓ Cobi inhibits renal tubular secretion of creatinine ✓ Cobi has many drug inx via CYP3A4 inhibition (avoid w/ drugs highly dependent on CYP3A4 clearance	Renal Function BMD Lipids
	**Genvoya**	**Emtricitabine** 200 mg	**Tenofovir TAF** 10 mg	**Elvitegravir** 150 mg			**Cobicistat** 150 mg	B1		Renal Function Lipids
	**Dovato**	**Lamivudine** 300mg	-	**Dolutegravir** 50 mg				A1 (*NOT if VL>500,000 or HBV)	✓ W or w/o food. Take 2 hrs before or 6 hrs after Ca ✓ < 50ml/min or Child-Pugh C not recommended ✓ CI w/ dofetilide	Renal function
	**Juluca**	-	-	**Dolutegravir** 50mg	**Rilpivirine** 25mg			A1	✓ Maintenance Therapy–for those already virologically suppressed and no known resistance. Take with a meal ✓ A/E: HSR, Hepatotoxicity. Monitor for ADE if CrCL < 30ml/min ✓ C/I: Dofetilide, PPI	Renal Function, Liver Function
	**Cabenuva**			**Cabotegravir** 30 mg (po), 600/400 mg IM	**Rilpivirine** 25 mg (po), 900/600 mg IM			A1	✓ Maintenance Therapy–for those already virologically suppressed and no known resistance ✓ Lead-in (≥28 days): CAB 30 mg/RPV 25 mg with a meal. Take antacid/cation 2 hrs before/4hrs after oral CAB ✓ Initiation injection: CAB 600/RPV 900 mg IM ✓ Monthly maintenance: CAB 400/RPV 600 mg IM ✓ Q2month maintenance: CAB 600/RPV 900 mg IM	Injection site reactions, pyrexia, fatigue, headache
	**Delstrigo**	**Lamivudine** 300mg	**Tenofovir TDF** 300mg		**Doravirine** 100mg			B1	✓ Not recommended in CrCl< 50ml/min ✓ w/ or w/o food ✓ May exacerbate hepatitis upon discontinuation ✓ Avoid w/ strong CYP3A4 inducers (ie Rifampin)	Renal Function
	**Atripla**	**Emtricitabine** 200 mg	**Tenofovir TDF** 300 mg		**Efavirenz** 600 mg			B1	✓ Keep in mind CNS adverse effects of Efavirenz ✓ Not recommended CrCL <50ml/min ✓ C/I: bepridil, elbasvir/grazoprevir	Renal Function Lipids
	**Complera**	**Emtricitabine** 200 mg	**Tenofovir TDF** 300 mg		**Rilpivirine** 25 mg			B1 (TDF), B2 (TAF), if VL<100,000 and CD4>200	✓ Take with meal (~ 350 kcal) for abs'n of RPV ✓ Use if HIV RNA < 100,000 & CD4 > 200 ✓ Avoid: Acid suppressing (PPI C/I) ✓ RPV fewer CNS s/e compared to Efavirenz ✓ RPV fewer rash and dyslipidemia than Efavirenz	Renal Function BMD
	**Odefsey**	**Emtricitabine** 200 mg	**Tenofovir TAF** 25 mg		**Rilpivirine** 25 mg					Renal Function
	**Symtuza**	**Emtricitabine** 200mg	**Tenofovir TAF** 10mg			**Darunavir** 800mg	**Cobicistat** 150mg	A1	✓ Take with food ✓ Not recommended in CrCL <30ml/min or Severe hepatic impairment ✓ C/I: Alfuzosin, Amiodarone, Bepridil	Renal Function

*Strength of Recommendation: A=strong, B=moderate, C=optional. Quality of Evidence: I=≥1 randomized trials with clinical outcomes/validated lab endpoints, II=≥1 non-randomized trials/observational cohort studies with long-term clinical outcomes, III=expert opinion

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

HIV PREVENTION: Pre-Exposure Prophylaxis (PrEP)

