CPPP-2
Cell-penetrating and cytoprotective pentapeptide
Cell penetrating peptide for transduction of peptides, proteins and nucleotides into live cells and for cytoprotection

**Cat. No.** | **Amount**
---|---
CPP-P06S | 1.2 mg
CPP-P06L | 6 mg

*For in vitro use only!*

**Shipping:** shipped on blue ice

**Storage Conditions:** store at -20 °C

**Shelf Life:** 12 months after date of delivery

**Molecular Weight:** 605 Da confirmed by MALDI-MS.

**Purity:** > 95 % (HPLC)

**Form:** Synthetic peptide, water soluble powder, contains CF3COO⁻ (trifluoro acetate) as counter ion.

**Description:**
CPPP-2 is one of the cell penetrating pentapeptides (CPPPs) designed from Bax inhibiting peptides (BIPs). It is used for internalization of peptides and proteins (GFP) into different types of live cells. CPPP-2 uses yet unidentified mechanisms for cell penetration including mechanisms not requiring interaction with proteoglycans. The transport of cargo requires in some cases only formation of a non-covalent complex however, for most applications a conjugate with the cargo has to be formed and an excess of free peptide is added to improve internalization. The peptide shows some cytoprotective activity. It suppresses Bax-mediated apoptosis and is therefore recommended to protect cells from cytotoxic stress. CPPPs may be utilized for non-toxic drug delivery. The influence of CPPP-2 on cell viability is tested on different cell lines (including HeLa, Jurkat, Swiss 3T3, NIH 3T3, NB-4 and COS-7). For most of these cells it has no toxic effect up to a concentration of 20 µg/ml serum-free transduction medium. In many cell lines it even improves the viability. Thus, it can be widely used for internalization of proteins. But, it requires a molar ratio of about 1:100.

**Sequence:**
KLPVM

**Positive Charges:**
Peptide provides 2 positive charges for complex formation, 2 trifluoro acetate residues are present resulting in an apparent MW of about 0.9 kDa.

**Stock solution:**
Dissolve 1.2 mg (1 vial) in 1 ml sterile and oxygen-free water according to the general manual. Use the solution immediately or aliquot and store at -20 °C. Avoid freeze / thaw cycles. Please note that the peptide may form S-oxide (Met) when stored in solution.

**Usage:**
Perform calculation, complex formation and cargo transduction according to the detailed protocols given in the general manual.

**Jena Bioscience Publications using CPPP-2:**
Formation of non-covalent complexes with different cargos, transport into different cell lines, uptake efficiencies and cytotoxicity's are described in four publications:
Keller et al. (2013). Relationships between cargo, cell penetrating
peptides and cell type for uptake of non-covalent complexes into live cells. Pharmaceuticals 6: 184.


Activity:
1 µl of stock solution is able to form a non-covalent complex with 1 µg of a protein of MW of 100 kDa. For different MWs adjust amount of stock solution accordingly.

Selected References:
- Pharmaceuticals, Special Issue 'Cell penetrating Peptides' (2010-2013).