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Cyclosporin A

Immunosuppressive agent; Inhibits calcineurin

Catalog #100-1646 100 mg

Product Description

Cyclosporin A is an immunosuppressive agent that inhibits calcineurin (IC_{50} = 7 nM) and has also been shown to inhibit cytochrome P-450 3A (CYP3A) in human liver microsomes (Ki = 0.98 µM; Amundsen et al.). Cyclosporin A binds to a cytosolic protein called cyclophilin to form a complex that inhibits calcineurin (Handschumacher et al.). Calcineurin is a Ca^{2+}- and calmodulin-dependent serine/threonine protein phosphatase involved in interleukin-2 transcription and T cell activation (Hermann-Kleiter & Baier).

Alternative Names: CsA, Cyclosporine, Sandimmune

CAS Number: 59865-13-3

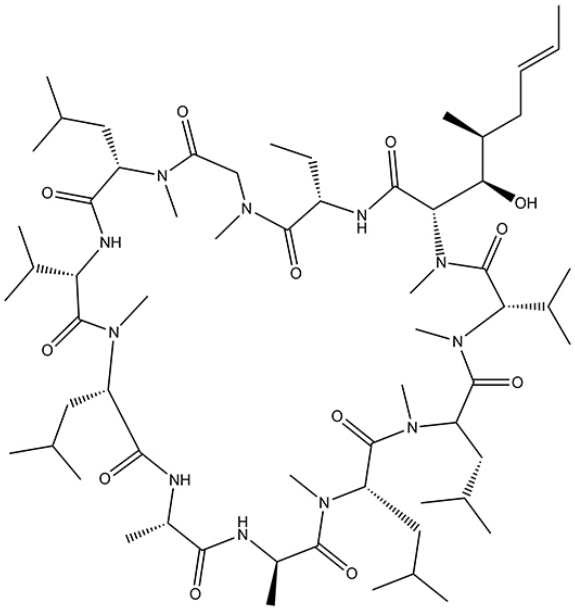
Chemical Formula: $C_{62}H_{111}N_{11}O_{12}$

Molecular Weight: 1202.6 g/mol

Purity: ≥ 98%

Chemical Name: Not applicable

Structure:



Properties

Product Format: A white powder

Stability and Storage: Product stable at -20°C as supplied. As a precaution, STEMCELL recommends storing all small molecules away from direct light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.

Preparation:
- DMSO ≤ 20 mM
- Absolute ethanol ≤ 20 mM

For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 832 µL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported; however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO or absolute ethanol concentration above 0.1% due to potential cell toxicity.

Published Applications

DIFFERENTIATION
- Stimulates colony growth of Thy-1.1^{low}Sca-1^{+}Lin^{-} mouse hematopoietic stem and progenitor cells (HSPCs) in low concentrations in combination with growth factors but inhibits colony growth at high concentrations (Perry et al.).
- Promotes cell survival of neural stem and progenitor cells in mice through a calcineurin-independent pathway (Hunt et al.; Sachewsky et al.).

IMMUNOLOGY
- Suppresses T cell activation and proliferation through the inhibition of calcineurin/nuclear factor of activated T cells (NFAT) signaling (Ho et al.).
- Interferes with T cell maturation and selection in the thymus and with deletion of self-reactive cells (Damoiseaux et al; Jenkins et al.).
- Prevents rejection of allografts in experimental animal models (Lim & White).

DISEASE MODELING
- Inhibits formation of lesions and development of disease in mouse and rat models of rheumatoid arthritis (Pozo et al.; Takagishi et al.).
- Decreases levels of pro-inflammatory cytokines, reduces lymphocyte infiltration, and improves organ pathology in a mouse model of acute graft versus host disease (Corbett et al.).

References

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Takagishi K et al. (1992) Comparative study of effects of cyclosporins A and G on collagen arthritis in mice. Agents Actions 37(3-4): 284–9.

Related Products

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Warning

This product is hazardous. Please refer to the Safety Data Sheet (SDS).