

# Weight and Metabolic Changes With Cabotegravir + Rilpivirine Long-Acting or Bictegravir/Emtricitabine/Tenofovir Alafenamide

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# Disclosures

- The SOLAR study was funded by ViiV Healthcare
- Darrell Tan, MD, PhD, reports salary support from the Canada Research Chairs Program, investigator-initiated research grants to his institution from Abbott and Gilead Sciences, Inc., and support to his institution for clinical trials sponsored by GSK

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# Background

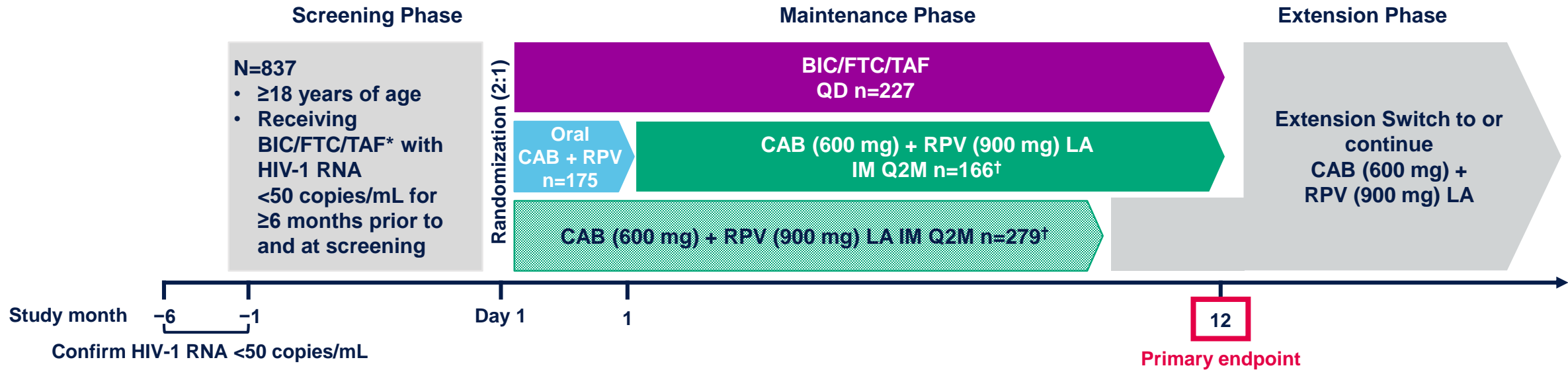
- Cabotegravir (CAB), an integrase strand transfer inhibitor (INSTI), plus rilpivirine (RPV), a non-nucleoside reverse transcriptase inhibitor (NNRTI), administered monthly or every 2 months (Q2M) is the first complete long-acting (LA) regimen recommended by treatment guidelines for the maintenance of HIV-1 virologic suppression<sup>1–3</sup>
- Bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) is an oral, once-daily, three-drug regimen recommended by treatment guidelines as one of the choices for therapy for PLWH<sup>2,3</sup>
- Body weight and lipid changes have been observed in participants receiving INSTI-based regimens including CAB + RPV LA, and TAF-based regimens including BIC/FTC/TAF<sup>4–10</sup>
- Weight and metabolic changes from baseline to Month 12 were assessed in a standardized manner among PLWH switching to CAB + RPV LA Q2M vs. continuing on BIC/FTC/TAF in the Phase 3b SOLAR\* study
- Primary results from the SOLAR study will be presented in the Wednesday morning Oral Abstract Session 12 (Antiviral Strategies for Treatment and Preventions)

\*NCT04542070; Australia, Austria, Belgium, Canada, France, Germany, Ireland, Italy, Japan, the Netherlands, Spain, Switzerland, United Kingdom, United States.

