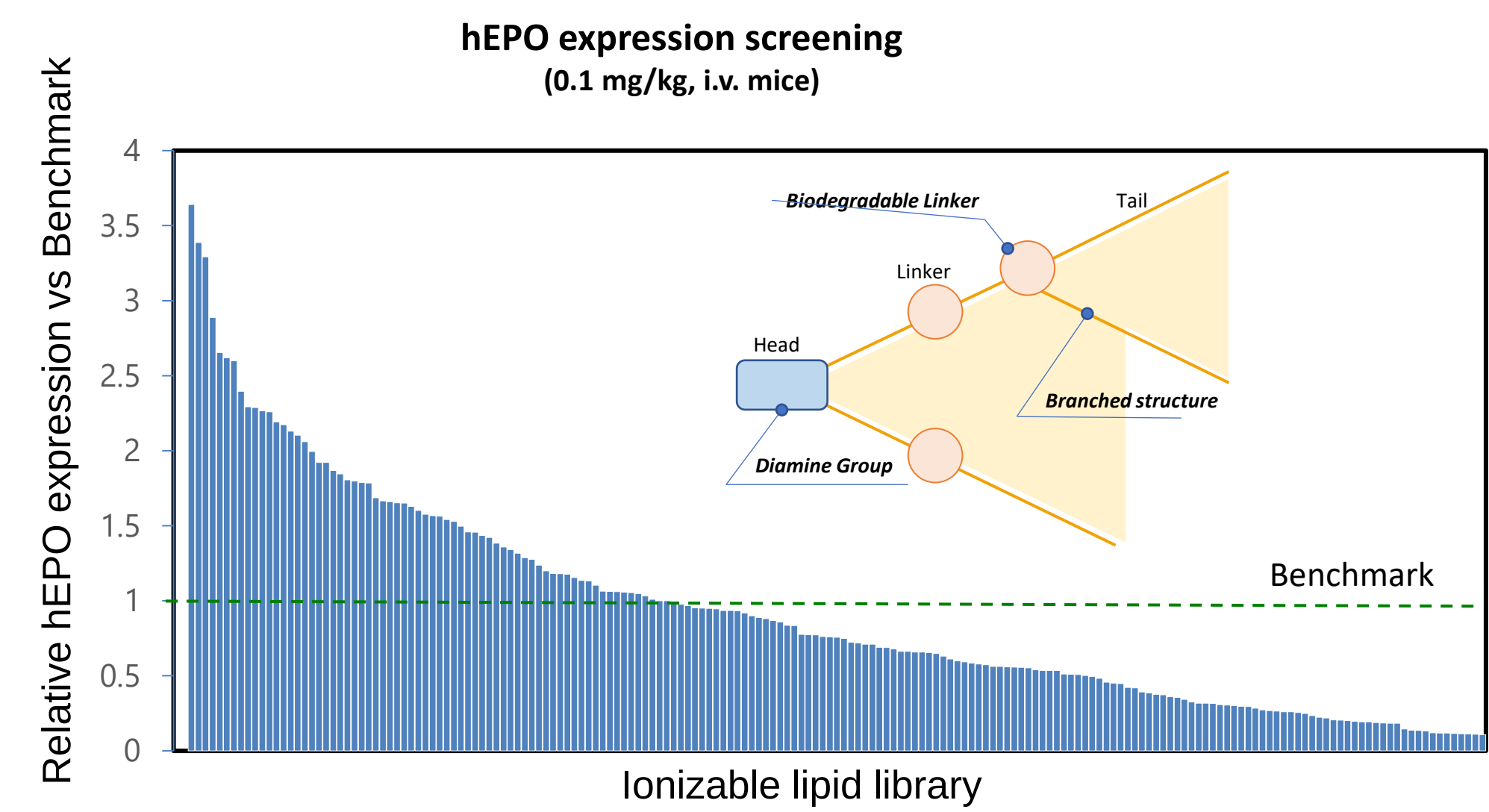


Proprietary Ionizable lipids

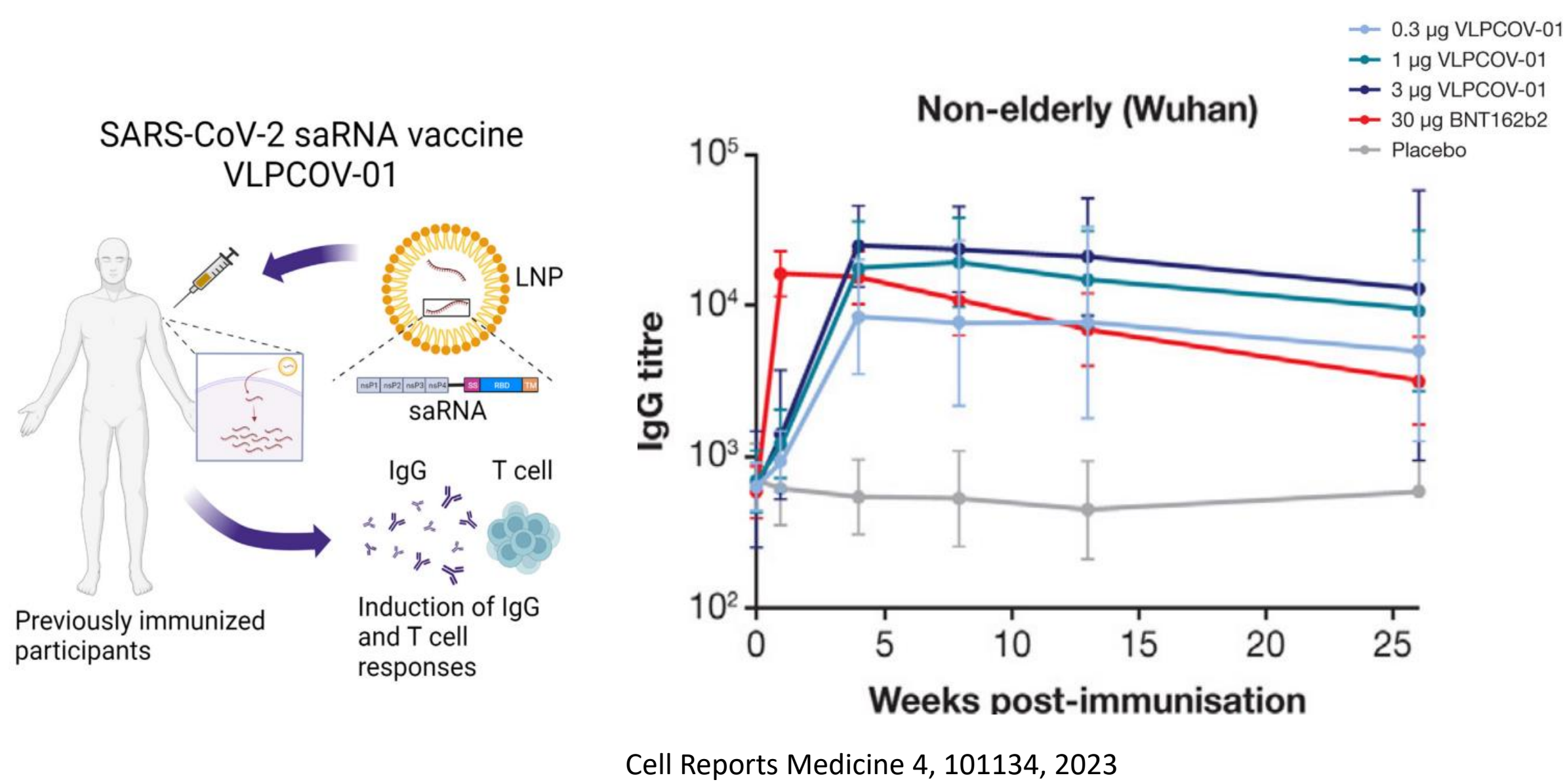


	Lead Lipid	GMP Mfg.	IP	Remarks
IM	FL-0445	Launched	Issued	im vaccine, administered to human
	FL-2266	Launched	Issued	im vaccine, siRNA
IV hepatic	FL-1245T		Pending	iv, high dose
	FL-1207T		Pending	iv, different skeletal structure
IV extra-hepatic	FL-1779T		Pending	iv, liver de-targeting
	FL-1030T		Pending	iv, high spleen expression

