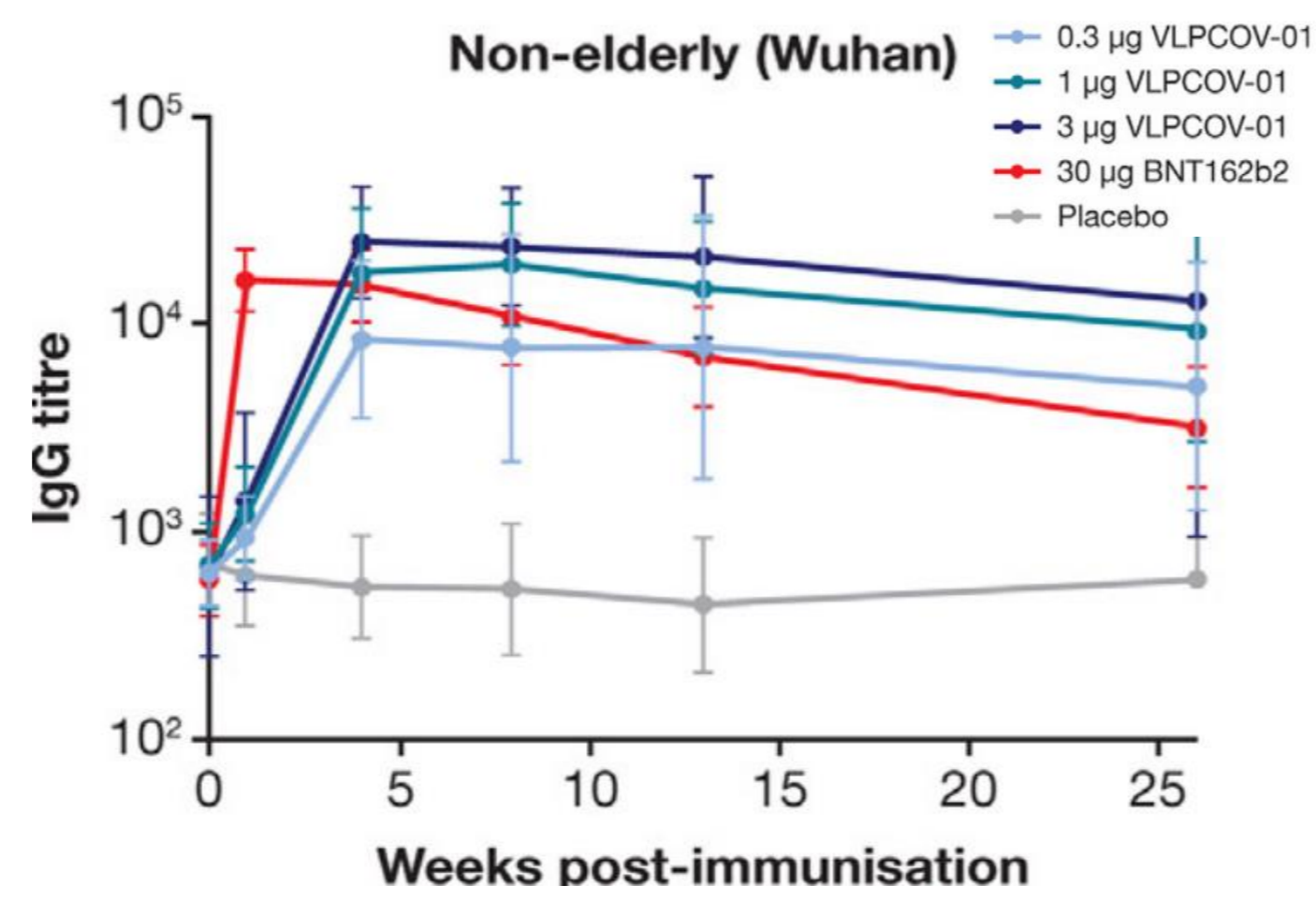
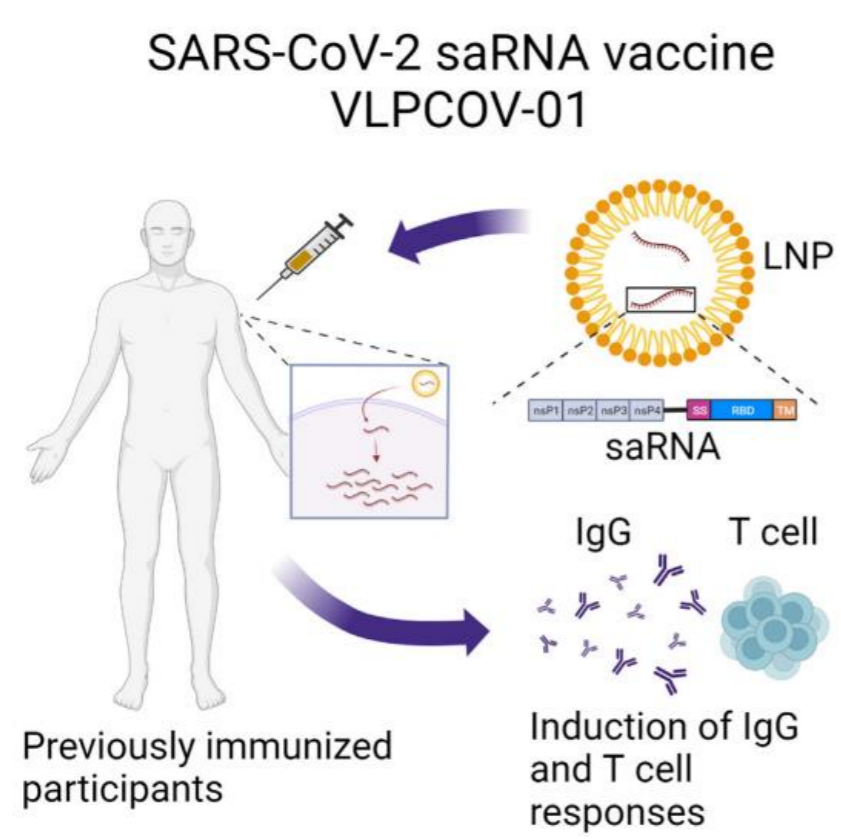