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# SOLAR Study Design and Metabolic Objectives

Phase 3b, Randomized (2:1), Open-Label, Active-Controlled, Multicenter, Parallel-Group, Noninferiority Study



- **Metabolic Objectives:** Changes in body weight, body mass index (BMI) category, waist and hip circumferences, waist-to-height ratio, waist-to-hip ratio,<sup>‡</sup> and the proportion of participants with insulin resistance or metabolic syndrome<sup>§</sup> were assessed from baseline (Day 1) to Month 11 (SWI)/12 (OLI) (hereafter referred to as Month 12)

\*A single prior integrase inhibitor regimen is allowed if BIC/FTC/TAF is a second-line regimen 6 months prior to screening. Any prior change in regimen, defined as a change of a single drug or multiple drugs simultaneously, must have occurred due to tolerability/safety, access to medications, or convenience/simplification, and must not have been done for treatment failure (HIV-1 RNA ≥400 copies/mL). †Participants randomized to the LA arm were offered an optional OLI; the decision to dose SWI or with OLI was determined by the participants following informed consent discussions with the investigator. ‡Standardized weight and anthropometric measurements were performed using circumference tapes and Tanita scales. §As defined by standard clinical criteria.

# Baseline Characteristics

Parameter	CAB + RPV LA Q2M arm (n=454)	BIC/FTC/TAF (n=227)
Age (years), median (range)	37 (18–74)	37 (18–69)
≥50 years, n (%)	89 (20)	45 (20)
Female (sex at birth), n (%)	79 (17)	41 (18)
Race, n (%)		
Black	96 (21)	49 (22)
White	313 (69)	160 (70)
Asian	23 (5)	11 (5)
Other races*	22 (5)	7 (3)
BMI (kg/m <sup>2</sup> ), median (IQR)	26.0 (23.2–29.3)	25.4 (23.6–29.6)
≥30 kg/m <sup>2</sup>	97 (21)	52 (23)
Weight (kg), median (IQR)	81.3 (70.7–91.8)	79.0 (69.4–91.7)
CD4+ cell count (cells/mm <sup>3</sup> ), median (IQR)	662 (487–853)	645 (489–823)
Duration of prior ART (years), median (IQR) <sup>†</sup>	2.6 (1.6–4.9)	2.5 (1.5–4.7)

- Among study participants, 12 transgender females, 1 transgender male, and 1 gender non-conforming individual were included

\*Other race participants: American Indian or Alaska Native, n=14 (CAB + RPV LA Q2M) and n=2 (BIC/FTC/TAF); Native Hawaiian or other Pacific Islander, n=1 (BIC/FTC/TAF); multiple, n=8 (CAB + RPV LA Q2M) and n=4 (BIC/FTC/TAF).

<sup>†</sup>BIC/FTC/TAF must have been the participant's first or second regimen. If BIC/FTC/TAF was the second regimen, the first regimen must have been an integrase inhibitor.

