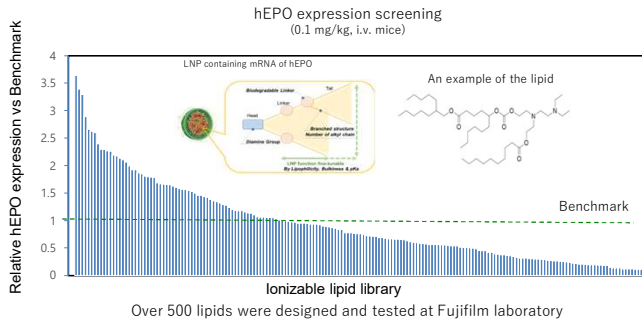




## Ionizable lipids library



## List of the lipids

### List of the ionizable lipids for external collaborations

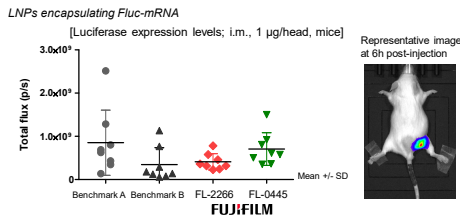
Type	Lead Lipid	GMP Mfg.	IP	Application		
				siRNA	mRNA	pDNA
A	FL-2266	Launched	Issued			
	FL-0445	Launched	Issued	✓	✓	✓
B	FL-0207T		Pending			
	FL-0179T		Pending		✓	
C	FL-1252T		Pending			
	FL-1207T		Pending		✓	
D	FL-1923T		Pending			✓

The lipids listed can be shared under MTA for evaluation use

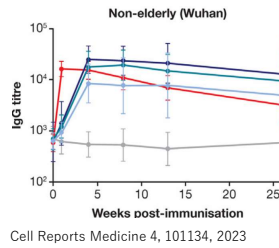
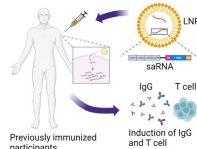
## mRNA delivery (IM)

A result of Fujifilm lipid use in clinical trial

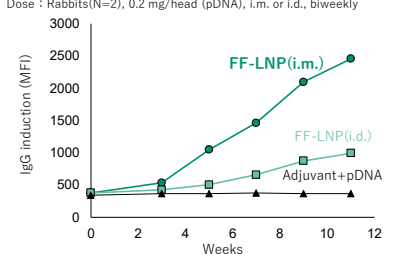
### [FL-2266/-0445 LNPs] Protein expression in Mouse (i.m.)



### SARS-CoV-2 saRNA vaccine VLP00-01

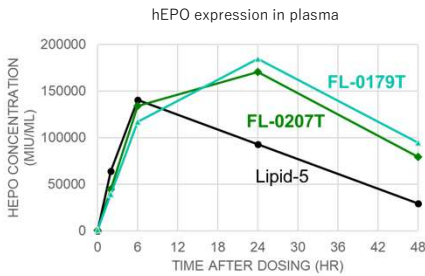


### LNPs encapsulating pDNA

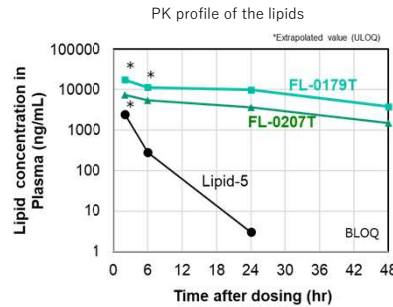


Track record of Fujifilm's ionizable lipids and LNPs for use in clinical trial

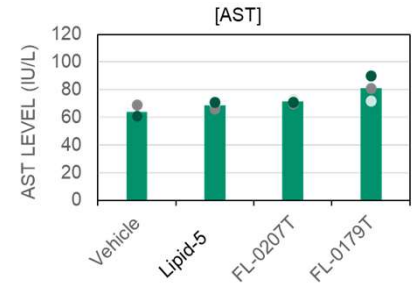
## mRNA delivery in NHP (IV)



LNPs encapsulating hEPO-mRNA  
Experimental animal: Cynomolgus monkey (male, 4y, N=2)  
Dose: 0.2 mg/kg (mRNA), 1hr infusion, i.v.



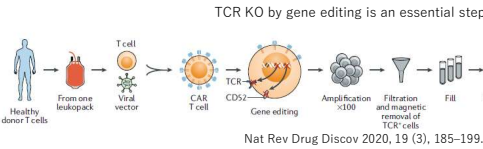
## Toxicity study in rat (IV)



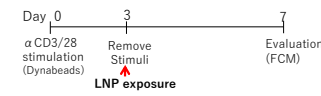
LNPs encapsulating hEPO-mRNA  
Experimental animal: SD Rat (female, 6w, N=3)  
Dose: 1 mg/kg (mRNA), i.v.

## LNP ex vivo use for T cell therapies

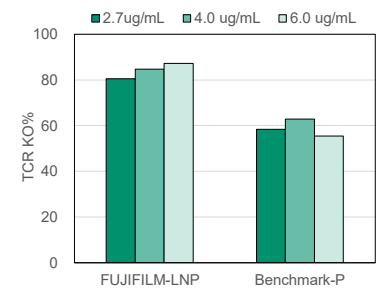
### Manufacturing process of allogenic CAR T:



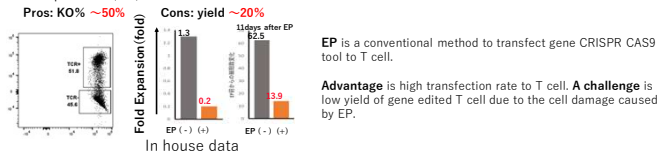
### Gene editing tool transfected by LNP to CAR T Cell



### [TCR Knock-out]



### Electroporation(EP):



## CDMO services GMP manufacturing – Facility

### One stop shop CDMO services for mRNA/LNP



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



### Fill finish line with isolator

	701F
Filling Speed	3,000 vials/hour
Filling Amount	0.5-20ml
Vial Size	2R/4R/6R/10R/20R
Annual filling capacity	3.6million Vial/Year



International Marketing  
(Boston, MA)  
FUJIFILM Pharmaceuticals U.S.A., Inc.