Route	Lead Lipid	GMP Mfg.	IP	Remarks
IM vaccine	FL-0445	Established	Issued	Clinically experienced in thousands of subjects
IV hepatic	FL-1245T	Per request	Pending	Effective and tolerated at high doses in NHP
IV extra-hepatic	FL-1779T	Per request	Pending	Liver de-targeting / Ligand conjugation

Vaccine Use (IM)



- FL-0445 LNP has been used in Phase 3 studies.
- FL-0445 LNP is stable at 4°C for 8 weeks or longer.

Storage stability of FL-0445T LNPs

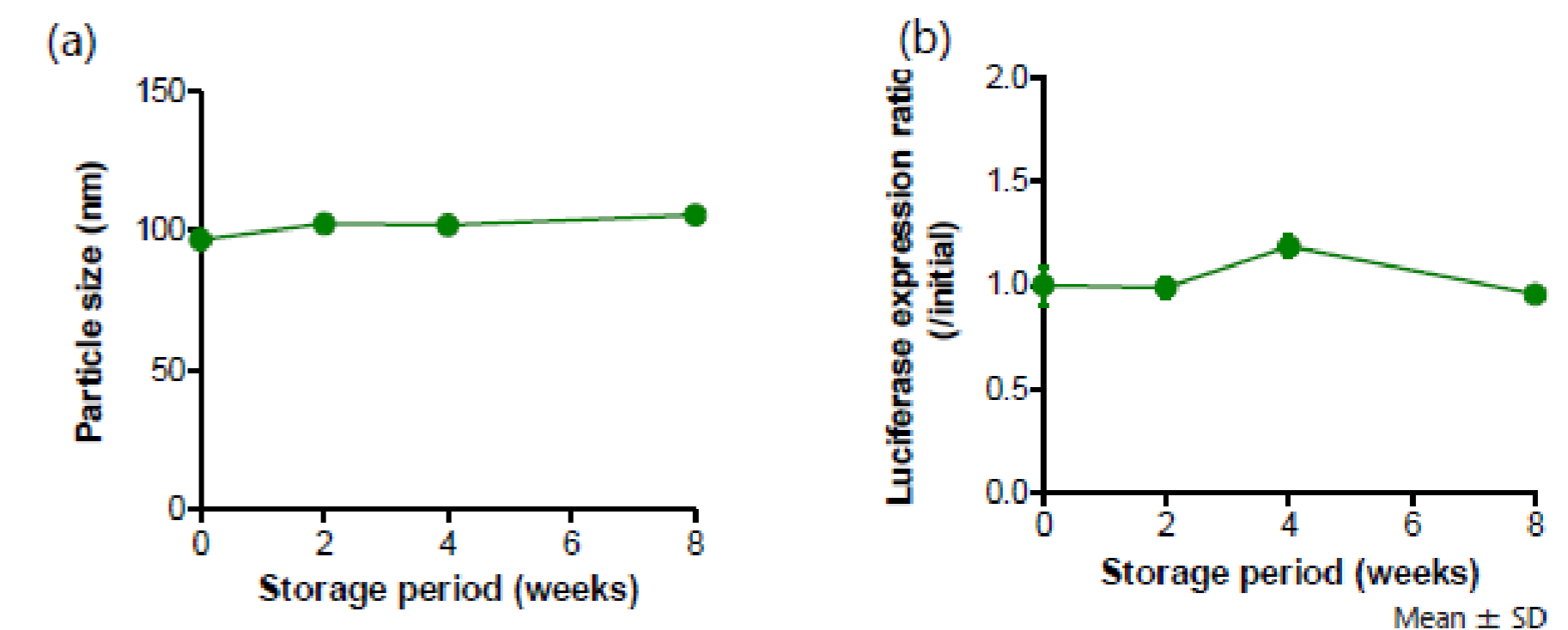


Figure 4. Storage stability at 4°C

FL-0445T LNPs loaded with Fluc mRNA (TriLink, CleanCap®) were stored at 4°C for 8 weeks.

