SUPPLEMENTARY MATERIAL

Table S1: Adjusted comparison of viral suppression and change in CD4 cell counts at 24 and 48 weeks from ART initiation by first-line antiretroviral regimen, OT analyses, CoRIS cohort, 2018-2021

	Viral suppression				Change in CD4 cell count			
	24 weeks		48 weeks		24 weeks		48 weeks	
	No./No. with data (%)*	Adjusted OR (95% CI)**	No./No. with data (%)*	Adjusted OR (95% CI)**	Mean change in CD4 cell count (95% CI)	Adjusted mean difference in CD4 cell count increase (95% CI)*	Mean change in CD4 cell count (95% CI)	Adjusted mean difference in CD4 cell count increase (95% CI)*
DTG/3TC	234/254 (92.1)	1	140/147 (95.2)	1	208.3 (183.5; 233.1)	0	262.5 (225.9; 299.0)	0
3DR-InSTI	831/989 (84.0)	0.88 (0.57; 1.35)	608/670 (90.7)	0.69 (0.32; 1.46)	202.7 (189.3; 216.2)	1.88 (-26.38; 30.14)	203.0 (188.7; 217.3)	2.88 (-25.34; 31.11)
BIC/FTC/TAF	518/623 (83.1)	0.79 (0.52; 1.20)	369/411 (89.8)	0.66 (0.28; 1.57)	201.3 (183.9; 218.6)	1.73 (-28.62; 32.07)	244.7 (222.2; 267.1)	-18.57 (-67.69; 30.56)
DTG/3TC/ABC	145/175 (82.9)	0.71 (0.39; 1.30)	140/149 (94.0)	1.07 (0.53; 2.14)	196.2 (167.0; 225.4)	1.81 (-38.38; 42.00)	272.6 (235.4; 309.8)	5.47 (-55.56; 66.49)
DRV/COBI/FTC/TAF	83/113 (73.5)	0.38 (0.24; 0.60)	67/76 (88.2)	0.57 (0.19; 1.66)	184.8 (145.2; 224.4)	-8.35 (-54.67; 37.97)	249.7 (197.4; 302.0)	-7.06 (-81.87; 67.75)
EVG/COBI/FTC/TAF	63/69 (91.3)	1.37 (0.57; 3.30)	40/42 (95.2)	1.02 (0.24; 4.32)	185.5 (122.7; 248.3)	-0.23 (-48.95; 48.49)	275.2 (190.0; 360.4)	23.05 (-47.50; 93.60)
DTG+FTC/TDF	105/122 (86.1)	1.47 (0.64; 3.38)	59/68 (86.8)	0.69 (0.18; 2.58)	228.5 (193.0; 264.0)	18.75 (-26.25; 63.76)	273.0 (219.8; 326.2)	-19.58 (-98.33; 59.17)

DTG/3TC: dolutegravir/lamivudine; 3DR-InSTI: three-drug regimen including integrase inhibitor (BIC/FTC/TAF, DTG/3TC/ABC, EVG/COBI/FTC/TAF and DTG+FTC/TDF); BIC/FTC/TAF: bictegravir/emtricitabine/tenofovir alafenamide; DTG/3TC/ABC: dolutegravir/lamivudine/abacavir; DRV/COBI/FTC/TAF: darunavir/cobicistat/emtricitabine/tenofovir alafenamide; EVG/COBI/FTC/TAF: elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide; DTG+FTC/TDF: dolutegravir+emtricitabine/tenofovir disoproxil fumarate.