- 500+ proprietary ionizable lipids
- Multiple patents have been filed and granted
 - Optimized through:
 - In vivo screening (Rodents, NHPs)
 - Medicinal chemistry approach
 - Computational chemistry (MD simulation etc.)

Ionizable lipid for vaccination (used in clinical)

A result of Fujifilm lipid use in clinical trial



Clinical track record on one of the ionizable lipid

Clinical Studies of LNP contain FL-0445

Study Name	JRCT #	Sample Size	Arms
Phase 1_VLP-001_first-in-human	JRCT2071210067	45	VLP-001 (0.5 mL) Placebo
Phase 1_VLP-001_in COVID19 vaccinated healthy subjects	JRCT2051210164	92	VLP-001 (0.3 µg, 1 µg, 3 µg) placebo BNT162b2 (30 µg)
Phase 2_VLP-001_in COVID19 vaccinated healthy subjects	JRCT2051220087	300	VLP-001 Placebo BNT162b2
Phase 1/2_VLP-002_as booster dose	JRCT2051230005	396	VLP-002 Dose 1 VLP-002 Dose 2 COMIRNATY RTU
Phase 3_VLP-004_Evaluate Immunogenicity as Booster Dose	JRCT2051230141	2000	VLP-004 (0.5 mL, 3 µg) Comirnaty RTU IMA (0.3mL)
Phase 3_VLP-004_Evaluate Safety as Booster Dose	JRCT2051230178	2000	VLP-004 (0.5 mL, 3 µg)
Phase 3_VLP-005_Evaluate Efficacy as Booster Dose (Ongoing)	JRCT2031240751	6200	[Evaluation of immunogenicity] VLP-005 (0.5 mL, 3 µg) COMIRNATY Injection Syringe (0.3 mL) Placebo [Evaluation of efficacy in preventing COVID-19] VLP-005 (0.5 mL, 3 µg) placebo

Track record of Fujifilm's ionizable lipids and LNPs in Phase3 clinical trial

FL-0445 has been in Phase 3 clinical study

Ionizable lipid for liver delivery (administered in NHP)