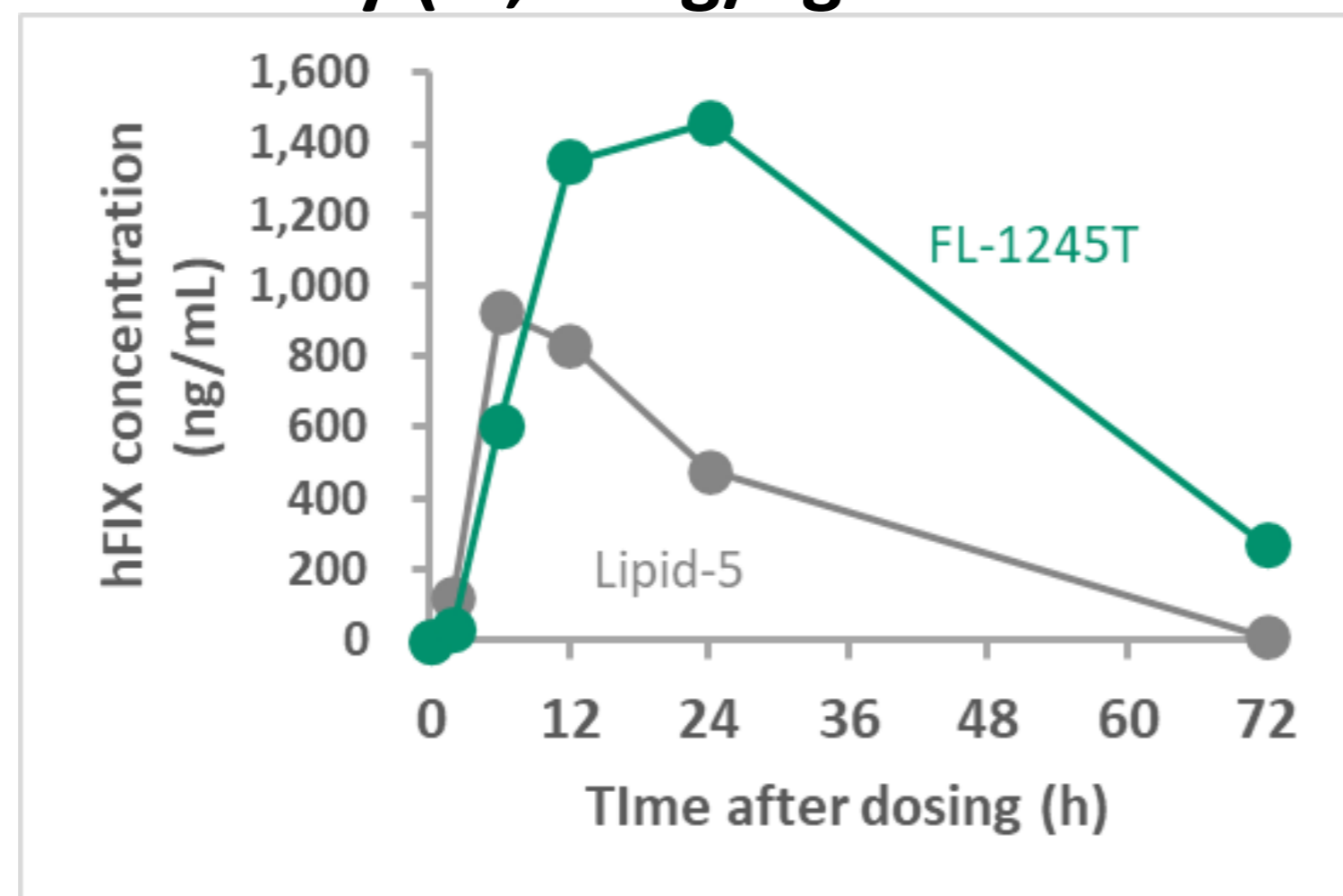
(a) Time course of particle size distribution, (b) Luciferase expression in HeLa cells treated with the LNPs

- Particle size of FL-0445T LNPs was consistent for 8 weeks.
- FL-0445T LNPs showed approximately constant luciferase expression in HeLa cells at for 8 weeks.