Class	Generic		Brand	Preparations		Dosing	Side Effects	Drug Interactions	Indicated Populations	Comments
Nucleoside / Nucleotide Reverse Transcriptase Inhibitors	Emtricitabine, tenofovir alafenamide	**FTC, TAF**	**Descovy**		Emtricitabine 200 mg/TAF 10 or 25 mg	1 tablet daily	**Mostly Well Tolerated** • N/V/D/Gas	TAF- Substrate of P-gp and BCRP	✓ only recommended in gbMSM ✓ NOT indicated for people who are at risk via receptive vaginal sex	✓ only combo also effective against Hep B ✓ TAF has ↓ rates of renal insufficiency and bone mineral density reduction vs TDF ✓ Not recommended if Clcr<30 mL/minute or hemodialysis (HD)
	Emtricitabine, tenofovir disoproxil fumarate	**FTC, TDF**	**Truvada**		Emtricitabine 200 mg/TDF 300 mg	<u>Daily dosing</u>: 1 tablet daily <u>On-demand dosing</u>: 2 tabs between 2-24 hours before sex, then 1 tab every 24 hours until 2 days after last sexual encounter	**Mostly Well Tolerated** • N/V/D/Gas • Renal impairment • Reduced bone density	Monitor renal function with concomitant use of other nephrotoxic agents (incl. chronic high-dose NSAIDS)	✓ <u>Daily dosing</u>: HIV-negative individuals at risk of acquiring HIV ✓ <u>On-demand dosing</u>: HIV-negative gbMSM ✓ NOT indicated for those who are at risk via receptive vaginal sex or for those who inject drugs	✓ only combo also effective against Hep B ✓ Renal dosing: 1 tablet q2days if Clcr 30-49 mL/minute; not recommended if <30 mL/min or HD
Integrase inhibitors	Cabotegravir	**CAB**	Apretude		Cabotegravir 200 mg/mL IM injection	***Oral lead in (optional)***: 30 mg QD for 28 days ***Initiation (3mL)***: 600 mg CAB IM q1month x 2 consecutive months ***Maintenance (3mL):*** 600 mg CAB IM q2month	**Well Tolerated** **Injection site reactions**, pyrexia, fatigue, headache, MSK pain, nausea, dizziness, sleep problems, rash (mild), diarrhea	**No CYP3A4 inx** **UGT1A1 , UGT1A9 (minor), P-gp, BCRP substrate** **↓ [CAB] with:** Inducers of UGT1A1/3A4	✓ HIV-negative individuals weighing at least 35 kg at risk of sexually acquired HIV ✓	✓ CAB is 1st long acting injectable indicated for PrEP ✓ Optional oral CAB as lead-in dosing (≥28 days) to assess tolerability or for use as oral bridging therapy for missed Apretude injections ✓ C/I: carbamazepine, oxcarbazepine, phenobarbital, phenytoin, rifampin, rifapentine.