** Number of subjects achieving VS / Number of subjects with available data on VS (percentage of subjects achieving VS among those with available data)*

***Adjusted for sex, age at ART initiation, transmission category, educational level, country of origin, CD4 cell count and viral load within 6 months previous to ART initiation, presence of hepatitis C virus antibodies, presence of hepatitis B virus surface antigen, and AIDS diagnosis at initiation of ART.*

Appendix S1 Patient 1: 31-year-old male. At baseline, he had viral load 353,000 copies/ml, CD4 cell count 15/microl, he had no resistance to reverse transcriptase inhibitors and no integrase inhibitor resistance testing was available. He achieved indetectable viral load (VL) and had VF 3 and 10 months after the start of treatment, respectively. Resistance testing was performed at VF with no resistance to integrase inhibitors; reverse transcriptase could not be amplified. DTG/3TC was maintained until the last visit 19 months after ART initiation: during this time he had detectable viral load, always below 200 copies/ml.

Patient 2: 28-year-old male. At baseline, he had viral load 220 copies/ml, CD4 cell count 430/microl, and baseline resistance testing was not available. He achieved undetectability 2.5 months after the start of DTG/3TC. He switched to DRV/COB/TAF/FTC 4 months after ART initiation because of suspected adverse effect (anxiety), and he abandoned treatment 10 days later. He experienced VF 5 months after ART initiation (resistance testing was not performed at the time), and 10 days later DTG/3TC was reintroduced. Viral load was undetectable 3.5 months after the restart of DTG/3TC and has remained undetectable for 18 months until the last visit.

Patient 3: 35-year-old male. At baseline, he had VL 2,000/ml and CD4 cell count 375, and no resistance mutations to reverse transcriptase or integrase inhibitors. He achieved undetectability and had viral failure 2 and 6 months after starting DTG/3TC, respectively. He had low treatment compliance since the start of treatment.

Table S2: Adjusted comparison of viral suppression and change in CD4 cell counts at 24 and 48 weeks from ART initiation by first-line antiretroviral regimen in subgroups, CoRIS cohort, 2018-2021

S3a. Viral suppression

	Viral suppression			
	24 weeks		48 weeks	
	No./No. with data (%)*	Adjusted OR (95% CI)**	No./No. with data (%)*	Adjusted OR (95% CI)**
ART initiation with CD4 cell count < 200 cells/μL				
DTG/3TC	9/11 (81.8)		5/6 (83.3)	
BIC/FTC/TAF	117/161 (72.7)		89/105 (84.8)	
DTG/3TC/ABC	22/31 (71.0)		19/24 (79.2)	
DRV/COBI/FTC/TAF	15/28 (53.6)		18/22 (81.8)	
EVG/COBI/FTC/TAF	11/17 (64.7)		14/16 (87.5)	
DTG+FTC/TDF	45/64 (70.3)		40/49 (81.6)	
ART initiation with HIV RNA VL > 100,000 copies/ml				
DTG/3TC	60/76 (78.9)		34/38 (89.5)	
BIC/FTC/TAF	219/291 (75.3)	1.30 (0.81; 2.09)	170/198 (85.9)	0.94 (0.30; 2.95)
DTG/3TC/ABC	64/82 (78.0)	1.44 (0.76; 2.75)	65/73 (89.0)	1.15 (0.27; 4.82)
DRV/COBI/FTC/TAF	24/45 (53.3)	0.56 (0.28; 1.11)	25/34 (73.5)	0.42 (0.11; 1.70)
EVG/COBI/FTC/TAF	21/28 (75.0)	1.28 (0.67; 2.45)	24/27 (88.9)	1.32 (0.35; 5.02)
DTG+FTC/TDF	112/141 (79.4)	1.63 (0.74; 3.59)	92/107 (86.0)	1.01 (0.37; 2.73)
ART initiation with HIV RNA VL > 500,000 copies/ml				
DTG/3TC	10/18 (55.6)		5/6 (83.3)	
BIC/FTC/TAF	85/124 (68.5)		75/86 (87.2)	
DTG/3TC/ABC	18/29 (62.1)		25/30 (83.3)	
DRV/COBI/FTC/TAF	11/22 (50.0)		7/12 (58.3)	
EVG/COBI/FTC/TAF	7/11 (63.6)		11/13 (84.6)	
DTG+FTC/TDF	50/68 (73.5)		39/47 (83.0)	
ART initiation within 7 days of enrolment				
DTG/3TC	127/142 (89.4)		71/77 (92.2)	
BIC/FTC/TAF	350/419 (83.5)	1.14 (0.69; 1.87)	268/302 (88.7)	1.04 (0.35; 3.06)
DTG/3TC/ABC	53/63 (84.1)	1.10 (0.47; 2.57)	50/54 (92.6)	1.44 (0.43; 4.82)
DRV/COBI/FTC/TAF	38/55 (69.1)	0.42 (0.16; 1.08)	34/40 (85.0)	0.75 (0.23; 2.43)
EVG/COBI/FTC/TAF	47/54 (87.0)	1.42 (0.66; 3.05)	47/50 (94.0)	1.61 (0.46; 5.63)
DTG+FTC/TDF	114/142 (80.3)	1.07 (0.41; 2.77)	91/106 (85.8)	0.96 (0.42; 2.22)
Women				
DTG/3TC	18/20 (90.0%)		7/7 (100.0%)	
BIC/FTC/TAF	68/75 (90.7%)		45/52 (86.5%)	
DTG/3TC/ABC	11/13 (84.6%)		14/15 (93.3%)	
DRV/COBI/FTC/TAF	11/15 (73.3%)		8/10 (80.0%)	
EVG/COBI/FTC/TAF	8/9 (88.9%)		9/10 (90.0%)	
DTG+FTC/TDF	24/30 (80.0%)		24/28 (85.7%)	