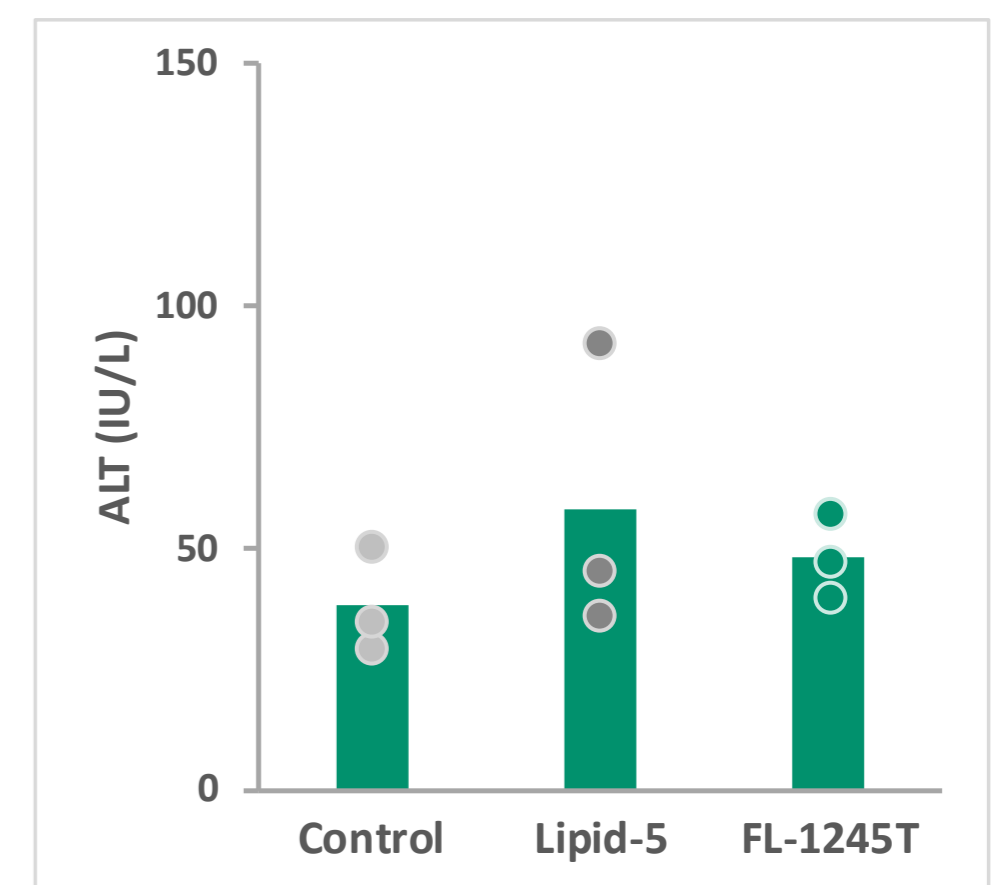
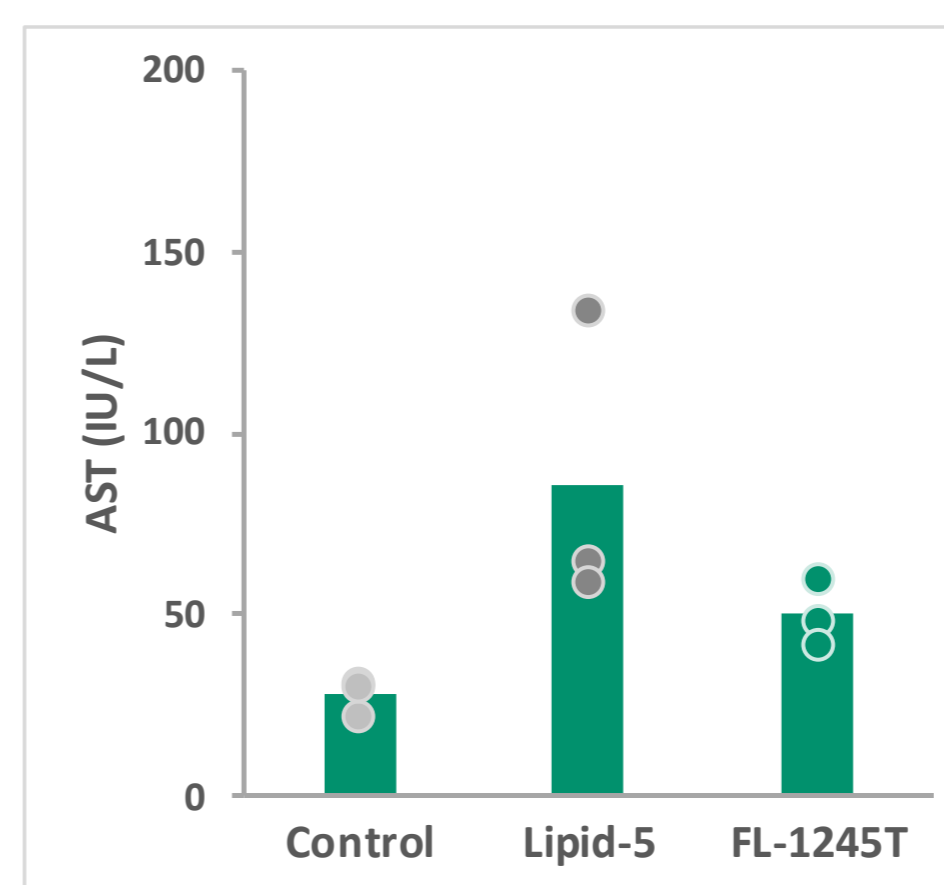
Liver Delivery (IV)