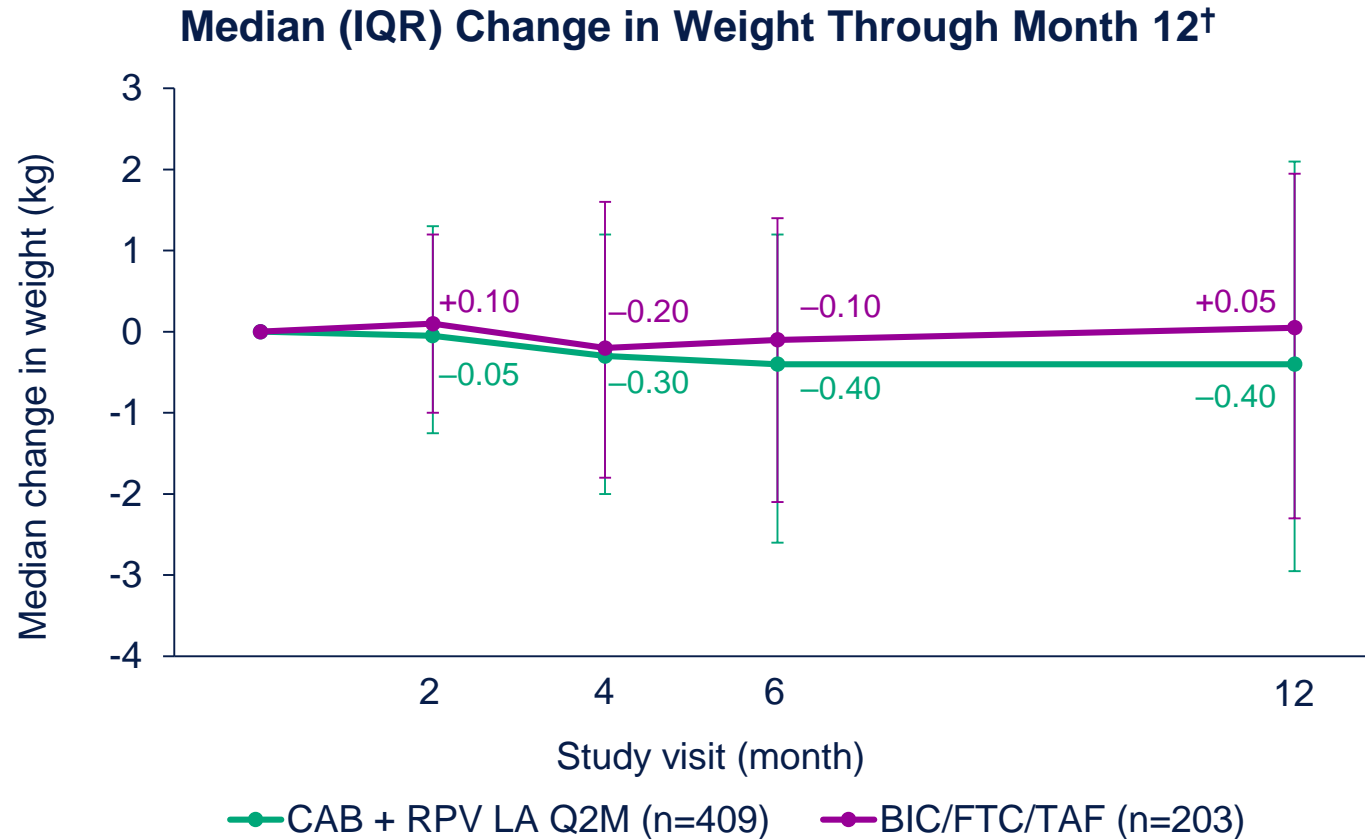
# Pertinent Baseline Metabolic Parameters, Medical History, and Co-medications History

Parameter	CAB + RPV LA Q2M arm (n=454)	BIC/FTC/TAF (n=227)
BMI category, n (%)		
Underweight (<18.5 kg/m <sup>2</sup> )	8 (2)	3 (1)
Normal (18.5–<25 kg/m <sup>2</sup> )	175 (39)	94 (41)
Overweight (25–<30 kg/m <sup>2</sup> )	174 (38)	78 (34)
Obesity (≥30 kg/m <sup>2</sup> )	97 (21)	52 (23)
Baseline lipids, median (range)		
TG (mmol/L)	1.07 (0.32–20.42)	1.06 (0.38–4.01)
TC (mmol/L)	4.58 (2.25–9.66)	4.77 (2.72–8.94)
LDL (mmol/L)	2.74 (0.55–5.41)	2.77 (1.01–6.97)
HDL (mmol/L)	1.22 (0.47–2.38)	1.26 (0.60–3.06)
TC/HDL ratio	3.71 (1.45–20.55)	3.56 (1.82–8.25)
Relevant medical history, n (%)		
Hypertension	48 (11)	26 (12)
Diabetes	19 (4)	7 (3)
Relevant co-medications, n (%)		
Lipid-lowering therapy*	40 (9)	21 (9)

- In total, 59% (n=401/681) of participants were in the overweight or obesity category at baseline

\*Started lipid-lowering medication during maintenance phase: CAB + RPV LA Q2M, n=17 (4%); BIC/FTC/TAF, n=8 (4%).  
HDL, high-density lipoproteins; LDL, low-density lipoproteins; TC, total cholesterol; TG, triglycerides.