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

HIV Antiretroviral (ART) Medications

Class	Generic	Brand	Preparations	Combo Pill	Dosing	Side Effects	Drug Interactions	Comments
Nucleoside / Nucleotide Reverse Transcriptase Inhibitors - NRTI	**Combined NRTI Tablet Formulations**							
AIDSinfo rating: **paired** with INSTI: Dolutegravir **A1** Raltegravir **B1** or a boosted PI: Darunavir **A1** Atazanavir **B1**	Emtricitabine, tenofovir alafenamide	**FTC, TAF**	**Descovy**		Emtricitabine 200 mg/TAF 10 or 25 mg	1 tablet daily	**Mostly Well Tolerated** • N/V/D/Gas	TAF- Substrate of P-gp and BCRP	✓ only combo also effective against Hep B ✓ Better viral suppression than Kivexa if VL > 100,000 ✓ TAF has ↓ rates of renal insufficiency and bone mineral density reduction vs TDF ✓ If on a booster, use 10 mg TAF instead of 25 mg ✓ Not recommended if Clcr<30 mL/minute or hemodialysis (HD)
	Emtricitabine, tenofovir disoproxil fumarate	**FTC, TDF**	**Truvada**		Emtricitabine 200 mg/TDF 300 mg	1 tablet daily	**Mostly Well Tolerated** • N/V/D/Gas • Renal impairment • Reduced bone density	↓ [atazanavir]; need to boost	✓ only combo also effective against Hep B ✓ Better viral suppression than Kivexa if VL > 100,000 ✓ Renal dosing: 1 tablet q2days if Clcr 30-49 mL/minute; not recommended if <30 mL/min or HD
paired with: Darunavir **B2**	abacavir, lamivudine	**ABC, 3TC**	**Kivexa**		Abacavir 600 mg/lamivudine 300 mg	1 tablet daily	**Mostly Well Tolerated** • Headache/N//D/malaise • Hypersensitivity reaction		✓ Abacavir not ideal for those with CV risk factors ✓ HLA needs to be negative before giving abacavir ✓ Comments also apply to Triumeq
	Single Agent NRTI Formulations							
MOA: Analogues of nucleo(t)side which replace a base during reverse transcription of viral RNA to DNA → chain termination **Resistance**: - "low genetic barrier to resistance" - many mutations confer cross resistance to others in the class **Renal Dosing**: Use with caution & check for renal dosing for each agent	***Tenofovir alafenamide*** **Adenosine analogue** Nucleo**tide** Reverse Transcriptase Inhibitor (**NtRTI**)	**TAF**	*Vemlidy* (for chronic HBV)	 25 mg tab	Descovy [1 QD] Genvoya [1 QD] Odefsey [1 QD] Biktarvy [1 QD] Symtuza [1 QD]	25 mg po QD (10 mg po QD if using with booster) Renal	**Mostly Well Tolerated** • N/V/D/Gas	TAF- Substrate of P-gp and BCRP	✓ TAF = tenofovir alafenamide (targeted pro-drug), ***less*** bone & renal issues ✓ safe until renal function with CrCl of 30 mL/min ✓ Preferred agent in cases of co-infection with HBV
	Tenofovir disoproxil fumarate **Adenosine analogue** Nucleo**tide** Reverse Transcriptase Inhibitor (**NtRTI**)	**TDF**	*Viread*	 150, 200, 250, 300 mg tab 40 mg/g powder	Truvada [1 QD] Stribild [1 QD] Complera [1 QD] Delstrigo [1 QD] Atripla [1 QD]	300 mg po QD Renal avoid TDF in CKD	**Mostly Well Tolerated** • N/V/D/Gas • Renal impairment[TDF] • Reduced bone density [TDF]	↓[atazanavir] ↑[didanosine - ddi] Clinically not used with TDF anyways any longer	✓ TDF = tenofovir disoproxil fumarate (pro-drug), efficacy of TDF = TAF ✓ Renal: < 10 mL/min not recommended, 10 - 29 mL/min give 300 mg po q72-96h, 30-49 mL/min give 300 mg po q48h, ≥ 50 mL/min no adjustment ✓ Preferred agent in cases of co-infection with HBV ✓ Favorable lipid profile
	Emtricitabine **Cytidine analogue**	**FTC**	*Emtriva*	 200 mg cap	With TAF or TDF products above	200 mg po QD [cap] 240 mg po QD [sol'n] Renal	**Well Tolerated** • Headache[common], dizziness • N/D • Rash, skin pig'n	Lamuvidine [X] → both **Cytosine** analogues (no point in using both)	✓ Black Box: severe exacerbation of hep B on stopping drug in pts w Hep B ✓ Only part of combos w Tenofovir in Canada ✓ Rarely pts may experience bad diarrhea. Headache most common s/e.
	Lamivudine **Cytidine analogue**	**3TC**	*3TC*	 150, 300 mg tab	Kivexa [1 QD] Triumeq [1 QD] Dovato [1 QD] Delstrigo[1 QD] Combivir [1 BID] Trizivir [1 BID]	150 mg po BID 300 mg po QD Renal	**Well Tolerated** • Headache [beginning] • N/D/Abd pain [transient] • Insomnia [uncommon] Pancreatitis [more peds]	Emtricitabine [X] → both **Cytosine** analogues (no point in using both)	✓ Some people have headache in first few days, stick with it and use Tylenol and Advil if needed ✓ May exacerbate Hep B upon discontinuation
	Abacavir **Guanosine analogue**	**ABC**	*Ziagen*	 300 mg tab	Kivexa [1 QD] Triumeq [1 QD] Trizivir [1 BID]	300 mg po BID 600 mg po QD ***can safely use in CKD***	**Common**: • Headache, N/D, malaise **Serious**: • Hypersensitivity reaction (HSR)		✓ Black Box: Only Rx for HLA-B*5701 negatives → Testing predicts HR in Caucasians. Rechallenge in HSR patients C/I → life threatening ✓ **Signs of HSR**: fever, rash, tired, upset stomach, vomit, belly pain, flu-like sx, sore throat, cough. Occurs < 6 wks after start (mean 11 days). Stop ASAP & see MD. ✓ Meta-analysis → no sign of ↑ MI → but if higher MI risk, ABC not best choice ✓ Can cause hepatitis and lactic acidosis esp in women and obese

