**Dolutegravir (DTG)** 

**Supplementary Figure 1.** Chemical structure of the "A" ring of the second generation INSTIs. Chemical structures of the second generation INSTIs are shown with their respective "A" rings surrounded with a black circle.

**Table S1.** Current recommendations for HIV-1 treatments with INSTIs. The recommended INSTI treatment strategies for most ARV naïve or ARV-experienced, INSTI native HIV-1 patients are shown at the top of the table. The recommended treatment strategies for most ARV naïve or ARV-experienced, INSTI-naïve in certain clinical settings are given in the middle panel. The treatment strategies for most suppressed HIV-1 patients undergoing maintenance therapy are shown in the bottom panel.

INSTI Treatment Strategies for Most ARV Naïve or ARV-Experienced, INSTI Naïve, HIV-1 Patients					
Name	ARV Drugs Formulated into Fixed Dose Combinations	Dosing Recommendation	Adverse Events		
Biktarvy	Bictegravir (50 mg)/tenofovir alafenamide (25 mg)/emtricitabine (200 mg)	One tablet once daily	Diarrhea, nausea, headache, weight gain		
Triumeq	Dolutegravir (50 mg)/abacavir (600 mg)/lamivudine (300 mg)	One tablet once daily	Insomnia, headache, weight gain, hepatotoxicity, depression, slightly increased risk of neural tube defects in infants		
Dovato*	Dolutegravir (50 mg)/lamivudine (300 mg)	One tablet once daily	Insomnia, headache, weight gain, hepatotoxicity, depression, slightly increased risk of neural tube defects in infants		
Isentress plus Truvada	Raltegravir (400mg)/tenofovir disoproxil fumarate (300 mg)/emtricitabine (200 mg)	Two tablets daily	Nausea, weight gain, insomnia, depression, rash		
Isentress HD plus Truvada	Raltegravir (600mg)/tenofovir disoproxil fumarate (300 mg)/emtricitabine (200 mg)	Two tablets once daily	Nausea, weight gain, insomnia, depression, rash		
*only for individuals with HIV RNA ≤500,000 copies/mL					

INSTI Treatment Strategies for Most ARV Naïve or ARV-Experienced, INSTI-Naïve HIV-1 Patients in Certain Clinical Settings						
Name	ARV Drugs Formulated into Fixed Dose Combinations	Dosing Recommendation	Adverse Events			
Genvoya	Elvitegravir (150 mg)/cobicistat (150 mg)/tenofoviar alafenamide (10 mg)/emtricitabine (200 mg)	One tablet once daily with food	Nausea, diarrhea, depression			
Stribild	Elvitegravir (150 mg)/cobicistat (150 mg)/tenofovir disoproxil fumarate (300 mg)/emtricitabine (200 mg)	One tablet once daily with food	Nausea, diarrhea, depression			

INSTI Treatment Strategies for Most Suppressed HIV-1 Patients Undergoing Maintenance Therapy					
Name	ARV Drugs Formulated into Fixed Dose Combinations	Dosing Recommendation	Adverse Events		
Dovato*	Dolutegravir (50 mg)/lamivudine (300 mg)	One tablet once daily	Insomnia, headache, weight gain, hepatotoxicity, depression, slightly increased risk of neural tube defects in infants		
Juluca	Dolutegravir (50 mg)/rilpivirine (25 mg)	One tablet once daily with a meal	Insomnia, headache, weight gain, hepatotoxicity, depression, slightly increased risk of neural tube defects in infants		
Isentress HD plus Truvada	Raltegravir (600mg)/tenofovir disoproxil fumarate (300 mg)/emtricitabine (200 mg)	Two tablets once daily	Nausea, weight gain, insomnia, depression, rash		
Triumeq	Dolutegravir (50 mg)/abacavir (600 mg)/lamivudine (300 mg)	One tablet twice daily	Insomnia, headache, weight gain, hepatotoxicity, depression, slightly increased risk of neural tube defects in infants		
Biktarvy	Bictegravir (50 mg)/tenofovir alafenamide (25 mg)/emtricitabine (200 mg)	One tablet once daily	Diarrhea, nausea, headache, weight gain		