# Change in Weight Through Month 12 by Treatment Regimen\*

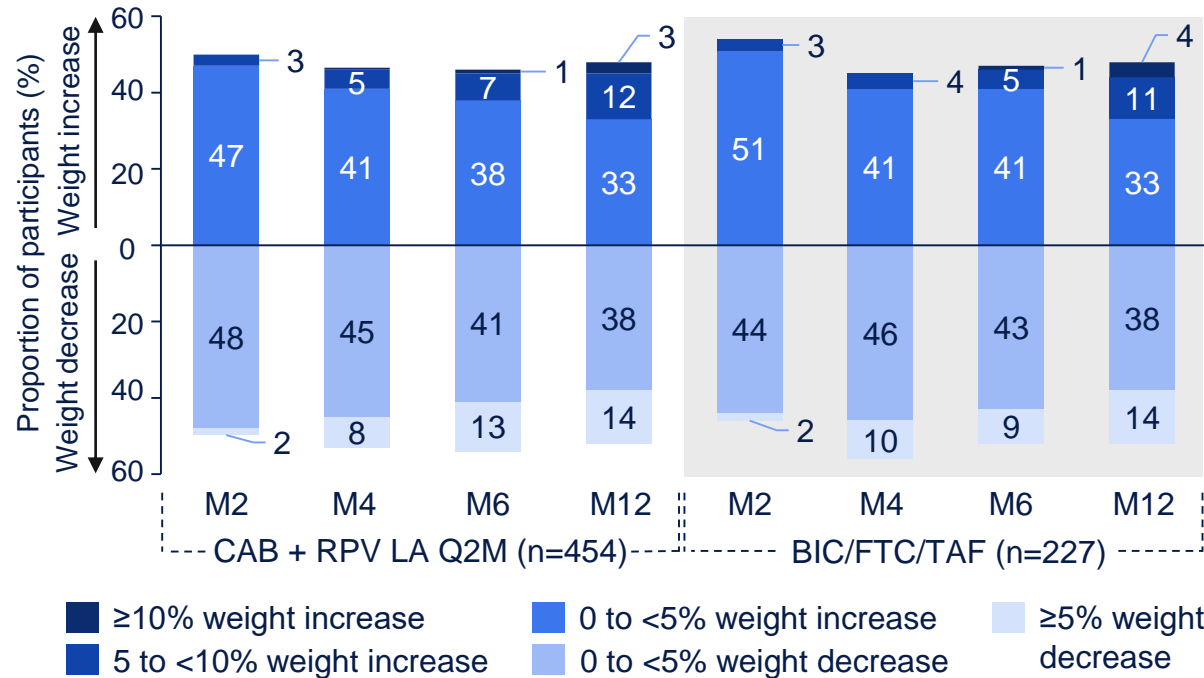


- At Month 12, median (IQR) change in weight in the CAB + RPV LA group was -0.40 (-2.95, +2.10) kg and +0.05 (-2.30, +1.95) kg in the BIC/FTC/TAF group

\*Any participant that started lipid-modifying agents during the study was non-evaluable in anthropometric assessments. <sup>†</sup>Median (IQR) weight (kg) at baseline: CAB + RPV LA, 81.3 (70.70, 91.80); BIC/FTC/TAF, 79.0 (69.40, 91.70).

# Percent Change in Weight Through Month 12 by Treatment Regimen\*

Proportion of Participants With 0 to <5%, 5 to <10%, and ≥10% Weight Change Through Month 12