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

HIV Antiretroviral (ART) Medications

Class	Generic		Brand	Preparations	Combo Pill	Dosing	Side Effects	Drug Interactions	Comments
**Zidovudine no longer recommended as first-line therapy for most patients	***Zidovudine*** **Thymidine analogue**	AZT	*Retrovir*	 100, 250 mg cap 10 mg/mL syrup 10 mg/mL inject	Trizivir [1 BID] Combivir [1 BID]	300 mg po BID Also **I.V.** form Renal	**Not Well Tolerated** • Headache [62%] • N [50%] / V [17%] / Anorexia [20%] • Insomnia • Nail pigmentation • Hematologic toxicity	stavudine [X] also a thymidine analogue	✓ Black Box: hematologic toxicity, myopathy, anemia, granulocytopenia, thrombocytopenia ✓ Often in subtherapeutic mono- and dual therapy regimens ✓ Resistance likely in Long term survivors ✓ Place for therapy: IV form and syrup still used in MTCT in ***pregnancy and delivery*** and infants with HIV ✓ No longer recommended**

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

Class		Generic		Brand	Preparations	Combo Pill	Dosing	Side Effects	Drug Interactions	Comments
Integrase Strand Transfer Inhibitors - INSTI	**Integrase Strand Transfer Inhibitors** **___tegravir** Favorable lipid profile as a class **Resistance:** Low genetic barrier to resistance with RAL and EVG. Higher with BIC, CAB, DTG	***Bictegravir***	**BIC**	-	 (Biktarvy)	Biktarvy[1 QD]	50mg po QD	**Well Tolerated** • Headache • Nausea/Diarrhea • Insomnia	**CYP3A & UGT1A1 substrate (~50:50)** **Inhibits OCT2 & MATE1** • ↑[Metformin]	✓ Only exists in combination ✓ Increase serum creatinine due to tubular inhibition without affecting glomerular function (increases usually in the first 4 weeks with median increase of 9.96umol/L after 48 weeks) ✓ May increase bilirubin ✓ Interacting classes: anticonvulsants, rifamycins, atazanavir ✓ C/I: Dofetilide, rifampin, St. John's wort
		Cabotegravir	**CAB**	Vocabria	200 mg/mL inj 30 mg tab	Cabenuva IM injection	***Oral***: 30 mg QD (+25 mg RPV) ***Initiation (3mL)***: 600 mg CAB/900 mg RPV IM ***Maintenance:*** 400 mg CAB/600 mg RPV IM monthly or 600 mg CAB/900 mg RPV IM q2months	**Well Tolerated** **Injection site reactions**, pyrexia, fatigue, headache, MSK pain, nausea, dizziness, sleep problems, rash (mild), diarrhea	**No CYP3A4 inx** **UGT1A1 , UGT1A9 (minor), P-gp, BCRP substrate** **↓ [CAB/RPV] with:** Inducers of UGT1A1/3A4	✓ CAB/RPV is 1st long acting injectable combination indicated as a switch regimen in virologically suppressed patients ✓ Oral CAB as lead-in dosing (≥28 days) to assess tolerability or for use as oral bridging therapy for missed Cabenuva injections – optional ✓ NB: initiation injections: one month initiation if using q1month maintance injections. For q2month maintenance, start with two initiation injections one month apart. ✓ Oral CAB C/I: carbamazepine, oxcarbazepine, phenobarbital, phenytoin, rifampin, rifapentine. Cabenuva C/I: as above plus rifabutin, systemic dexamethasone (>1 dose), St. John's wort
