Supplemental Material

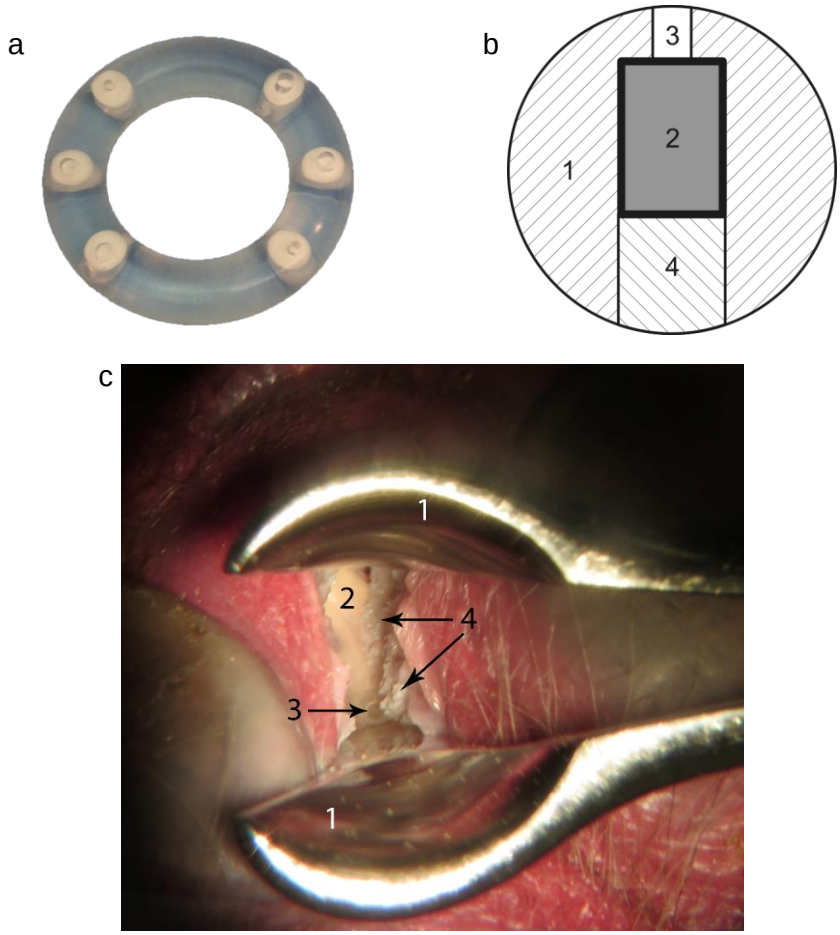

Figure S1. (a) Photograph of a macaque-sized pod-IVR with six pods. (b) Cartoon showing cross-sectional view through a single pod. The solid VRC01-N formulation core, 2, coated with a PLA polymer (rate controlling membrane, thick black line) is embedded in the preformed silicone ring scaffold, 1. A silicone adhesive backfill, 4, seals the pod in the ring scaffold. A delivery channel, 3, exposes a portion of the pod to vaginal fluids and provides the primary control of release rate of VRC01-N from the pod-IVR. (c) Photograph of VRC01-N pod-IVR in place in macaque vaginal vault showing: pediatric speculum, 1; pod-IVR, 2; pod delivery channel in IVR, 3; and vaginal rugae, 4.

Table S1. Configuration and *in vitro* release of pod-IVRs used in PK1 and PK2 non-human primate studies.

Study Group	Total VRC01-N Load (mg)	Delivery Channel Diameter (mm)	Pods per IVR	*In vitro* release rate (mg day^{-1})	*In vivo* release rate estimate[1] (mg day^{-1})
PK1-low	15	1.0	2	3.8	1.2
PK1-med	45	1.0	6	12	3.5
PK1-high	73	1.5	6	30	10
PK2	42	1.0	4	3.4	2.3

[1] *In vivo* release rate estimated from model fits as described in the text.