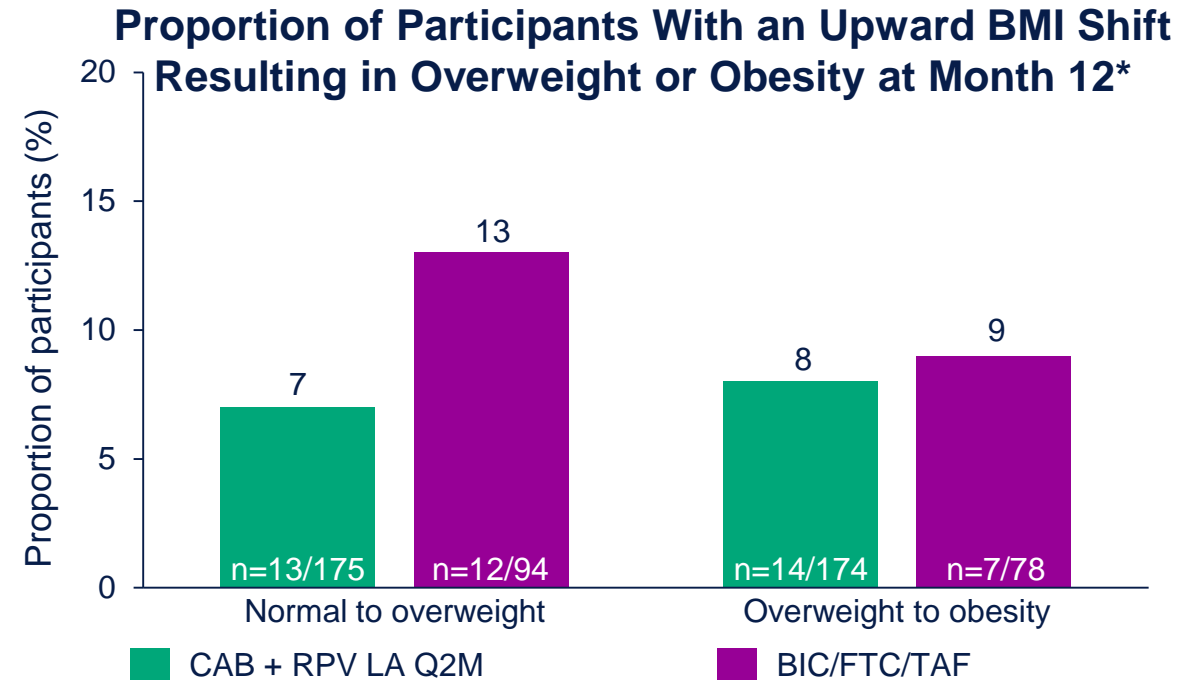
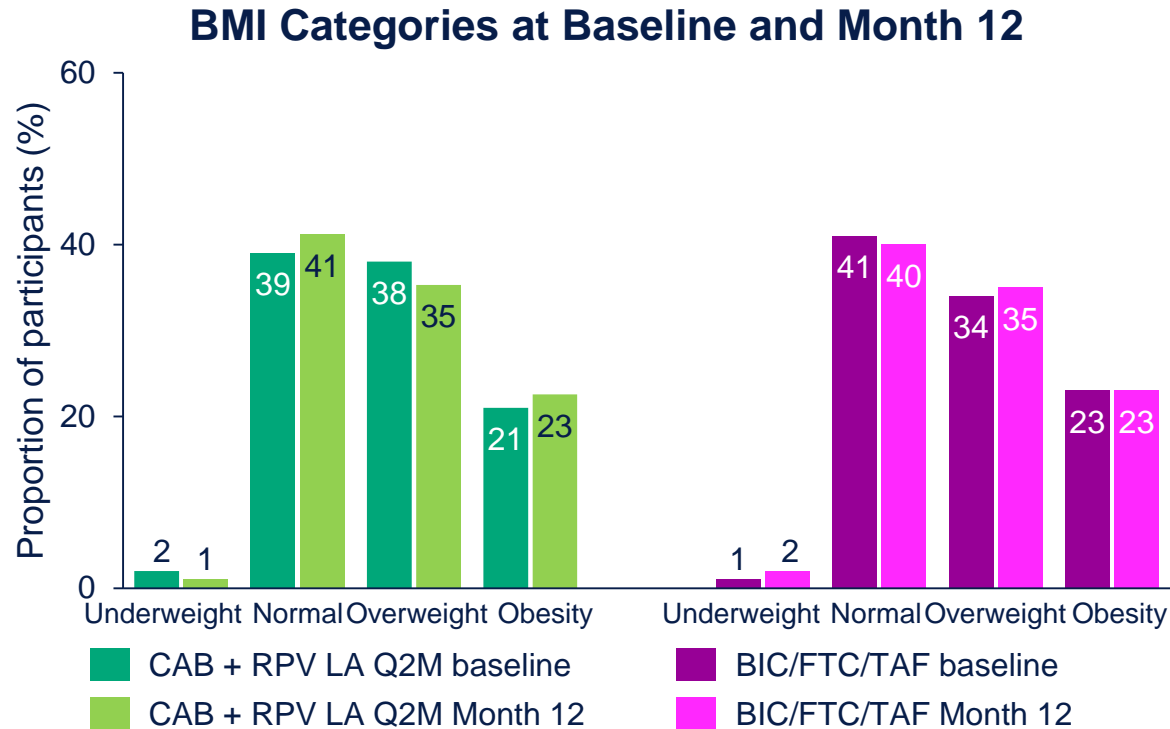


- Weight increase of ≥10% by Month 12 occurred in 3% (n=11/454) of participants in the LA arm vs. 4% (n=9/227) in the BIC/FTC/TAF arm

\*Any participant that started lipid-modifying agents during the study was non-evaluable in anthropometric assessments.



