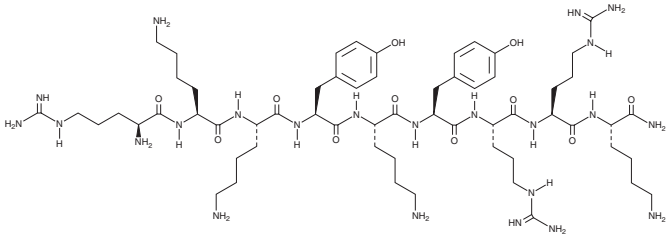
PRODUCT INFORMATION

MLCK Inhibitor Peptide 18

Item No. 19181

CAS Registry No.:	224579-74-2
Formal Name:	L-arginyl-L-lysyl-L-lysyl-L-tyrosyl-L-lysyl-L-tyrosyl-L-arginyl-L-arginyl-L-lysinamide
Synonym:	Myosin Light Chain Kinase Inhibitor Peptide 18
MF:	$C_{60}H_{105}N_{23}O_{11}$
FW:	1,324.6
Purity:	≥95%
UV/Vis.:	λ_{max}: 226, 278 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

MLCK inhibitor peptide 18 is supplied as a crystalline solid. A stock solution may be made by dissolving the MLCK inhibitor peptide 18 in the solvent of choice, which should be purged with an inert gas. MLCK inhibitor peptide 18 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of MLCK inhibitor peptide 18 in ethanol and DMF is approximately 12 mg/ml and approximately 5 mg/ml in DMSO.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of MLCK inhibitor peptide 18 can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of MLCK inhibitor peptide 18 in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

MLCK inhibitor peptide 18 is a cell-permeable inhibitor of myosin light chain kinase (MLCK; IC_{50} = 50 nM) with 4,000-fold selectivity for MLCK over CaM kinase II and PKA.[1,2] It prevents defects in transepithelial barrier resistance induced by bacteria or TNF-α plus IFN-γ.[2] MLCK inhibitor peptide 18 prevents sperm chromatin-induced cortical reorganization in mouse oocytes and decreases phagocytosis of C3bi-opsonized and non-opsonized myelin by primary mouse microglia.[3,4]

References

1. Lukas, T.J., Mirzoeva, S., Slomczynska, U., *et al.* Identification of novel classes of protein kinase inhibitors using combinatorial peptide chemistry based on functional genomics knowledge. *J. Med. Chem.* **42(5)**, 910-919 (1999).
2. Zolotarevsky, Y., Hecht, G., Koutsouris, A., *et al.* A membrane-permeant peptide that inhibits MLC kinase restores barrier function in *in vitro* models of intestinal disease. *Gastroenterology* **123(1)**, 163-172 (2002).
3. Deng, M., Williams, C.J., and Schultz, R.M. Role of MAP kinase and myosin light chain kinase in chromosome-induced development of mouse egg polarity. *Dev. Biol.* **278(2)**, 358-366 (2005).
4. Gitik, M., Reichert, F., and Rotschenker, S. Cytoskeleton plays a dual role of activation and inhibition in myelin and zymosan phagocytosis by microglia. *FASEB J.* **24(7)**, 2211-2221 (2010).

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