	Class Interaction: Oral absorption is diminished when co-administered with polyvalent cations (Mg, Ca, Al, Fe…). • BIC: take 2 hrs apart or together with food • CAB: take 2 hrs before/4 hrs after ORAL CAB • DTG: take 2 hrs before/6 hrs after or together with food • EVG: take 2 hrs apart • RAL: avoid (only Ca OK with Isentress; not HD)	***Dolutegravir***	**DTG**	***Tivicay***	 50 mg tab Pediatric: 10 mg, 25 mg tab 5 mg dispersible tabs	Triumeq[1 QD] Juluca [1 QD] Dovato [1 QD]	50 mg po QD 50 mg po BID*	**Well Tolerated** • ***Insomnia*** • Headache • ↑ SCr small (↑~0.11mg/dL)	**No CYP3A4 inx** **P-gp, UGT1A1 , CY3A4(10-15%)substrate** **Inhibits OCT2** - Metformin (inc 2 fold [metformin]) - C/I Dofetolide	✓ Take with/without food ✓ Inhibits renal tubular secretion of creatinine, SCr "falsely" increases ✓ May cause neural tube defects if taken at the time of conception ✓ Higher barrier to resistance than EVG or RAL ✓ *BID dosing if heavily tx-experienced, INSTI resistant, or given w enzyme inducers ✓ High efficacy in those with baseline HIV RNA > 100,000 copies/mL ✓ C/I: Dofetilide, fampridine
		Elvitegravir	**EVG**	***Vitekta***	 85, 150 mg tab	Stribild Genvoya	85-150 mg po QD boosted *w/ food*	**Well Tolerated** • ***Hyperlipidemia*** • D/N • Headache	**CYP3A4 substrate** **induces 2C9 (EVG)** **Inhibits CYP3A4, P-gp, BCRP, OATP1B1/3, OCT2, MATE1 (cobi)**	✓ Better absorption w food/snack ✓ Coformulated with PK booster cobicistat ✓ Cobicistat inhibits tubular secretion of creatinine w/o affecting glomerular function (if >35.36umol/L need renal monitoring) ✓ Lower genetic barrier to resistance than PIs or DTG ✓ C/I: Eplereone, Lovastatin
		Raltegravir	**RAL**	***Isentress & Isentress HD***	 400 mg tab 600mg tab (HD)	None	400 mg po BID 1200 mg po QD new study QDMRK	**Well Tolerated** • Rash • N/D, Headache • ***Insomnia*** ↑ LFTs, ↑ CK, rhabdo	**No CYP3A4 inx** **UGT1A1 substrate**	✓ Take without regards to meals ✓ 1st to market INSTI → Being studied: 1200 mg po QD (given as 2X 600mg) ✓ Aluminum or Magnesium antacids reduce abs'n RAL (Can take Ca Antacids if on Isentress, *NOT Isentress-HD*) ✓ Lower genetic barrier to resistance than PIs or DTG ✓ Avoid strong inducers of UGT (ie carbamazepine)