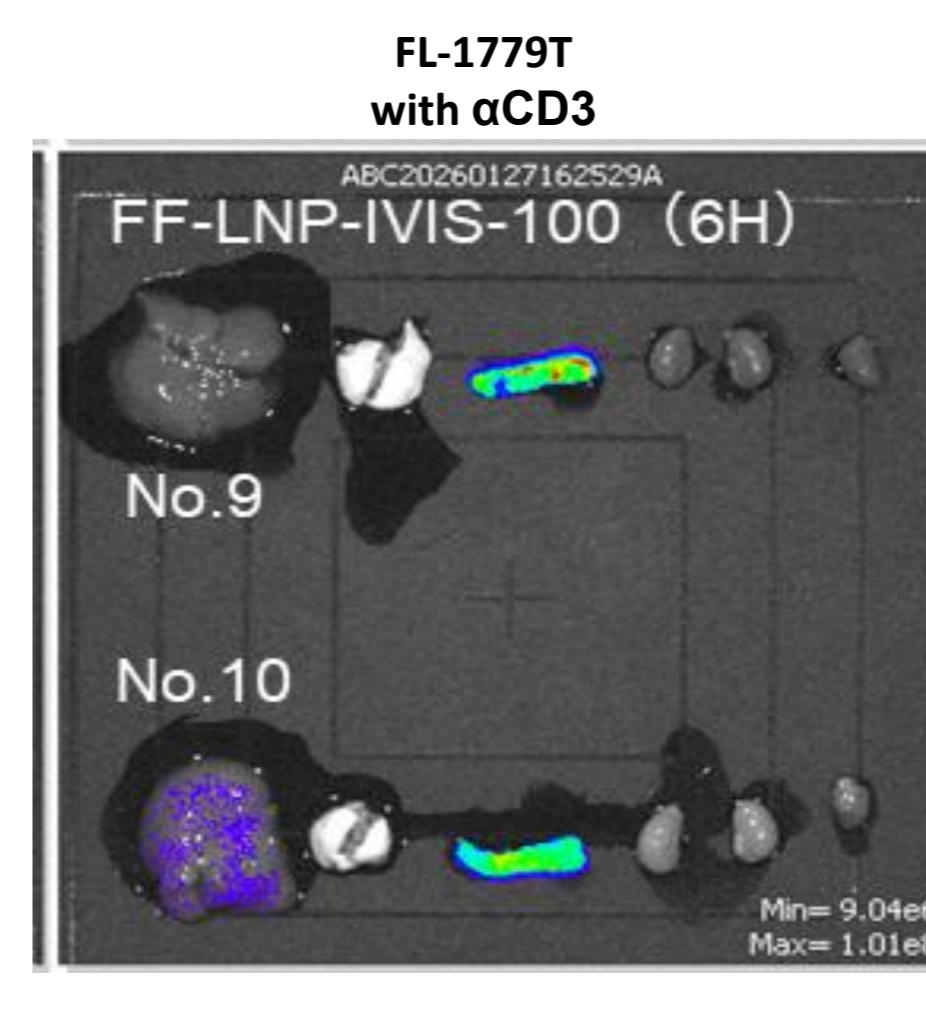
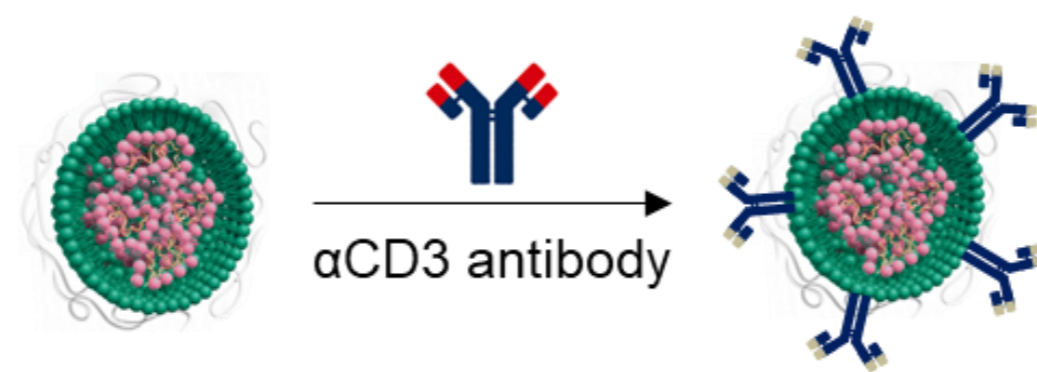
