### Drug-Drug Interactions

- **Statins:** PIs can increase statin levels; simvastatin & lovastatin contraindicated; lower dose of atorvastatin & rosuvastatin; pravastatin does not require dose adjustment
- **Steroids:** PI’s and PK boosters may increase risk of Cushing’s syndrome, beclomethasone (Qvar, Qnasal) or flunisolide is preferred, topical hydrocortisone is ok
- **Anti-platelets:** PIs may alter the activities of P2Y12 inhibitors (i.e. clopidogrel, prasugrel, ticagrelor are contraindicated)
- **Anti-coagulants:** Apixaban, rivaroxaban, and dabigatran are contraindicated with PI’s, warfarin preferred with increased INR monitoring
- **PDE-5 inhibitors:** PIs can increase PDE-5 inhibitor levels and the risk of toxicity (use lowest dose available)
- **OTC medications:**
  - PPI and H2RA reduce absorption of RPV & ATV
  - Polyvalent cations (i.e. calcium, iron) need to be separated from INSTIs by 4 hours
- **Hormonal contraceptives:** ART may decrease effectiveness of oral contraceptives, consider alternative ART or contraception methods
- **Common 3A4 inducers:** rifampin, St. John’s wort

Check for DDI’s using “Liverpool HIV Drug Interactions Checker” at [https://www.hiv-druginteractions.org/checker](https://www.hiv-druginteractions.org/checker)

### Recommended Initial Regimens

**Recommended for Most People with HIV**

<table>
<thead>
<tr>
<th>INSTI-Based</th>
<th>BIC/TAF/FTC</th>
<th>DTG/ABC/3TC (if HLA-B*5701 negative)</th>
<th>DTG + tenofovir/FTC</th>
<th>RAL + tenofovir/FTC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended in Certain Clinical Situations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **PI-Based**
  - (DRV/c or DRV/r) + tenofovir/FTC
  - (ATV/c or ATV/r) + tenofovir/FTC
  - (DRV/c or DRV/r) + ABC/3TC (if HLA-B*5701 negative)

- **NNRTI-Based**
  - DOR/TDF/3TC or DOR + TAF/FTC
  - EFV + tenofovir/FTC
  - RPV/tenofovir/FTC **

- **Alt. INSTI-Based**
  - EVG/c/tenofovir/FTC
  - RAL + ABC/3TC*(if HLA-B*5701 negative)

- **When ABC, TDF, and TAF Can’t Be Used**
  - DTG + 3TC
  - DRV/r + RAL twice daily **
  - DRV/r once daily + 3TC

**Only if HIV RNA <100,000 copies/mL**

**Only if HIV RNA <100,000 copies/mL and CD4 >200 cells/mm³**

### PrEP & PEP

**Pre-exposure prophylaxis**

Oncological and non-occupational post-exposure prophylaxis

- **PrEP:** Test renal function and HIV/STI every 3-6 months
- **PEP/nPEP:** Initiate within 72 hours
  - Treat for 28 days
  - Test for HIV at baseline, 4 & 12 weeks

**ART’s available as liquid:**

- ABC, 3TC, FTC, ZDV, LPV/r, ETR (dispersible tabs), ritonavir

**ART food requirements:** take with food for all except didanosine, efavirenz, fosamprenavir, indinavir

Not included in this pamphlet: stavudine, didanosine, fosamprenavir, indinavir, nelfinavir, sequinavir, tipranavir

### Combination Products

**Brand**

- Eptico®
- Tricens®
- Atripla®
- Biktarvy®
- Combivir®
- Delstrigo®
- Descovy®
- Epzicom®
- Fomivir®
- Genvoya®
- Juluca®
- Kaletra®
- Kivex®
- LiTRON®
- Odefsey®
- Primo®
- Stribild®
- Tecfidera®
- Triumeq®
- Truvada®
- Trizivir®

**Components**

- ABC + 3TC
- DTG + ABC + 3TC
- TDF + FTC
- TAF + FTC
- DRV/r + TAF/FTC
- TDF + 3TC + EFV 600 mg
- TDF + 3TC + EFV 400 mg
- 3TC + AZT
- ABC + 3TC + AZT
- DOR + 3TC + TDF