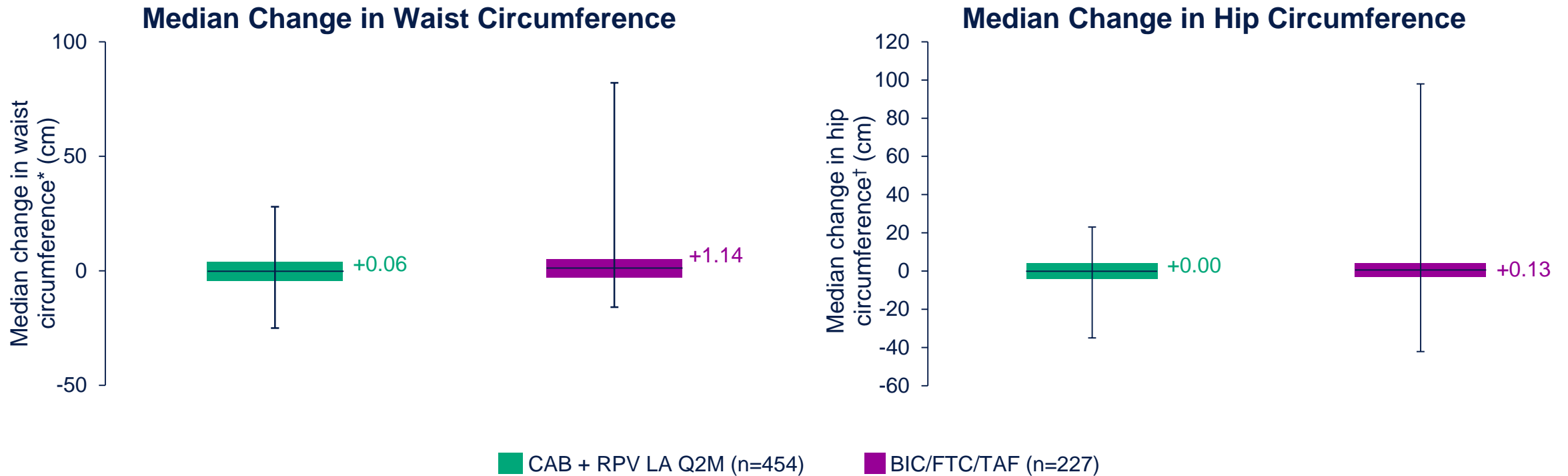
# Change in BMI Through Month 12 by Treatment Regimen



- Overall, the proportion of individuals in BMI categories remained similar at Month 12

\*No participant shifted from normal to obesity or underweight to overweight.

