DC99010 | CICL-1 (L829)

Instructions for Use

CICL-1, identified in the cited study as Lipid 829 (L829), is an ionizable lipid used in targeted lipid nanoparticles for in vivo delivery of CAR mRNA to T cells. CD8-targeted L829 tLNPs preferentially engineered CD8-positive T cells in the reported models, produced rapid B-cell depletion, and controlled a humanized leukemia xenograft. In cynomolgus monkeys, anti-CD20 CAR mRNA tLNPs produced deep peripheral and tissue B-cell depletion, followed by repopulation dominated by naïve B cells; the authors described this finding as suggestive of immune reset. The supplied main article does not include Supplementary Table S1, so the complete five-lipid composition and N/P ratio are not presented as verified formulation values. All performance statements below are literature-reported study results, not product specifications or guaranteed outcomes.

Product information

CAS No.	Not available
Chemical Name	CICL-1 (L829)
Formula	C55H100O14N2
M.Wt	1,013.40
Purity	>98%
Storage	Original product: up to 1 year under the storage conditions stated on the vial, kept tightly sealed. Stock solutions: aliquots at -20°C, generally up to one month.
Shipping condition	Ships from Shanghai. Pure lipid is stable during ice-pack transport.

Formulation & study context

Literature values apply to the cited study only. Administration routes describe research, not clinical instructions.

Component	mol%	Role
L829 (CICL-1)	Not reported	Ionizable lipid
Anti-CD8 targeting-moiety lipid conjugate (lipid identity not reported in supplied main article)	Not reported	Targeting-lipid conjugate
Three additional lipid components (identities not reported in supplied main article)	Not reported	Additional lipid components
Reported total	Not reported	Source values retained
N/P ratio	Not reported in the cited article	
Total lipid:cargo weight ratio	Not reported in the supplied main article	

Buffer & pH	Not reported in the supplied main article; formulation details are assigned to Supplementary Table S1
Cargo	Anti-CD20 CAR mRNA
Administration route	Intravenous injection
Dose	0.1-2.0 mg/kg every 72 h for three doses
Animal model	Cynomolgus monkeys; 22 animals across three studies
Formulation process	Not reported in the supplied main article; Materials and Methods and Supplementary Table S1 were not included in the uploaded PDF

N/P is a nitrogen-to-phosphate molar ratio. Lipid:cargo mass ratio is a different quantity and must not be used as N/P.

Stock-solution preparation table

Calculated using product-page MW: 1013.4 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	9.868 mL	1.974 mL	0.987 mL
25 mg	24.669 mL	4.934 mL	2.467 mL
50 mg	49.339 mL	9.868 mL	4.934 mL
100 mg	98.678 mL	19.736 mL	9.868 mL
250 mg	246.694 mL	49.339 mL	24.669 mL

Volume (mL) = mass (mg) × 1000 / [MW (g/mol) × concentration (mM)]. Mathematical conversions only; not measured solubility. Confirm solvent compatibility and the exact material before preparation.

Handling & storage

Provided that storage conditions are as stated on the product vial and the vial is kept tightly sealed, the product can be stored for up to 1 year.

Wherever possible, prepare and use solutions on the same day. If stock solutions must be prepared in advance, store them as aliquots in tightly sealed vials at -20°C. Generally, these will be usable for up to one month.

Before use, and prior to opening the vial, allow the product to equilibrate to room temperature for at least 1 hour.

References

Cited literature for this formulation and performance dataset Hunter TL, Bao Y, Zhang Y, et al. In vivo CAR T cell generation to treat cancer and autoimmune disease. Science. 2025;388(6753):1311-1317. DOI: 10.1126/science.ads8473 Identity and performance: supplied Science main article, Figures 1 and 3-5. The complete five-lipid composition, preparation method and particle-characterization details are assigned by the article to Supplementary Table S1 and Materials and Methods, which were not present in the uploaded PDF.