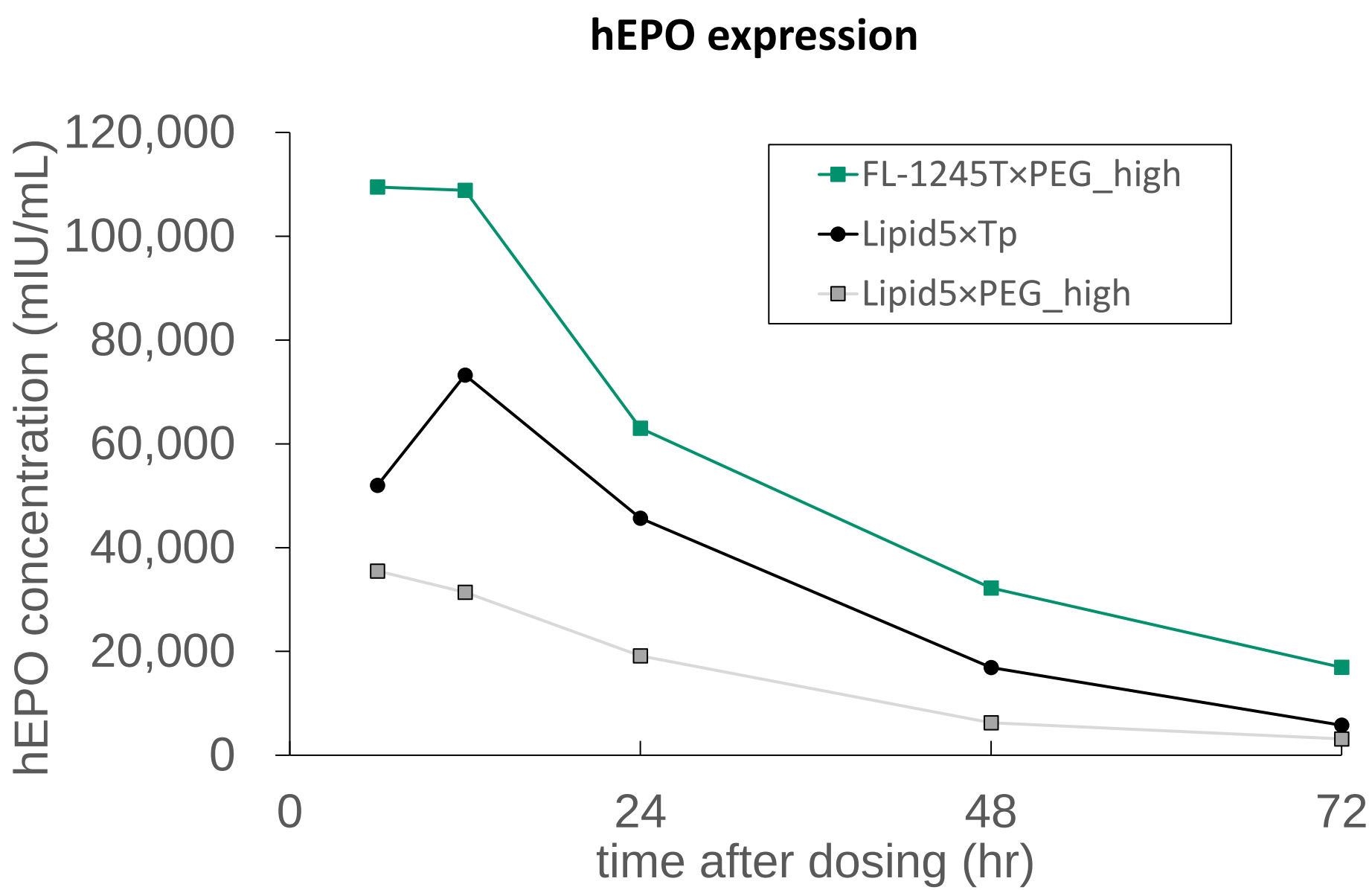
Protein Expression in NHP (i.v.)



LNPs encapsulating hEPO-mRNA

Experimental animal: Cynomolgus monkey (male, 3y, N=3)

Dose: 0.05 mg/kg (mRNA), 1hr infusion, i.v.



FL-1245T showed higher protein expression than benchmark lipid.

Toxicity in Rats (i.v.)

