**Supplemental materials.**

**Figure S1. Participant-level clinical data**

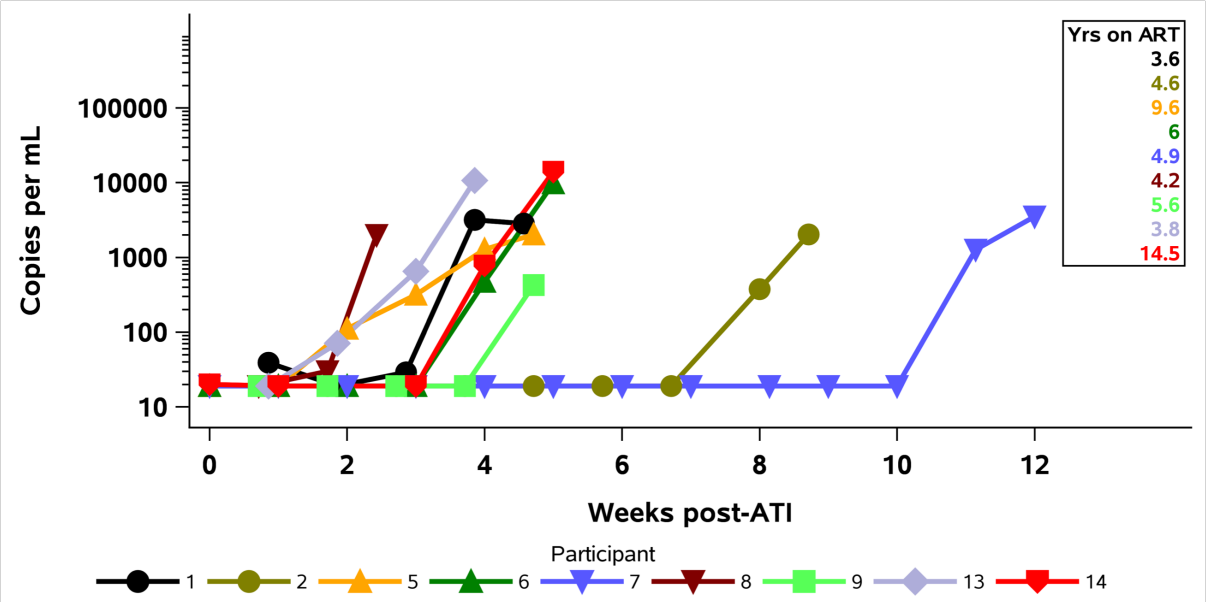


Figure S1. Viral kinetics of rebound after ATI in A5340 are shown for each participant, with the highest measure indicating peak viral load prior to suppression upon re-initiation of ART. The number of years on suppressive ART prior to A5340 trial entry for each participant is shown in inset.