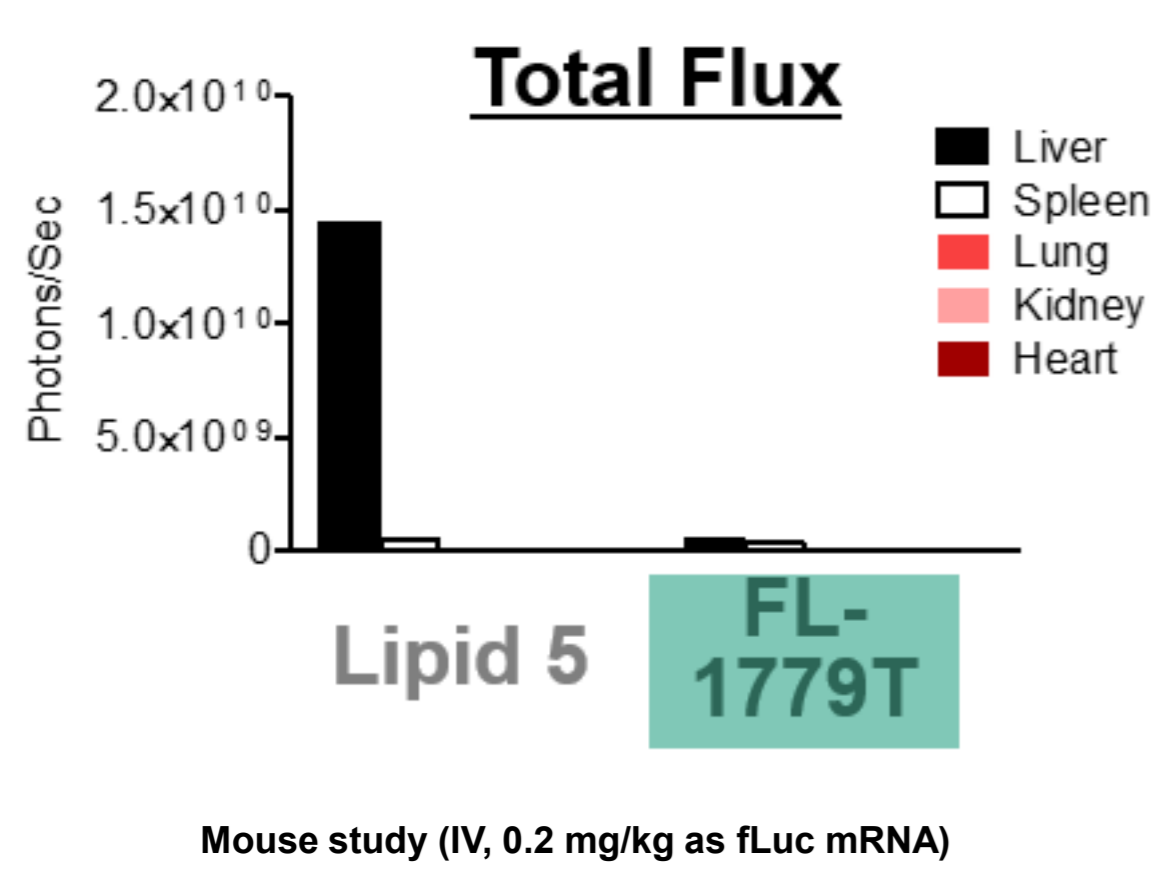
NHP study (IV, 1 mg/kg as hFIX mRNA)



