AAV8 VRC07 is an adeno-associated virus vector coding for the bNAb VRC07. It contains a bicistronic cassette that utilizes a self-processing F2A insert which allows the production of the light and heavy IgGs from a single transcribed mRNA (Fig 1).

AAV8 VRC07 is safe and well tolerated in HIV-infected individuals.

ADAs were observed in 3 of 8 subjects. In individuals without detectable ADAs, VRC07 production was durable producing being measurable for up to 3 years after administration by IM injection. Three participants in this study had VRC07 concentrations >1μg/ml, one achieved a concentration of >3μg/ml (Fig 3).

In vivo and ex vivo produced VRC07 had similar neutralization ID50s (Fig 4).

RESULTS

• Vaccination with AAV8 VRC07 elicits durable systemic and mucosal production of a potent neutralizing bNAb.

• In vivo and ex vivo produced VRC07 had similar neutralization ID50s (Fig 4).

• Administration of AAV8 VRC07 by IM injection is safe and well tolerated.

• In participants without measurable ADA, VRC07 production was durable with a concentration of >1μg/ml achieved in 3 participants and >3μg/ml in one participant.

• Although challenges remain, these data provide proof-of-concept that an AAV vector can be used to induce the durable in vivo production of difficult-to-elicit antibodies that retain their neutralizing potency.

ACKNOWLEDGEMENT

• We wish to express our thanks to the volunteers who are participating in VRC 603. Without their continued participation this trial would not be possible.