**Fig S2. Between marker associations**

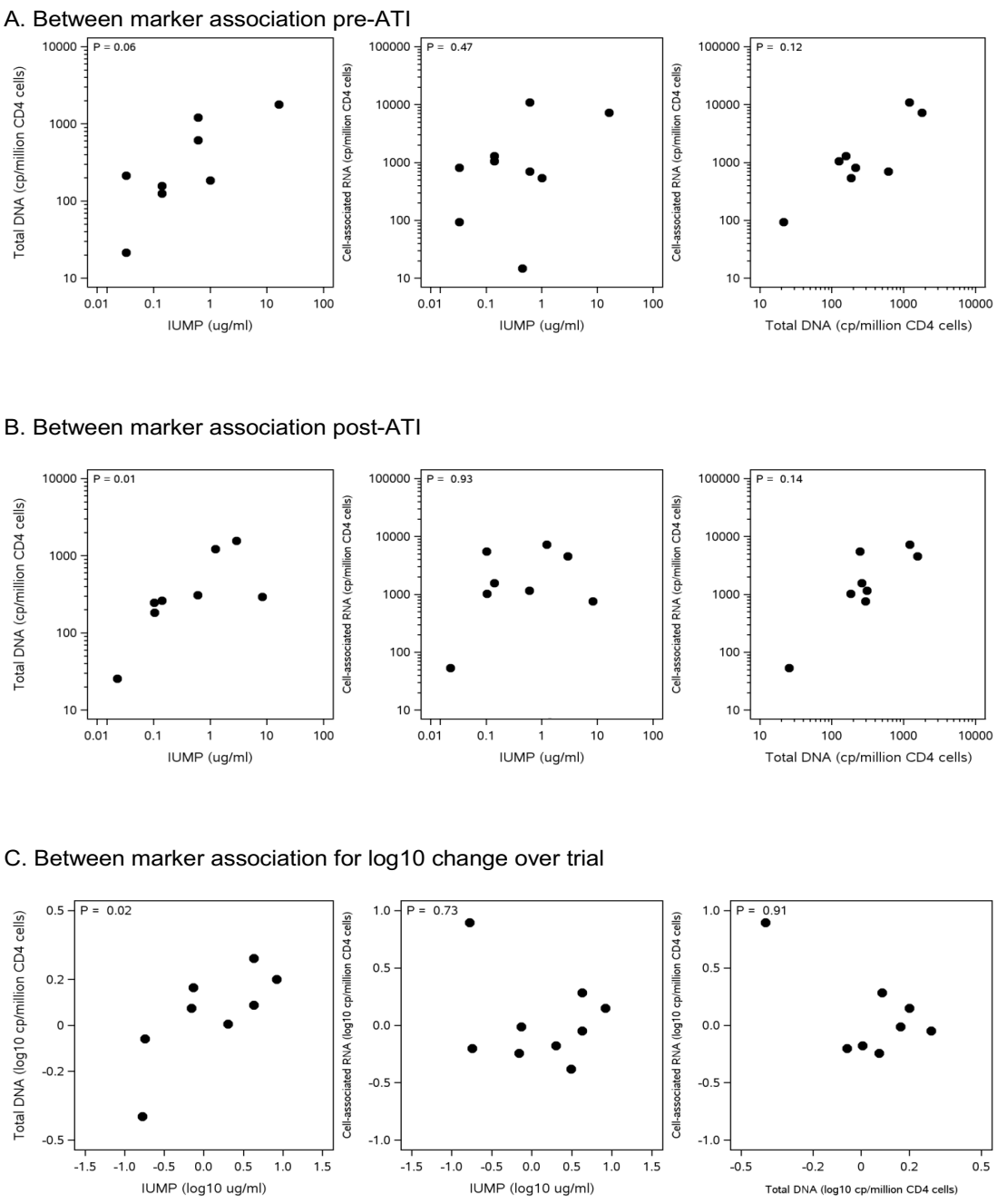


**Figure S1. Spearman correlations between total DNA, caRNA and replication competent virus.** Pairwise correlations between total HIV-1 DNA, caRNA, and frequency of cells bearing replication competent virus (IUPM) are shown pre-ATI (A), post-ATI (B), and for the log10 change over ATI (C). There is some evidence suggesting the correlation between HIV-1 total DNA and IUPM pre-ATI (Spearman correlation 0.68, P=0.06), post-ATI (Spearman correlation 0.83, P=0.01), and in change between timepoints (Spearman correlation 0.79, P=0.02).