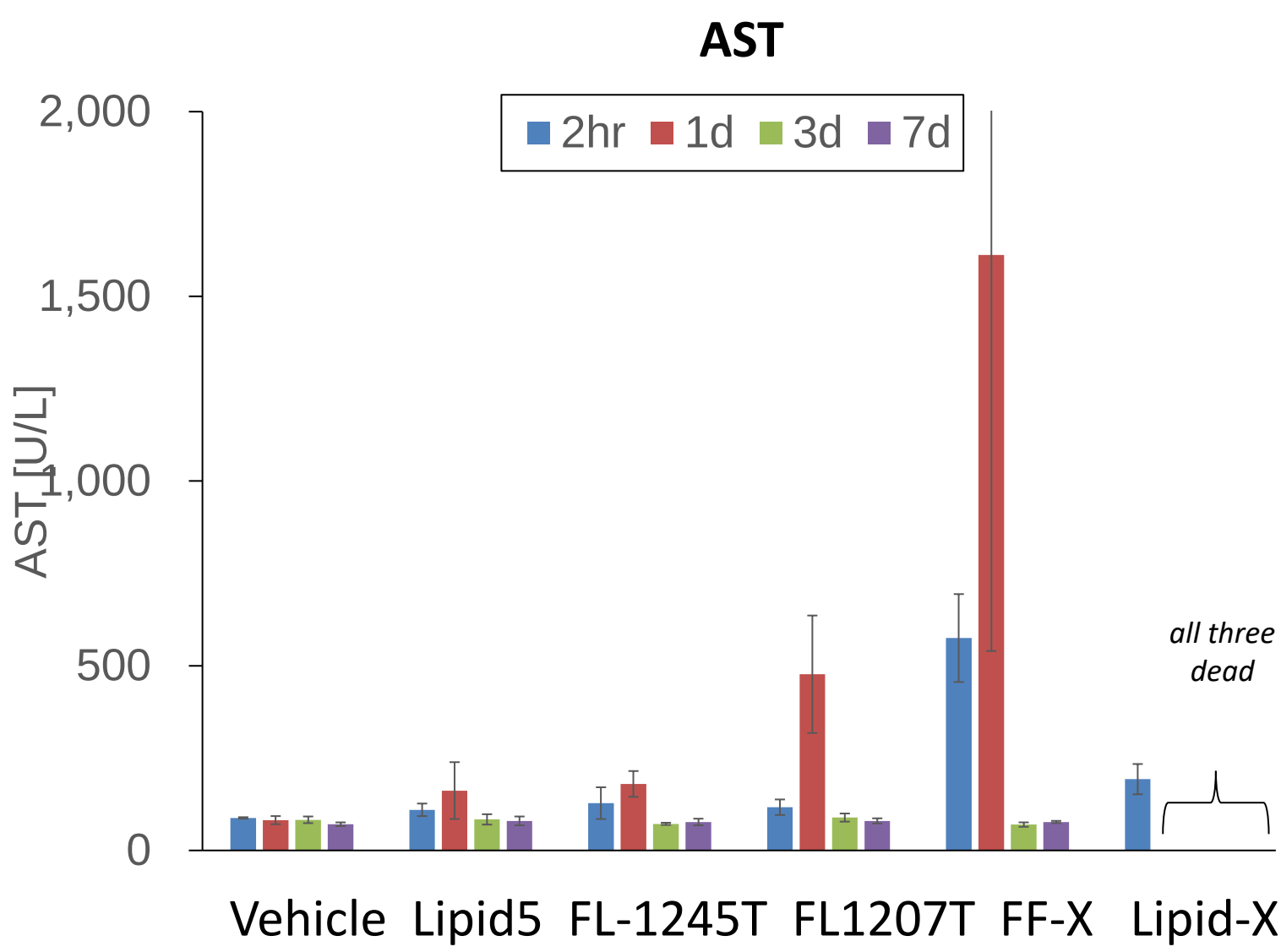


LNPs encapsulating hEPO-mRNA

Experimental animal: SD Rat (male, 7w, N=3)