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

Class		Generic		Brand	Preparations	Combo Pill	Dosing	Side Effects	Drug Interactions	Comments
Non-nucleoside RT Inhibitors - NNRTI	**NNRTI** **___vir___** **MOA**: NNRTIs bind allosterically in a pocket located near the catalytic site in the palm domain of the p66 subunit site of the Reverse Transcriptase (RT) enzyme **Resistance**: Low genetic barrier to resistance with first generation (EFV ,NVP) , but second generation often still active depending upon genotype.	***Doravirine***	**DOR**	*Pifeltro*	 100mg tab	Delstrigo TDF 1 QD	100mg po OD	Well tolerated Common SE • Headache • Diarrhea, Ab pain • Abnormal Dreams	Cyp3A4 Substrate	✓ Take BID if using with rifabutin ✓ Taken without regards to food ✓ Favourable lipid profile – consider for high cardiac risk ✓ Avoid use with Strong inducers of CYP3A4 (ie Carbamazepine, rifampin) ✓ C/I: carbamazepine, oxcarbazepine, phenobarbital, phenytoin, enzalutamide, rifampin, rifapentine, mitotane, St.John's wort
		Efavirenz	**EFV**	*Sustiva*	 600 mg tab 50, 200 mg cap	Atripla TDF 1 QD	600 mg po QD *avoid fatty meals on empty stomach* *(inc abs'n leading to s/e)*	CNS S/E 52% • Dizziness, vivid dreams • Insomnia, somnolence • Impaired concentration • **Hyperlipidemia** • **Rash 26%** (can treat through it mostly)	**CYP3A4 & 2B6 Substrate** **Potent inducer of CYP3A4,2B6, UGT1A1** **Inhibitor of CYP2C9/2C19/3A4** **↑ [Cocaine]** **↓ [conc] of:** • Benzos (-olam are issues, -pams are ok) • most opioids	✓ Let MD know if history of psych illness → should avoid this med ✓ Vivid dreams bothersome to some, enjoyable to some other ✓ CNS s/e worst after 1st or 2nd dose, often improve in 2-4 weeks ✓ Methadone: monitor for symptoms of **opioid withdrawal** ✓ May cause false +ve cannabinoid test ✓ Pregnancy: birth defects reported in primate studies but no evidence of ↑ risk in human studies; screening for antenatal/postpartum depression recommended ✓ C/I: St. John's wort, elbasavir/grazoprevir, cisapride, midazolam, triazolam, pimozide, ergot ✓ Inducers of CYP3A4 will decrease serum concentration of EFV; EFV may decrease concentrations of CYP3A4 substrates
		Etravirine	**ETR**	*Intelence*	 100, 200 mg tab	None	200 mg po BID or 400 mg po QD *w/ food*	• **Rash 9%** • Dyslipidemia • Nausea • Rhabdomyolysis uncommon	**CYP3A4, 2C9, 2C19 substrate** **Weak inducer of CYP2B6/ 3A4** **Weak Inhibitor of 2C9/ 2C19**	✓ Tabs are large: dissolve readily in water for liquid dosing, however whole tablet is chalky, large and often difficult to swallow. ✓ Severe rash reported ✓ C/I: ombitasvir/paritprevir/ritonavir and dasabuvir regimens
		Nevirapine	**NVP**	*Viramune*	 200 mg IR tab 400 mg SR tab	None	200 mg QD X 14 days then 200 mg po BID OR 400mg XR QD	• **Rash 37%** • Hepatic failure • Fever • Nausea	**CYP3A4 substrate** **Potent inducer of CYP2B6/ 3A4**	✓ Black Box: severe rash & hepatotoxicity. AVOID if CD4>250 (women) or 400 cells/mm3 (male) ✓ hypersensitivity → can treat through rash, but if with fever and elevated LFTs = sign of hypersensitivity, d/c ✓ C/I: St. John's wort; avoid Strong inducers of CYP3A4 (Carbamazepine) ✓ Lead-in phase to reduce rash, occurs in 1st 6 wks, more in women… also drug is auto inducer (will reduce its own level) ✓ XR version (400 mg QD) more common
		Rilpivirine	**RPV**	*Edurant*	 25 mg tab	Complera TDF 1 QD Odefsey TAF 1 QD Juluca 1 QD Cabenuva IM q1-2 months	25 mg po QD *w/ food ++* *monthly IM injection (with cabotegravir/ Cabenuva)*	• Rash 3% • Headache 3% • Insomnia • Depression 8% • Hyperlipidemia • Hepatotoxicity	**CYP3A4 Substrate** **↓ [Edurant] with:** Inducers of CYP3A Drugs ↑ pH	✓ Among smallest HIV tablets ✓ Best absorbed with a good meal (350-500 calories) ✓ PPI contraindicated, H-2 blockers need dose reduction. ✓ Favorable lipid profile ✓ Lower virologic efficacy, **not** suggested for VL > 100,000 & CD4 < 200 ✓ Can exacerbate psych symptoms ✓ QTc prolongation (dose related) ✓ Available as long-acting q1-2 monthly injectable with cabotegravir (CAB): 900 mg IM initiation, then 600 mg IM monthly/900 mg IM q2months