**Fig S3. Single copy assay**

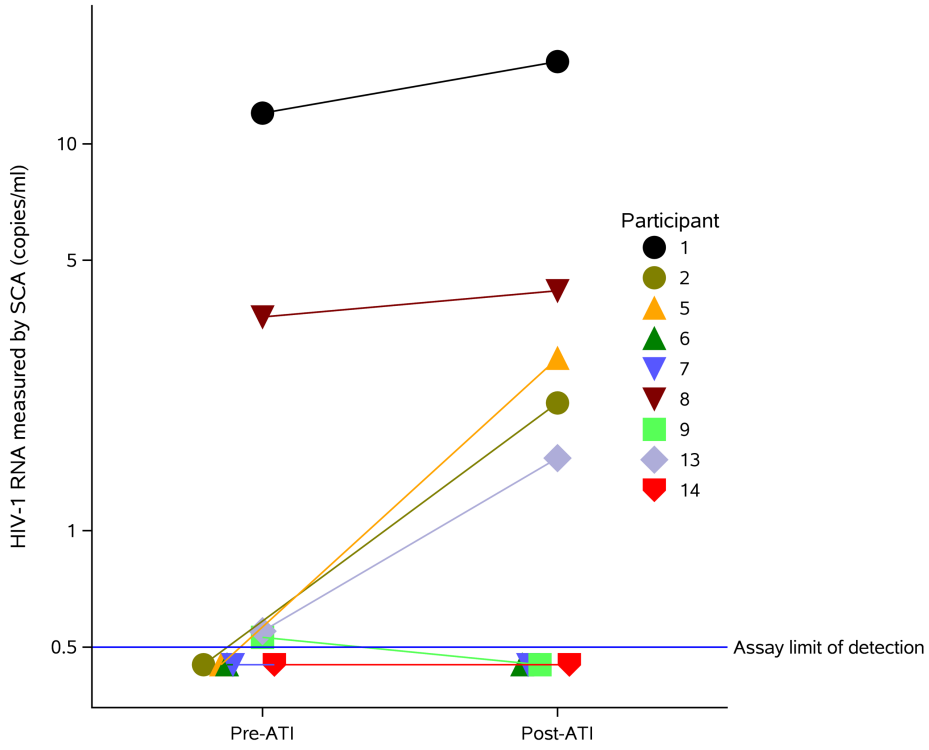


**Figure S2. Single copy assay.** Single copy assay was performed to detect low-level viremia in plasma collected during suppressive ART before and after the trial. With a limit of detection of <0.5 copies/ml, 3 participants remained undetectable before and after ATI, 3 participants were above detectable at both timepoints, 1 participant went from just above detection (0.53 c/ml) to undetectable, while the remaining 2 went from undetectable to 2.14 and 2.19 copies/ml, respectively.