Dose: 3 mg/kg (mRNA), i.v. single dose

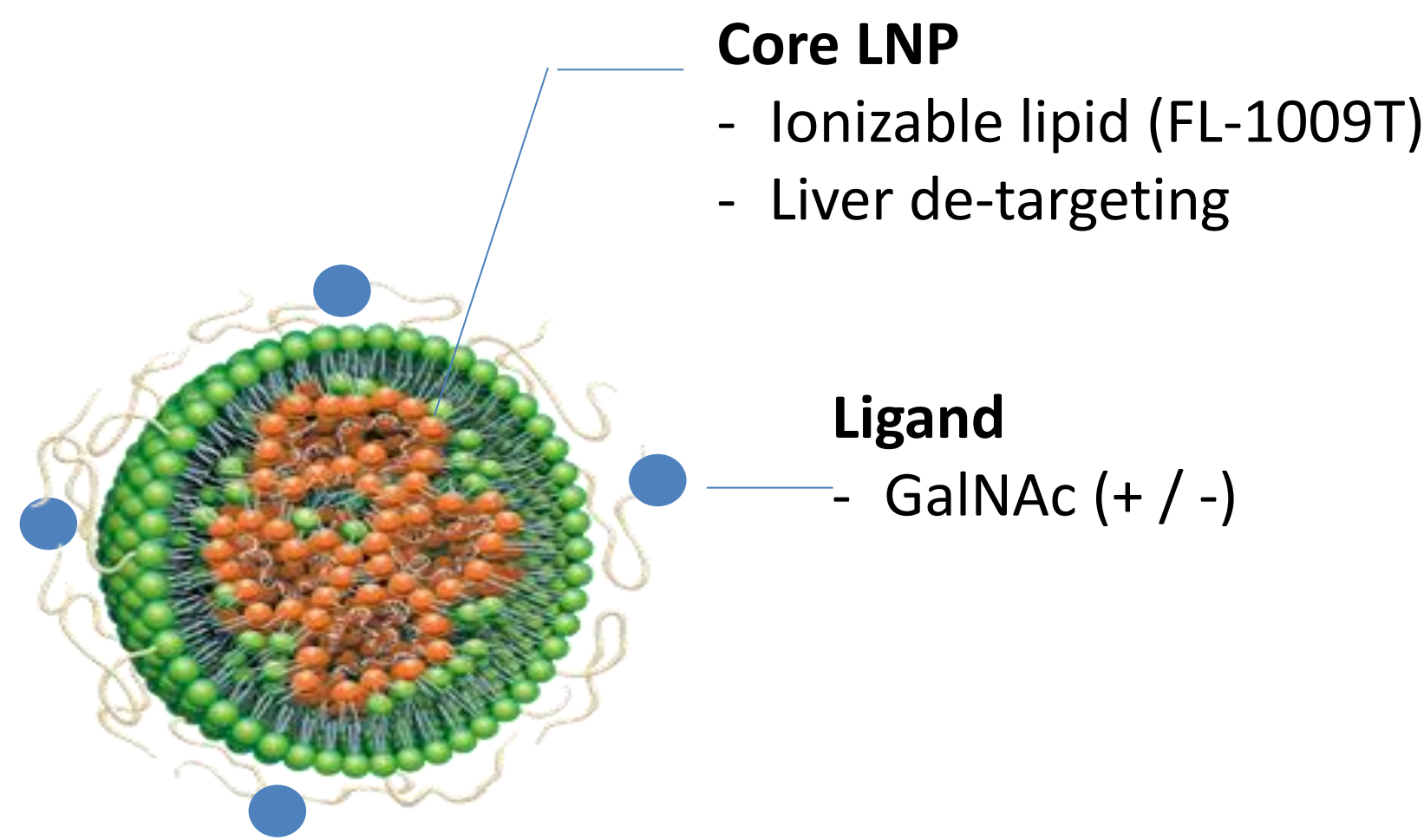
Evaluation point: 2hr, 1day, 3day, 7day



FL-1245T demonstrated the same level of tolerability as Lipid 5

Ionizable lipid for extrahepatic delivery

Active-targeting LNPs

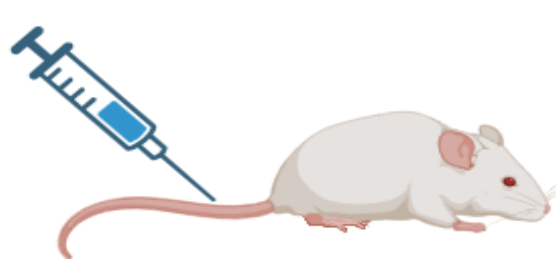


Payload Fluc mRNA