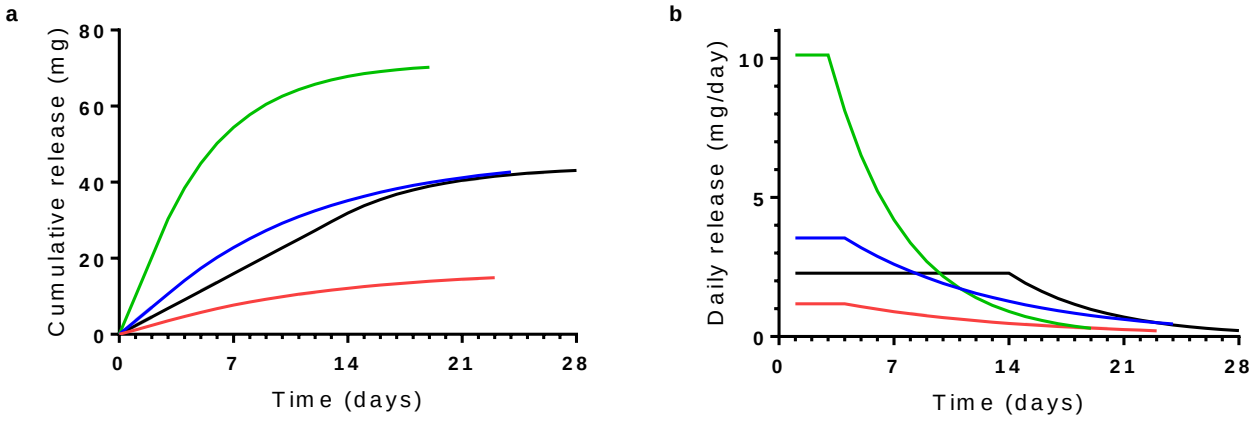

Figure S2. Estimated cumulative (a) and daily (b) *in vivo* release profiles determined using pod-IVR diffusion model and observed VRC01-N levels in vaginal fluids for PK1-high (green), PK1-med (blue), PK1-low (red) and PK2 (black) macaque studies.

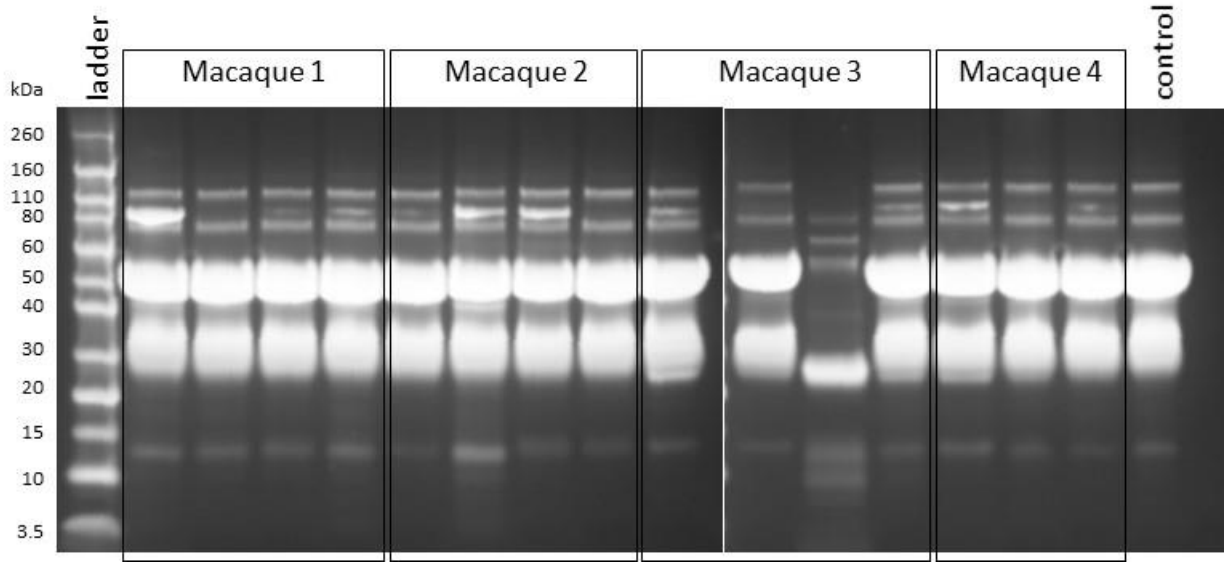

Figure S3. Analysis of residual VRC01-N extracted from IVRs by SDS-PAGE after removal at Day 7 (Phase A) of PK2. Individual pods from each of the four IVRs were analyzed in separate lanes (only three pods for Macaque 4 were analyzed), along with a control pod obtained from an unused IVR from the same fabrication batch.

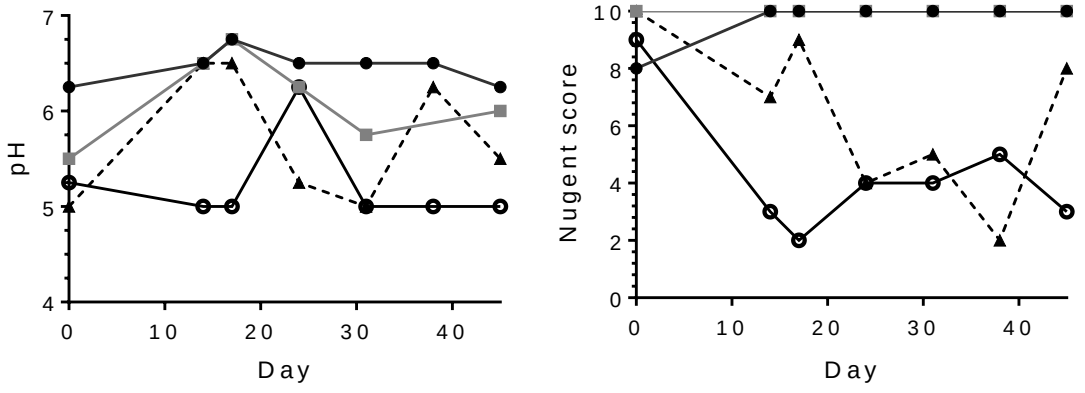

Figure S4. Time series plots of pH and Nugent score for each macaque in PK2.