**Fig S4. Comparison of pairwise Levenshtein Distances.**

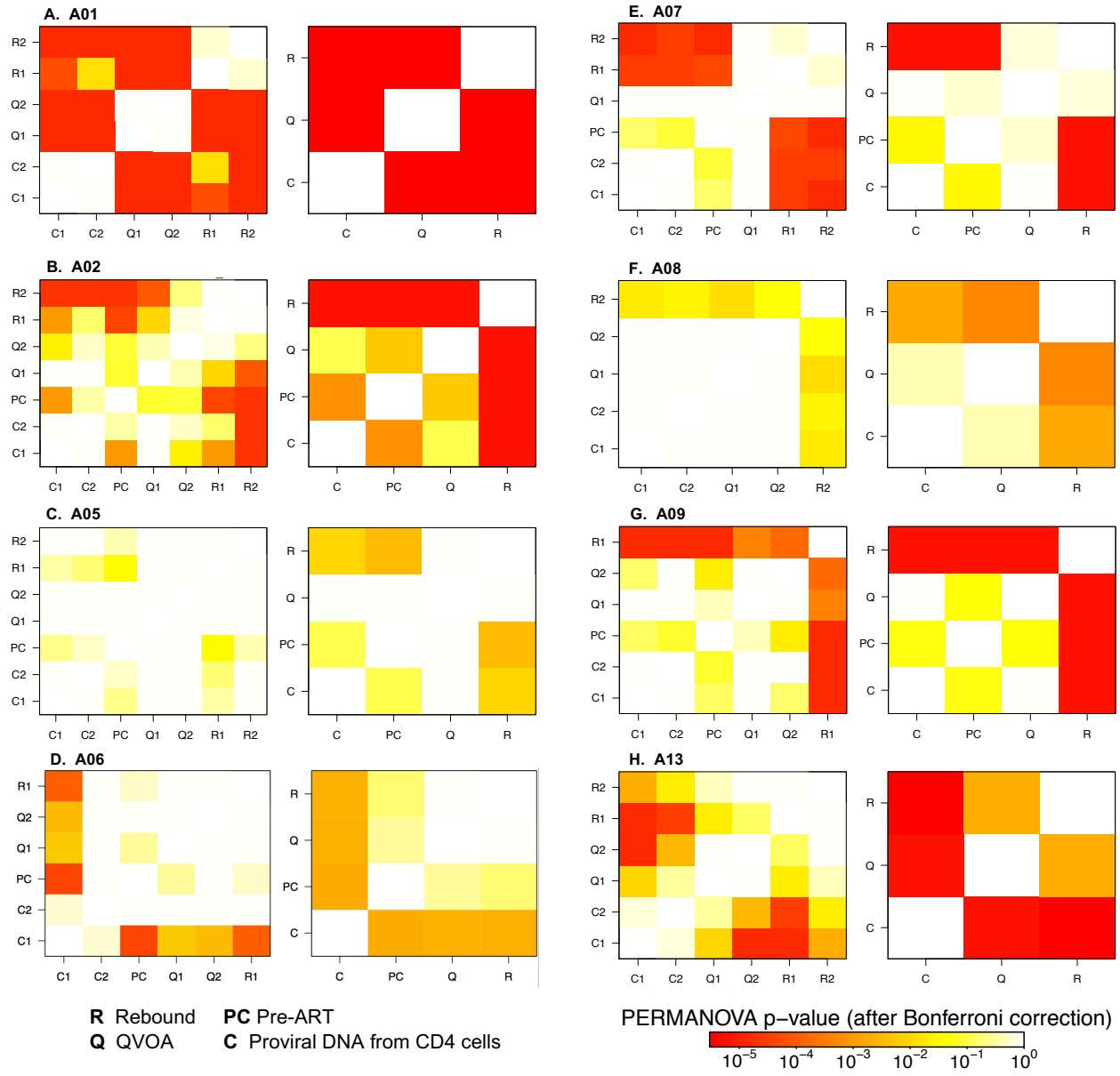


**Figure S5. Comparisons of pairwise Levenshtein Distances between virus populations**. For each participant, pairwise Levenshtein edit distance between nucleotide sequences sets are shown. Rebound sequences are labeled R, QVOA sequences are labeled Q, Proviral DNA sequences are labeled C, and pre-ART sequences are labeled PC. In the box on the left, comparisons between viruses from each timepoint are shown (i.e., Q1 is pre-ATI QVOA sequences and Q2 is post-ATI QVOA sequences). In the box on the left, sequences from the pre- and post-ATI samples are combined. Statistical significance by PERMANOVA after Bonferroni correction for multiple comparisons is indicated by the heat map.

## TREND Statement Checklist

| Paper Section/ Topic | Item No | Descriptor | Reported? ✓ | Reported? Pg # |
|---|---|---|---|---|
| **Title and Abstract** | | | | |
| Title and Abstract | 1 | • Information on how unit were allocated to interventions | X | 17 |
| | | • Structured abstract recommended | X | 2 |
| | | • Information on target population or study sample | X | 3 |
| **Introduction** | | | | |
| Background | 2 | • Scientific background and explanation of rationale | X | 3-4 |
| | | • Theories used in designing behavioral interventions | NA | |
| **Methods** | | | | |
| Participants | 3 | • Eligibility criteria for participants, including criteria at different levels in recruitment/sampling plan (e.g., cities, clinics, subjects) | X | 17 |
| | | • Method of recruitment (e.g., referral, self-selection), including the sampling method if a systematic sampling plan was implemented | X | 17 |
| | | • Recruitment setting | X | 17 |
| | | • Settings and locations where the data were collected | X | 17 |
| Interventions | 4 | • Details of the interventions intended for each study condition and how and when they were actually administered, specifically including: | X | 17 |
| | | ○ Content: what was given? | | |
| | | ○ Delivery method: how was the content given? | | |
| | | ○ Unit of delivery: how were the subjects grouped during delivery? | | |
| | | ○ Deliverer: who delivered the intervention? | | |
| | | ○ Setting: where was the intervention delivered? | | |
| | | ○ Exposure quantity and duration: how many sessions or episodes or events were intended to be delivered? How long were they intended to last? | | |
| | | ○ Time span: how long was it intended to take to deliver the intervention to each unit? | | |
| | | ○ Activities to increase compliance or adherence (e.g., incentives) | | |
| Objectives | 5 | • Specific objectives and hypotheses | X | 4 |
| Outcomes | 6 | • Clearly defined primary and secondary outcome measures | NA | |
| | | • Methods used to collect data and any methods used to enhance the quality of measurements | X | 17-21 |
| | | • Information on validated instruments such as psychometric and biometric properties | NA | |
| Sample Size | 7 | • How sample size was determined and, when applicable, explanation of any interim analyses and stopping rules | NA | |
| Assignment Method | 8 | • Unit of assignment (the unit being assigned to study condition, e.g., individual, group, community) | NA | |
| | | • Method used to assign units to study conditions, including details of any restriction (e.g., blocking, stratification, minimization) | NA | |
| | | • Inclusion of aspects employed to help minimize potential bias induced due to non-randomization (e.g., matching) | NA | |