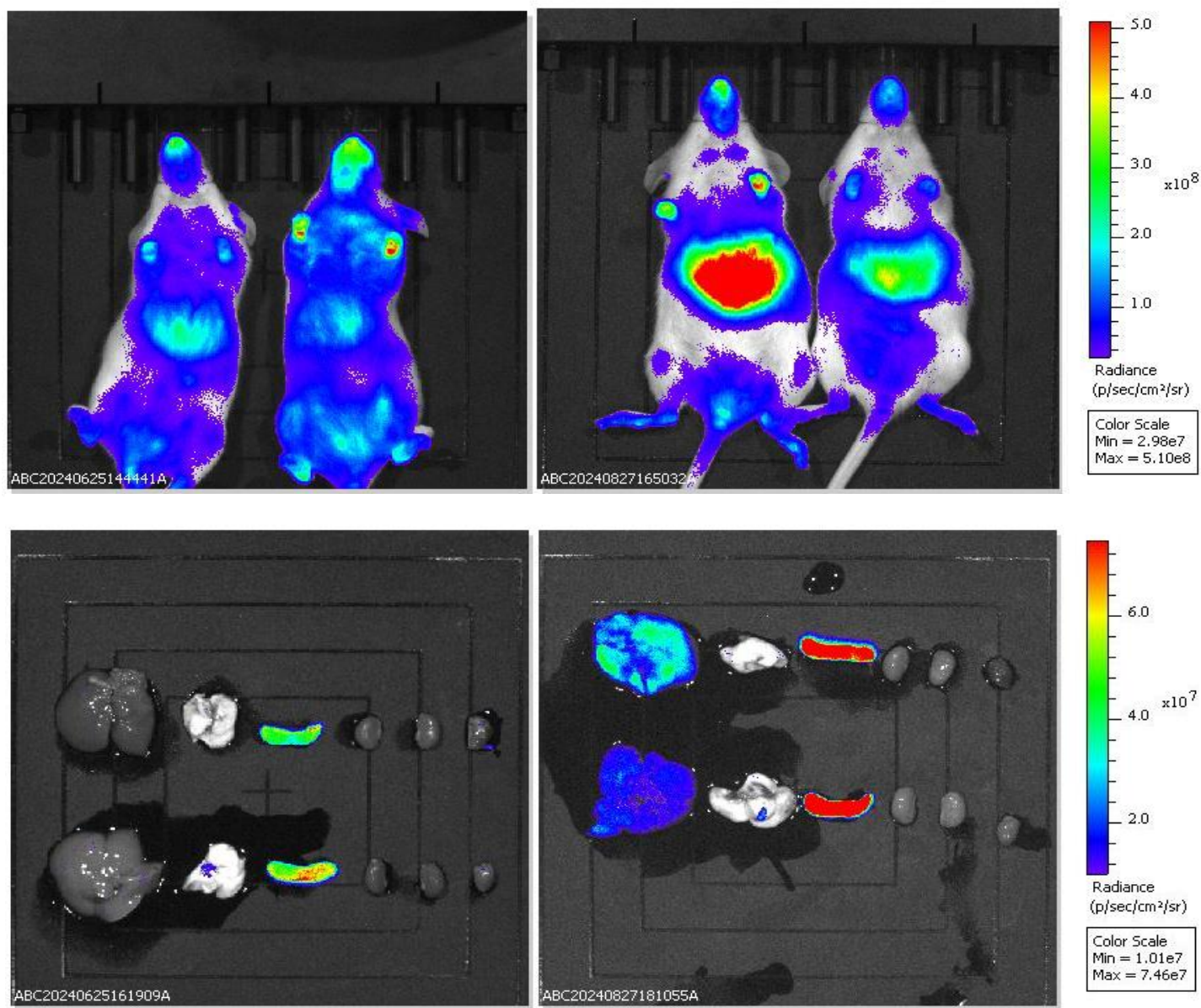
Animal: CD-1 mice (N=2)

Dose: 0.2 mg/kg (mRNA), i.v.

Analysis: 5hr(In Vivo), 6hr(Ex Vivo)



FL-1009T LNP* GalNAc (-) GalNAc (+)



* Better ionizable lipids FL-1030T/1779T have been developed.

The LNP with FL-1009T acted as a liver De-targeted LNP and served as core LNP for the ligand-conjugated LNP.