** Number of subjects achieving VS / Number of subjects with available data on VS (percentage of subjects achieving VS among those with available data)*

***Adjusted for sex, age at ART initiation, transmission category, educational level, country of origin, CD4 cell count and viral load within 6 months previous to ART initiation, presence of hepatitis C virus antibodies, presence of hepatitis B virus surface antigen, and AIDS diagnosis at initiation of ART.*

ART: antiretroviral therapy; DTG/3TC: dolutegravir/lamivudine; BIC/FTC/TAF: bictegravir/emtricitabine/tenofovir alafenamide; DTG/3TC/ABC: dolutegravir/lamivudine/abacavir; DRV/COBI/FTC/TAF: darunavir/cobicistat/emtricitabine/tenofovir alafenamide; EVG/COBI/FTC/TAF: elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide; DTG+FTC/TDF: dolutegravir+emtricitabine/tenofovir disoproxil fumarate.

S2b. Change in CD4 cell counts

	Change in CD4 cell count			
	24 weeks		48 weeks	
	Mean change in CD4 cell count (95% CI)	Adjusted mean difference in CD4 cell count increase (95% CI)*	Mean change in CD4 cell count (95% CI)	Adjusted mean difference in CD4 cell count increase (95% CI)*
ART initiation with CD4 cell count < 200 cells/µL				
DTG/3TC	155.5 (115.1; 196.0)		250.8 (168.4; 333.2)	
BIC/FTC/TAF	150.5 (130.8; 170.2)		226.2 (195.7; 256.8)	
DTG/3TC/ABC	173.3 (123.6; 223.1)		242.9 (182.6; 303.1)	
DRV/COBI/FTC/TAF	135.1 (101.7; 168.5)		198.0 (147.5; 248.4)	
EVG/COBI/FTC/TAF	184.6 (133.0; 236.2)		209.1 (152.9; 265.3)	
DTG+FTC/TDF	168.9 (137.5; 200.2)		199.4 (167.8; 231.0)	
ART initiation with HIV RNA VL > 100,000 copies/ml				
DTG/3TC	225.1 (185.8; 264.4)		331.7 (271.0; 392.4)	
BIC/FTC/TAF	216.9 (192.1; 241.8)	26.69 (-15.86; 69.25)	277.7 (246.5; 308.8)	-5.22 (-55.50; 45.07)
DTG/3TC/ABC	237.7 (198.9; 276.5)	44.79 (-7.18; 96.77)	313.3 (262.0; 364.6)	20.96 (-40.43; 82.34)
DRV/COBI/FTC/TAF	197.3 (132.0; 262.7)	9.67 (-65.41; 84.75)	259.3 (186.8; 331.8)	-28.46 (-93.71; 36.79)
EVG/COBI/FTC/TAF	222.2 (144.2; 300.1)	30.74 (-62.50; 123.98)	277.4 (174.8; 379.9)	-5.06 (-94.88; 84.75)