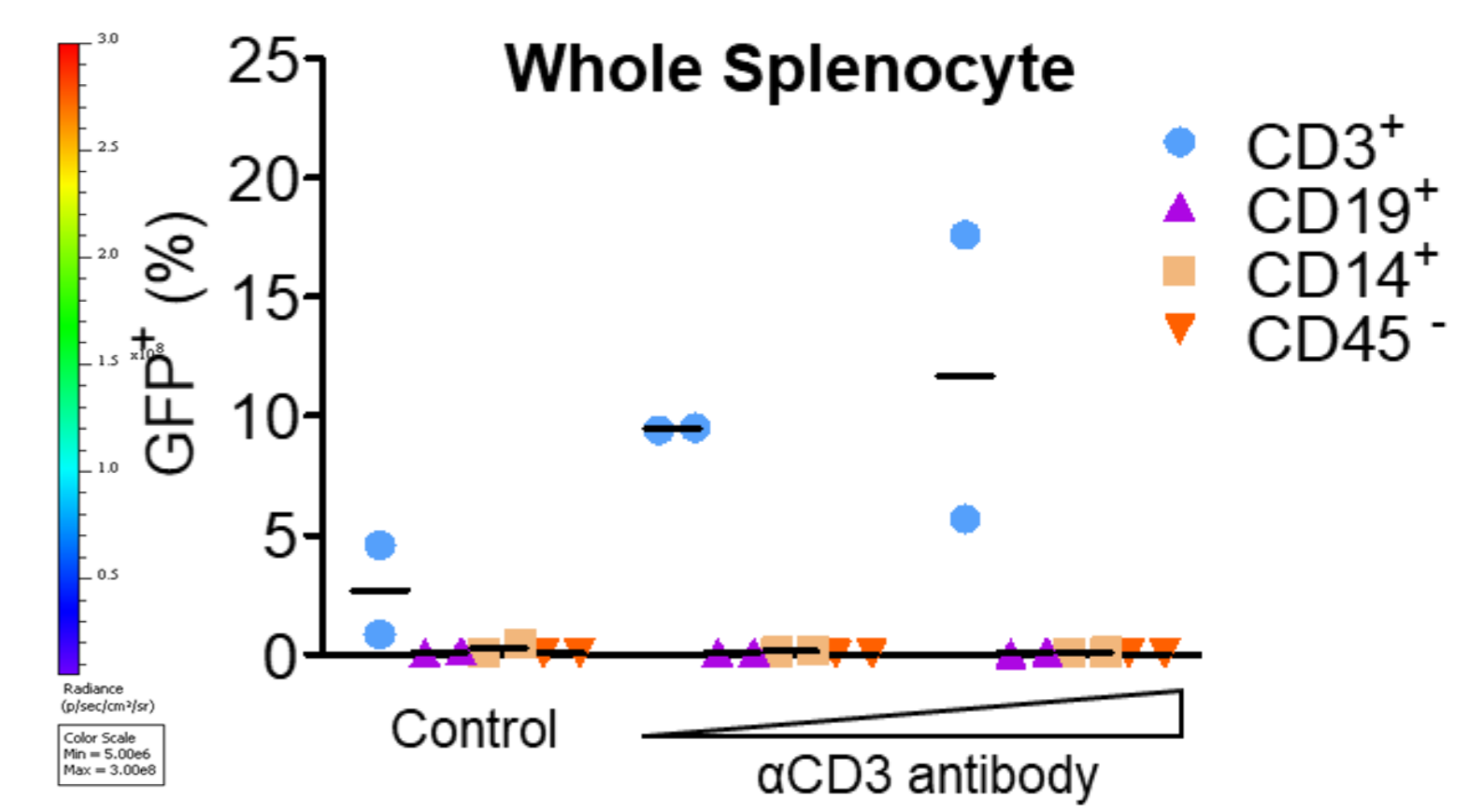
- FL-1245 LNP is comparable to Lipid 5 in expression and safety at 1mg/kg of mRNA in Monkey.