## TREND Statement Checklist

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|---|---|---|---|---|
| Blinding (masking) | 9 | • Whether or not participants, those administering the interventions, and those assessing the outcomes were blinded to study condition assignment; if so, statement regarding how the blinding was accomplished and how it was assessed. | NA | |
| Unit of Analysis | 10 | • Description of the smallest unit that is being analyzed to assess intervention effects (e.g., individual, group, or community) | NA | |
| | | • If the unit of analysis differs from the unit of assignment, the analytical method used to account for this (e.g., adjusting the standard error estimates by the design effect or using multilevel analysis) | NA | |
| Statistical Methods | 11 | • Statistical methods used to compare study groups for primary methods outcome(s), including complex methods of correlated data | X | 17-21 |
| | | • Statistical methods used for additional analyses, such as a subgroup analyses and adjusted analysis | NA | |
| | | • Methods for imputing missing data, if used | NA | |
| | | • Statistical software or programs used | X | 17-21 |
| **Results** | | | | |
| Participant flow | 12 | • Flow of participants through each stage of the study: enrollment, assignment, allocation, and intervention exposure, follow-up, analysis (a diagram is strongly recommended) | NA | |
| | | ○ Enrollment: the numbers of participants screened for eligibility, found to be eligible or not eligible, declined to be enrolled, and enrolled in the study | | |
| | | ○ Assignment: the numbers of participants assigned to a study condition | | |
| | | ○ Allocation and intervention exposure: the number of participants assigned to each study condition and the number of participants who received each intervention | | |
| | | ○ Follow-up: the number of participants who completed the follow-up or did not complete the follow-up (i.e., lost to follow-up), by study condition | | |
| | | ○ Analysis: the number of participants included in or excluded from the main analysis, by study condition | | |
| | | • Description of protocol deviations from study as planned, along with reasons | | |
| Recruitment | 13 | • Dates defining the periods of recruitment and follow-up | X | 17 |
| Baseline Data | 14 | • Baseline demographic and clinical characteristics of participants in each study condition | X | 4-5 |
| | | • Baseline characteristics for each study condition relevant to specific disease prevention research | NA | |
| | | • Baseline comparisons of those lost to follow-up and those retained, overall and by study condition | NA | |
| | | • Comparison between study population at baseline and target population of interest | NA | |
| Baseline equivalence | 15 | • Data on study group equivalence at baseline and statistical methods used to control for baseline differences | NA | |

## TREND Statement Checklist

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|---|---|---|---|---|
| Numbers analyzed | 16 | • Number of participants (denominator) included in each analysis for each study condition, particularly when the denominators change for different outcomes; statement of the results in absolute numbers when feasible | NA | |
| | | • Indication of whether the analysis strategy was "intention to treat" or, if not, description of how non-compliers were treated in the analyses | NA | |
| Outcomes and estimation | 17 | • For each primary and secondary outcome, a summary of results for each estimation study condition, and the estimated effect size and a confidence interval to indicate the precision | NA | |
| | | • Inclusion of null and negative findings | X | |
| | | • Inclusion of results from testing pre-specified causal pathways through which the intervention was intended to operate, if any | NA | |
| Ancillary analyses | 18 | • Summary of other analyses performed, including subgroup or restricted analyses, indicating which are pre-specified or exploratory | NA | |
| Adverse events | 19 | • Summary of all important adverse events or unintended effects in each study condition (including summary measures, effect size estimates, and confidence intervals) | NA | |
| **DISCUSSION** | | | | |
| Interpretation | 20 | • Interpretation of the results, taking into account study hypotheses, sources of potential bias, imprecision of measures, multiplicative analyses, and other limitations or weaknesses of the study | X | 12-17 |
| | | • Discussion of results taking into account the mechanism by which the intervention was intended to work (causal pathways) or alternative mechanisms or explanations | NA | |
| | | • Discussion of the success of and barriers to implementing the intervention, fidelity of implementation | NA | |
| | | • Discussion of research, programmatic, or policy implications | X | 12-17 |
| Generalizability | 21 | • Generalizability (external validity) of the trial findings, taking into account the study population, the characteristics of the intervention, length of follow-up, incentives, compliance rates, specific sites/settings involved in the study, and other contextual issues | X | 16-17 |
| Overall Evidence | 22 | • General interpretation of the results in the context of current evidence and current theory | X | 16-17 |

*From:* Des Jarlais, D. C., Lyles, C., Crepaz, N., & the Trend Group (2004). Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: The TREND statement. *American Journal of Public Health*, 94, 361-366. For more information, visit: http://www.cdc.gov/trendstatement/