DTG+FTC/TDF	250.5 (214.8; 286.3)	48.55 (-4.11; 101.22)	285.5 (239.3; 331.7)	-15.03 (-101.90; 71.85)
ART initiation with HIV RNA VL > 500,000 copies/ml				
DTG/3TC	268.9 (163.6; 374.1)		371.4 (107.1; 635.8)	
BIC/FTC/TAF	252.6 (216.4; 288.8)		320.9 (269.3; 372.5)	
DTG/3TC/ABC	258.8 (197.7; 320.0)		353.2 (257.5; 448.9)	
DRV/COBI/FTC/TAF	279.0 (156.6; 401.5)		339.8 (189.1; 490.4)	
EVG/COBI/FTC/TAF	180.6 (78.1; 283.0)		264.6 (137.5; 391.8)	
DTG+FTC/TDF	283.1 (223.7; 342.5)		339.1 (265.4; 412.9)	
ART initiation within 7 days of enrolment				
DTG/3TC	209.5 (179.2; 239.9)		250.1 (201.9; 298.4)	
BIC/FTC/TAF	208.4 (186.1; 230.7)	9.02 (-26.33; 44.38)	258.8 (233.1; 284.5)	12.99 (-44.81; 70.80)
DTG/3TC/ABC	259.6 (208.7; 310.4)	54.25 (-6.23; 114.73)	325.1 (267.3; 382.9)	61.03 (-7.56; 129.63)
DRV/COBI/FTC/TAF	191.8 (142.7; 241.0)	1.73 (-71.98; 75.45)	278.0 (210.7; 345.3)	47.87 (-40.25; 135.99)
EVG/COBI/FTC/TAF	181.2 (125.6; 236.8)	-8.69 (-78.65; 61.26)	308.1 (246.5; 369.8)	71.35 (4.34; 138.35)
DTG+FTC/TDF	261.3 (223.2; 299.5)	50.68 (-2.62; 103.99)	302.6 (257.3; 347.8)	39.25 (-35.38; 113.87)
Women				
DTG/3TC	174.9 (94.9; 255.0)		364.4 (28.1; 700.7)	
BIC/FTC/TAF	225.4 (174.4; 276.5)		237.8 (185.2; 290.3)	
DTG/3TC/ABC	288.1 (167.5; 408.7)		249.5 (155.7; 343.2)	

DRV/COBI/FTC/TAF	246.1 (171.1; 321.1)		190.3 (112.8; 267.8)	
EVG/COBI/FTC/TAF	348.0 (98.2; 597.8)		254.6 (-28.5; 537.8)	
DTG+FTC/TDF	233.2 (143.3; 323.1)		290.7 (190.8; 390.6)	

**Adjusted for sex, age at ART initiation, transmission category, educational level, country of origin, CD4 cell count and viral load within 6 months previous to ART initiation, presence of hepatitis C virus antibodies, presence of hepatitis B virus surface antigen, and AIDS diagnosis at initiation of ART.*

ART: antiretroviral therapy; DTG/3TC: dolutegravir/lamivudine; BIC/FTC/TAF: bictegravir/emtricitabine/tenofovir alafenamide; DTG/3TC/ABC: dolutegravir/lamivudine/abacavir; DRV/COBI/FTC/TAF: darunavir/cobicistat/emtricitabine/tenofovir alafenamide; EVG/COBI/FTC/TAF: elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide; DTG+FTC/TDF: dolutegravir+emtricitabine/tenofovir disoproxil fumarate.