Extrahepatic Delivery (IV)



Mouse study of Lipid 5 and FL-1779T fLuc-mRNA-LNP, T cell targeted by αCD3 antibody i.v., 0.1 mg/kg as mRNA



Mouse study of FL-1779T GFP-mRNA-LNP, T cell targeted by αCD3, i.v., 0.1 mg/kg as mRNA

- FL-1779 LNP works as a core LNP for ligand conjugation.

Ex vivo LNP for Gene Editing

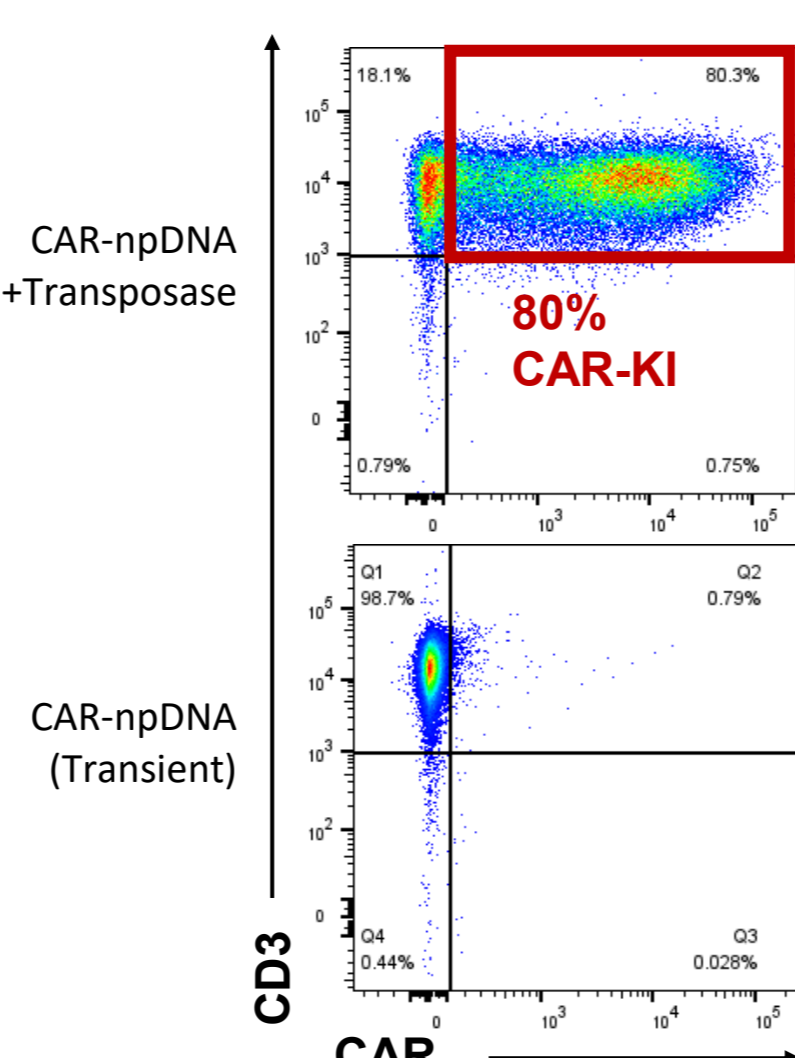
Human Primary T cells

Gene Edit	Efficiency
CAR gene knock-in (using Transposase mRNA and Nanoplasid DNA)	80%
B2M gene knock-out	> 95%

Human Primary HSCs

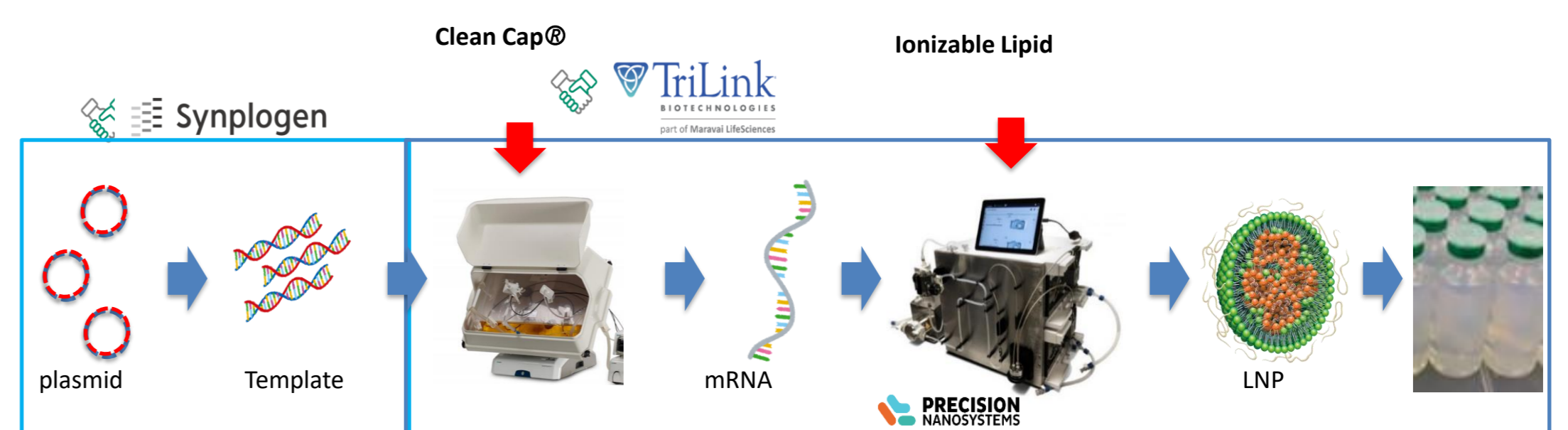
Gene Edit	Efficiency
CAR gene knock-in (using Transposase mRNA and Nanoplasid DNA)	> 60%
CD45 gene knock-out	> 80%
CD45 epitope editing	> 95%

Human primary T cell treated ex vivo



mRNA/LNP Manufacturing

One stop shop CDMO services for mRNA/LNP



Seam less scales of the manufacturing



- mRNA IVT 1g to 50 g/batch
- LNP / Liposome NxGen™ Microfluidic mixer (0.2 – 100L)
- KrosFlo® TFF and Mobius Flex Ready® from mL scale to ~100 L
- Vial filling system with isolator, 3,000 vials/hour
- Full range analytical services for GMP batch release

- Ex vivo LNP with FL-0445 demonstrates versatile and highly efficient gene editing.