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

Class		Generic		Brand	Preparations	Combo Pill	Dosing	Side Effects	Drug Interactions	Comments
Protease Inhibitors - PI	**Protease Inhibitor** **____navir** **Class S/E:** Hyperlipidemia **MOA:** High genetic barrier to resistance when boosted **1st gen PIs not used usually:** Fosamprenavir **FPV** *(Telzir)* Indinavir **IDV** (*Crixivan*) Nelfinavir **NFV** (*Viracept*) Saquinqvir **SQV** (*Invirase*) Tipranavir **TPV** (*Aptivus*)	***Ritonavir*** ***PK booster***	**RTV**	*Norvir*	 100 mg tab 80 mg/mL oral	None	100-200 po/day	• Bitter aftertaste • Numbness around mouth at HIV doses • N/V/D • ↑ LFTs, ↑ TG • Hyperlipidemia	**Inducer of:** **• 1A2, 2B6, 2C9, 2C19, UGT** **Inhibitor of:** **• 3A4** strong **2D6, 2C8,**	✓ Black Box: many drug interactions→ life threatening ✓ Extremely strong inhibition 3A4, P-GP and other transporters ✓ HIV activity at higher doses but toxicity & inx (not used for HIV treatment) ✓ 100 mg per dose to boost (e.g. if using with BID drug, give 100 mg BID) ✓ Fluorinated steroids (even inhaled, injected, topical) can lead to Cushing's syndrome
		Darunavir	**DRV**	*Prezista*	 *Prezista*: 600, 800 mg tab *Prezcobix*: 800 mg + 150 mg COB tab	Prezcobix w cobicistat 1 QD Symtuza w cobicistat 1 QD	600 mg po BID or 800 mg po QD *w/ food* + RTV 100 mg QD-BID or cobicistat 150 mg QD	• **Rash 10%** • Headache • N/D • ↑ amylase • Hepatotoxic • Kidney stones?	**CYP3A4 Substrate/ Inhibitor** **CYP 2C9 inducer** Failure of contraceptives	✓ Currently highest prescribed PI: 2nd Gen PI ✓ Works in those who are resistant to other PIs ✓ Cobicistat will cause tubular creatinine reabsorption → SCr "pseudo" rise of 10-30 mmol/L from pts normal baseline ✓ Needs RTV or COBI boosting ✓ When boosted with RTV: 800 QD + 100 mg RTV for naïve, [600 mg + 100 RTV] BID for experienced ✓ Contains ***Sulfa*** moiety ✓ Avoid with use of drugs that depend on CYP3A4 metabolism and has narrow therapeutic window (ie Alfuzosin)
		Atazanavir	**ATV**	*Reyataz*	 *Reyataz*: 150, 200, 300mg tab *Evotaz*: 300 mg + 150 mg COB tab	Evotaz w cobicistat	300 mg po QD boosted w RTV 100 mg or cobicistat 150 mg 400 mg po QD unboosted *w/ food (>390 cals)*	• **Kidney stone** 10 fold inc • Increased billi 60% (cosmetic, not harmful) • D/N/Abd pain • Headache 6% • Rash 20%	**CYP3A4 substrate** inducers/inhibitors of 3A4 will interact Drugs inc pH	✓ 2X150 mg (300 mg) + RTV 100 mg daily (TDF increases excretion of ATZ) ✓ 2X200 mg (400 mg) unboosted with Kivexa (needs RTV boost w others) ✓ Increased QTc, PR, more torsades ✓ Jaundice as result of increased direct bilirubin → not harmful, pt may decide to switch for cosmetic reason ✓ Absorption reduced when taken with H2Ra and PPI ✓ H2RA: Unboosted→ ATV≥2 hrs before or ≥ 10 hrs after Boosted → same time or >10 hrs after H2RA ✓ PPI: Unboosted →not recommended for co-administration, Boosted → ≥ 12 hrs after PPI ✓ Consider avoiding in CKD
		Lopinavir / RTV	LPV	*Kaletra*	 200 mg + 50 mg RTV tab	Kaletra 4 QD or 2 BID	400 mg po BID 800 mg po QD	• **Diarrhea** 24% • N • ↑ LFTs, billi, Lipids, MI	**CYP3A4 Substrate/ Inhibitor** **Many** ↑ [benzos] Fentanyl Phenytoin	✓ Dangerous (deadly) interaction with fentanyl ✓ Unpredictable interaction with phenytoin → RTV inhibitor, LPV inducer of CYP. Unpredictable pheny level (unpredictable) ✓ +++ diarrhea, worse with q24h ✓ May need higher doses if tx experienced or later in pregnancy ✓ May have Cardiac risk