**Dose Adjustments**

- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- Don’t start if CrCl <70
- Stop use if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- OK to use in ESRD
- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50
- Avoid if CrCl <50

### Single-Tablet Regimens

**ATRIPLA®**

- (efavirenz + tenofovir DF + emtricitabine)

**SYMFI® & SYMFLO®**

- (efavirenz + lamivudine + tenofovir DF)

**COMPLERA®**

- (rilpivirine + tenofovir DF + emtricitabine)

**ODEFSEY®**

- (rilpivirine + tenofovir alafenamide + emtricitabine)

**STRIIBIL®**

- (elvitegravir + cobicistat + tenofovir alafenamide + emtricitabine)

**GENVOYA®**

- (elvitegravir + cobicistat + tenofovir alafenamide + emtricitabine)

**JULUCA®**

- (dolutegravir + abacavir + lamivudine)

**SYMTUZA®**

- (dolutegravir + abacavir + emtricitabine + rilpivirine)

**TRIUMEQ®**

- (bictegravir + tenofovir alafenamide + emtricitabine)

**BIKTARVY®**

- (bictegravir + tenofovir alafenamide + emtricitabine)

**DELSTRIGO®**

- (doravirine + tenofovir DF + lamivudine)
### INSTI’s

Mechanism: Integrase inhibitors block the integrase enzyme needed for viral DNA to integrate with the host cell DNA/human genome.

**Class side effects:** Headache, insomnia, rash, muscle pain/weakness

**Drug Interactions:** Separate all INSTI from polyvalent cations

<table>
<thead>
<tr>
<th>ART</th>
<th>Dose</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raltegravir (RAL)</td>
<td>Isentress® Isentress® HD®</td>
<td>400 mg BID HD: 2 tabs (1200mg) daily - Headache, insomnia - Rhabdomyolysis, increase in CKP</td>
</tr>
<tr>
<td>Elvitegravir/cobi (EVG/c)</td>
<td>Vitekta® (with cobi)</td>
<td>150 mg daily - Lactic acidosis with severe hepatomegaly with steatosis [BBW] - Renal impairment, proteinuria - Decreased bone density - Headache, insomnia</td>
</tr>
<tr>
<td>Dolutegravir (DTG)</td>
<td>Tivicay®</td>
<td>50 mg daily - Headache, insomnia - Increase in SCR - Increase in CPK - Max dose: metformin 3g/day - Concern for neural tube defects [new data from Botswana]</td>
</tr>
<tr>
<td>Bictegravir (BIC)</td>
<td>Biktevy®</td>
<td>50 mg daily - Headache, insomnia - Increase in SCR - Contraindicated with rifampin</td>
</tr>
</tbody>
</table>

### NRTI’s (“Nukes”)

Mechanism: Nucleoside/tide reverse transcriptase inhibitors competitively bind to reverse transcriptase to cause DNA chain termination and stop further DNA synthesis.

**Class side effect:** lactic acidosis [BBW], hepatomegaly with steatosis [BBW]

<table>
<thead>
<tr>
<th>ART</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Abacavir (ABC)</td>
<td>Ziagen®</td>
<td>300 mg BID or 600 mg daily - Severe skin rash: HLA-B*5701 test - Do not initiate if HIV RNA &gt;100,000</td>
</tr>
<tr>
<td>Lamivudine (3TC)</td>
<td>Epivir®</td>
<td>150 mg BID or 300 mg daily - Headache - Do not use 3TC and FTC together (both are cytosine analogs) - Do not aggressively dose adjust for renal impairment</td>
</tr>
<tr>
<td>Emtricitabine (FTC)</td>
<td>Emtriva®</td>
<td>200 mg daily - Renal toxicity (Fanconi) - ↓ bone density - ↓ cholesterol</td>
</tr>
<tr>
<td>Tenofovir disoproxil fumarate (TDF)</td>
<td>Viread®</td>
<td>300 mg daily - Lactic acidosis [BBW] - ↑ triglycerides</td>
</tr>
<tr>
<td>Tenofovir alafenamide (TAF)</td>
<td>Vemlidy® for HBV</td>
<td>25 mg daily in Descovy® - 10 mg daily in Symtuza® - ↑ LDL</td>
</tr>
</tbody>
</table>

3TC, FTC, TDF, & TAF can also treat HBV; exacerbation of HBV can occur if stopped.