# Change in Waist Circumference and Hip Circumference Through Month 12 by Treatment Regimen

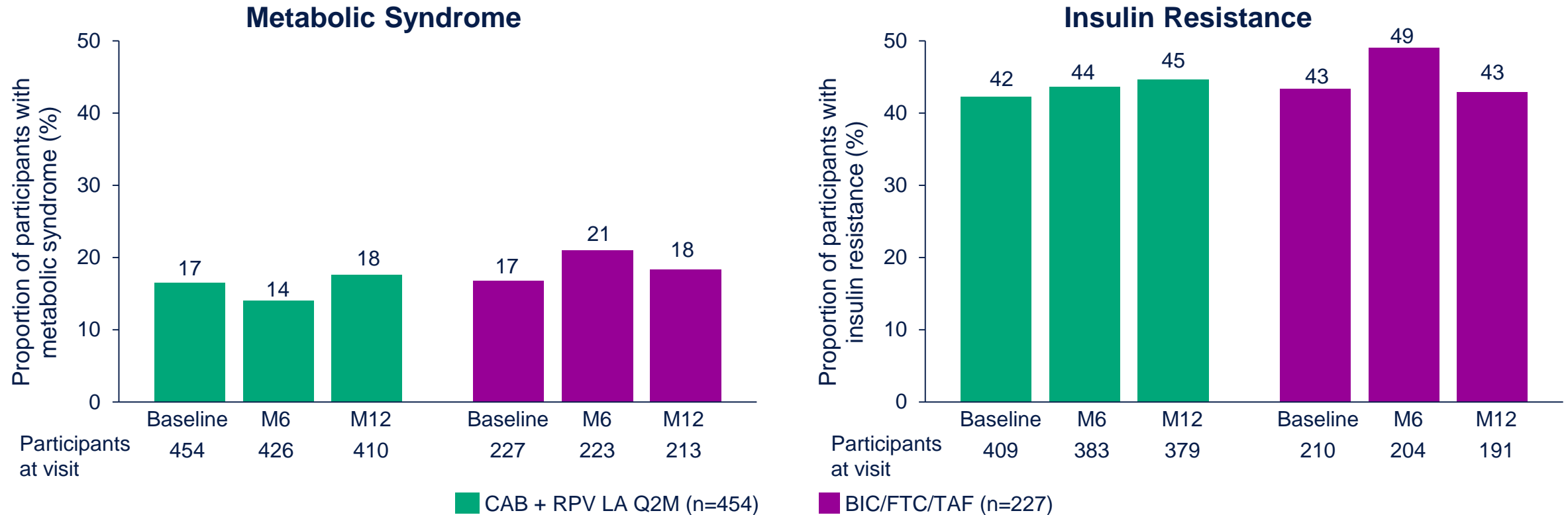


- There were no clinically relevant changes from baseline to Month 12 in the median WHtR<sup>‡</sup> (CAB + RPV LA Q2M, +0.000; BIC/FTC/TAF, +0.010) and median WHR<sup>§</sup> (CAB + RPV LA Q2M, +0.000; BIC/FTC/TAF, +0.010)

\*Median (IQR) waist circumference (cm) at baseline: CAB + RPV LA Q2M, 90.35 (82.20, 100.98); BIC/FTC/TAF, 90.00 (81.30, 101.00). †Median (IQR) hip circumference (cm) at baseline: CAB + RPV LA Q2M, 99.00 (92.00, 106.00); BIC/FTC/TAF, 97.0 (90.00, 106.68). ‡Median change (IQR): CAB + RPV LA Q2M, 0.000 (-0.020, 0.020); BIC/FTC/TAF, 0.010 (-0.020, 0.030). §Median change (IQR): CAB + RPV LA Q2M, 0.000 (-0.040, 0.040); BIC/FTC/TAF, 0.010 (-0.030, 0.040).

WHR, waist-to-hip ratio; WHtR, waist-to-height ratio.

# Metabolic Syndrome\* and Insulin Resistance† Through Month 12 by Treatment Regimen



- There were no clinically relevant changes from baseline to Month 12 in the proportion of participants with metabolic syndrome or insulin resistance in either arm

\*Three abnormal findings out of the following five qualifies a person for metabolic syndrome: elevated waist circumference (females:  $\geq 88$  cm [ $\geq 35$  in]; males:  $\geq 102$  cm [ $\geq 40$  in]), elevated triglycerides ( $\geq 150$  mg/dL [ $1.7$  mmol/L]), reduced HDL-C (females:  $< 50$  mg/dL [ $1.3$  mmol/L]; males:  $< 40$  mg/dL [ $1.0$  mmol/L]), elevated blood pressure (meeting either or both criteria; systolic  $\geq 130$  and/or diastolic  $\geq 85$  mmHg), and elevated fasting glucose ( $\geq 100$  mg/dL). †HOMA-IR  $\geq 2$ . HDL-C, high-density lipoprotein cholesterol; HOMA-IR, Homeostasis Model of Assessment-Insulin Resistance.

# Conclusions

- This is the first randomized Phase 3b study to compare weight, anthropometric, and metabolic changes in a standardized manner among PLWH switching to CAB + RPV LA Q2M or continuing BIC/FTC/TAF
- Median changes in weight, BMI, and body composition measurements were similar between CAB + RPV LA Q2M and BIC/FTC/TAF through Month 12
- There were no clinically relevant changes in the proportion of participants with metabolic syndrome or insulin resistance between arms at Month 12
- These data on weight and metabolic changes with CAB + RPV LA dosed Q2M support its use for maintenance treatment in adults with HIV-1

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