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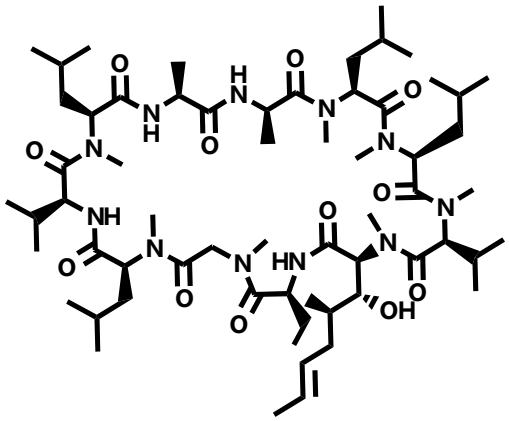
MPTP Inhibitor and HSC Protector – Cyclosporin A

Chemical Name: (3S,6S,9S,12R,15S,18S,21S,24S,30S,33S)-30-ethyl-33-((1R,2R,E)-1-hydroxy-2-methylhex-4-en-1-yl)-6,9,18,24-tetraisobutyl-3,21-diisopropyl-1,4,7,10,12,15,19,25,28-nonamethyl-1,4,7,10,13,16,19,22,25,28,31-undecaazacyclotritriacontan-2,5,8,11,14,17,20,23,26,29,32-undecaone



Molecular Weight:	1202.63
Formula:	$C_{62}H_{111}N_{11}O_{12}$
Purity:	≥98%
CAS#:	59865-13-3
Solubility:	DMSO up to 100 mM EtOH up to 50 mM
Storage	Powder: 4 °C 1 year DMSO: 4 °C 3 months -20 °C 1 year

Biological Activity:

Cyclosporin A is an inhibitor of the mitochondrial permeability transition pore (MPTP). It protects mouse bone marrow and human cord blood HSCs from EPHOSS during collection in air, resulting in increased recovery of transplantable HSCs. It was used as immunosuppressant and could inhibit phosphatase activity of calcineurin (IC_{50} ~5 nM).

How to Use:

In vitro: Cyclosporin A was used at 50 μg/ml in the collection of cord blood process.

In vivo: n/a

Reference:

1. Mantel CR, et al. Enhancing Hematopoietic Stem Cell Transplantation Efficacy by Mitigating Oxygen Shock. (2015) Cell. 161(7):1553-65.
2. Yan P, et al. Cyclosporin-A potently induces highly cardiogenic progenitors from embryonic stem cells. (2009) Biochem Biophys Res Commun. 379(1):115-20.
3. Fruman DA, et al. Calcineurin phosphatase activity in T lymphocytes is inhibited by FK 506 and cyclosporin A. (1992) Proc Natl Acad Sci USA. 89(9):3686-90.