### NNRTI’s (“Non-Nukes”)

Mechanism: Non-nucleoside reverse transcriptase inhibitors non-competitively bind to reverse transcriptase.

**Class side effects:** rash, neuropsychiatric (more with EFV than RPV)

**Drug Interactions:** many due to CYP450 metabolism (all CYP3A4 substrates/inhibitors) → always run a drug-drug interaction checker

<table>
<thead>
<tr>
<th>ART</th>
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<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevirapine (NVP)</td>
<td>Viramune®</td>
<td>200 mg daily x 14 days then 200 mg BID or 400 mg daily - Hepatotoxicity [BBW] if CD4 &gt;250 (↑) or &gt;400 (↑²) - Skin reactions SJS/TEN [BBW]</td>
</tr>
<tr>
<td>Efavirenz (EFV)</td>
<td>Sustiva®</td>
<td>600 mg daily Take without food @ bedtime - Psychiatric (suicidal ideation, depression) - CNS (abnormal dreams/nightmares, confusion) - Headache, insomnia - QT prolongation</td>
</tr>
<tr>
<td>Etravirine (ETR)</td>
<td>Intelience®</td>
<td>200 mg BID - Skin reactions SJS/TEN - Tabs can be dissolved in H2O</td>
</tr>
<tr>
<td>Rilpivirine (RPV)</td>
<td>Edurant®</td>
<td>25 mg daily with &gt;400 kcal of fatty food - Mood changes, depressive disorders - Headache, insomnia - Skin reactions - Increase in SCR - Do not initiate if VL &gt;100,000 or CD4 &lt;200 - PPI’s contraindicated</td>
</tr>
<tr>
<td>Doravirine (DOR)</td>
<td>Pifeltro®</td>
<td>100 mg daily - Can be taken +/- food - No interaction with PPI or H2RA - Take BID with rifabutin</td>
</tr>
</tbody>
</table>

### PI’s

Mechanism: Protease inhibitors inhibit HIV protease and make the enzyme incapable of cleaving the polyprotein, resulting in prevention of the assembly and maturation of HIV.

**Class side effects:** metabolic (hyperlipidemia, lipatrophy, hyperglycemia, insulin resistance, hepatotoxicity), N/V/D, headache, rash

**Drug Interactions:** many due to CYP450 metabolism (all CYP3A4 substrates/inhibitors) → always run a drug-drug interaction checker

**Pharmacokinetic boosting agents:** CYP 3A4 inhibitors like ritonavir 100mg or cobicistat 150mg are needed with all PI’s (except with atazanavir)

<table>
<thead>
<tr>
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<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lopinavir (LPV)</td>
<td>Kaletra® (with ritonavir)</td>
<td>800 mg / 200 mg daily or 400 mg / 100 mg BID - Pancreatitis, hepatotoxicity - QT and PR prolongation - Hyperlipidemia</td>
</tr>
<tr>
<td>Atazanavir (ATZ)</td>
<td>Reyataz®</td>
<td>300 mg daily with ritonavir 100mg daily - 400mg daily without ritonavir</td>
</tr>
<tr>
<td>Darunavir (DRV)</td>
<td>Prezista®</td>
<td>800 mg daily or 600 mg BID if resistant - Rash - Headache - Caution in sulfa allergy</td>
</tr>
<tr>
<td>Ritonavir (RTV)</td>
<td>Prezinc® (with cobi)</td>
<td>800mg/150mg daily</td>
</tr>
</tbody>
</table>

### Fusion Inhibitor

Mechanism: blocks the fusion of the HIV virus with the CD4+ cells

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Enfuvirtide (T20)</td>
<td>Fuzeon®</td>
<td>90 mg SC BID - Hypersensitivity reaction - Local injection site reaction</td>
</tr>
</tbody>
</table>

Grey shade = renal adjustment needed

Not included in this reference: zidovudine, delavirdine, fosamprenavir, indinavir, nelfinavir, saquinavir, tipranavir