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.

Class		Generic		Brand	Preparations	Combo Pill	Dosing	Side Effects	Drug Interactions	Comments
CCR-5	CCR-5 Co Receptor Antagonists	***Maraviroc***	**MVC**	***Celsentri***	 150, 300 mg tab	None	150-600 mg po BID Standard: 300mg BID with or without food	• **cough** [13] • **Rash** [10%], Abdo pain • Dizziness, myalgia • Ortho hypo, syncope • Upper resp infection	**CYP3A4, P-gp substrate** inducers/inhibitors of 3A4 or P-gp will interact	✓ Black Box: hepatotoxicity, systemic allergic reaction ✓ Used later in tx only for CCR-5-tropic HIV virus, cannot use for CXCR-4-tropic virus which is seen more and more in advance dx ✓ Avoid: Rifapentine, Dasabuvir + Ombitasvir/Paritaprevir/RTV
Fusion Inhibitor		***Enfuvirtide***	**ENF**	***Fuzeon***	 90 mg vial	None	90 mg SC BID	• Inj site reaction[~100% pt] • Bacterial pneumonia • Hypersensitivity[<1%]	Neither inducer or inhibitor of CYP enzymes	✓ Was historically used in era between 1st and 2nd generation PIs ✓ Unstable drug, dose needs to be prepared before administering each dose ✓ No cross resistance with other ARVs
Entry Inhibitor		***Ibalizumab-uiyk***	**IBA**	***Trogarzo***	 *150mg/mL vial*	None	2000mg IV single dose then, 800mg Q2W	• Dizziness • Diarrhea, Nausea • Skin Rash	Neither inducer or inhibitor of CYP enzymes	✓ Indication: Treatment of HIV with combination of other ARV in heavily experienced patients with multidrug resistant infection failing current therapy ✓ Infused over 15-30 minutes (Loading dose no less than 30 minutes) ✓ Each 2 mL vial delivers 1.33mL containing 200mg of IBA ✓ If maintenance dose missed (>3 days) then loading dose needs to be given again ✓ No cross resistance with other ARVs ✓ **Not Approved in Canada**
gp120 Attachment Inhibitor		***Fostemsavir***	**FTR**	***Rukobia***	 *600 mg tab*	None	600 mg BID with or without food	• Headache • Skin Rash • Micturition Urgency • N/V/D • Fatigue	**CYP3A4 (Partial), P-gp, BCRP substrate** Strong CYP3A4 inducers will interact; fostemsavir inhibits OATP1B1/3, BCRP	✓ Indication: Treatment of HIV in combination with other ARV in heavily treatment experienced HIV patients with multi-drug resistant HIV-1 failing current ARV due to resistance, intolerance or safety considerations ✓ Prodrug of small molecule Temsavir ✓ BRIGHTE study 96 wks (Ackerman et al. AIDS 2021;35:1061-72.) ✓ **Contraindicated** with strong CYP3A4 inducers (anticonvulsants, mitotane, enzalutamide, rifampin, St. John's wort)

OBT = optimized background therapy

Updated March 2022 by Alice Tseng, Toronto General Hospital and Linda Robinson, Windsor, ON. Initial version created by: **Afshin Azami**, PharmD, RPh, ACPR(c) & **Linda Robinson**, BSc.Phm, RPh, AAHIVP Sept 2016. References: **1)** HIVinfo Guidelines Jan 2022 **2)** Lexi-Comp Drug Monographs for each respective drug **3)** RxTx Drug Monographs for each respective drug.