Supplementary File S3. Type of Samples and Protocols of the Included In Vivo Studies.

First author Date	Design	Species	Age	N	Type of samples and modifications	Protocols
Rawool[27]* **2008**	*In vivo*	Mice	6-8 weeks	15-18 mice	**BALB/c and C57BL/6 mice** (Taconic Farms) **IgA–/–** mice (B6.129, Albany Medical College, NY) **FcRn -/-** mice (B6.129×1-Fcrgttm1Dcr/Dcr, the Jackson Laboratory, Bar Harbor, ME)	Day 0 : intranasal immunization with mAb-iFT, iFT or PBS Day 21 : intranasal immunization boost Day 35 : Intranasally challenged with FT LVS or FT SchuS4 Survival monitoring during at least 21 days.
Lu[28]* **2011**	*In vivo*	Mice	6-8 weeks	20 mice	**C57BL/6 mice** (National Cancer Institute or Charles River) **FcRn -/-** mice (B6.129, the Jackson Laboratory, Bar Harbor, ME)	Day 0 : intranasal immunization with Gag-Fc/wt, Gag-Fc/mut, or Gag-CPG or PBS Day 14 : intranasal immunization boost Day 42 : Intravaginally challenged with HIV-1 Day 47 : Ovary were harvested, and virus titers measured Month 4 : IgG antibody titers in serum were measured and splenocytes were isolated
Ye[29]* **2011**	*In vivo*	Mice	6-8 weeks	20 mice	**C57BL/6 mice** (National Cancer Institute or Charles River) **FcRn -/-** mice (B6.129, the Jackson Laboratory, Bar Harbor, ME)	Day 0 : intranasal immunization with gD-Fc/WT, gD-Fc/Mut, gD-CPG or PBS Day 14 : intranasal immunization boost Day 50 : Intravaginally challenged with a lethal dose of HSV-2 Survival monitoring during at least 15 days. Month 6 : Intravaginally challenged immunized mice with a lethal dose HSV-2
Bitsatksis[69]* **2015**	*In vivo*	Mice	8-12 weeks	15-18 mice	**C57BL/6 mice** (Taconic Laboratories, Hudson, NY) **IL-12p35 -/-** mice (B6.129S1-IL12atm1Jm/J, the Jackson Laboratory, Bar Harbor, ME)	Day 0 : intranasal immunization with mAb-iFT, iFT or $F(ab')_2$-iFT Day 21 : intranasal immunization boost Day 35 : Intranasally challenged with FT LVS Survival monitoring during for 21 to 25 days.
Kumar[61]* **2018**	*In vivo*	Rats	NA	NA	**Sprague-Dawley rats** (180-200g, Envigo)	Anesthetized and canulated in the abdominal aorta 30 minutes after intranasal and intra-arterial delivery - CSF withdrawal, then euthanized for perfusion-fixation of tissue - Blood sampling at 10 minutes intervals - Analysis of IgG quality using SDS-PAGE
Bern[26]* **2020**	*In vivo*	Mice	6-8 weeks	30-35 mice	**C57BL/6 and BALB/c mlce** **Tg32 Alb -/-** mice **FcRn -/-** mice and **Alb -/- FcRn -/-** mice **hFcRn +/+ FcRn -/-** (the Jackson laboratory, Bar Harbor, ME)	Pulmonary delivery study and half-life study Day 0 : Preloaded with human albumin or human IgG Day 2 : intranasal delivery of biotinylated albumin (WT, KAHQ or QMP) or IgG1 or scFv-Alb-WT or scFv-QMP -Blood sampling after 4, 8, 24, 96, 168 & 360h (Alb) and 4, 8, 24, 30 & 48h (Alb and IgG1)

Abbreviations: Alb, Albumin; CSF, Cerebro spinal fluid; CPG, CpG ODN1826 (5'-TCCATGACGTTCCTGACGTT-3'; Invivogen, San Diego, CA); FcRn, neonatal Fc Receptor; Gag-Fc, fusion of p24 protein from HIV Gag with IgG heavy chain; hFcRn, human FcRn; HIV, Human immunodeficience virus; IgG, Immunoglobulin G; IL, interleukin; iFt, inactivated Francisella Tularensis; KO, knock-out; LVS, Live vaccine strain; mAb, Monoclonal Antibody; mut, mutant; NA, Not available; PBS, Phosphate Buffer Saline; QMP, triple mutant E505Q/T527M/K573P Albumin engineered; scFv, single-chain variable fragment; SDS-PAGE, sodium dodecyl sulfate polyacrylamide gel electrophoresis; WT, Wild-Type.