Penetratin
Cell penetrating peptide for transduction of peptides and proteins into live cells

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPP-P01S</td>
<td>0.5 mg</td>
</tr>
</tbody>
</table>

**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:** 2247 Da confirmed by MALDI-MS.

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

**Form:** Synthetic peptide, water soluble powder, contains CF$_3$COO$^{-}$ (trifluoro acetate) as counter ion.

**Description:**
Penetratin is a cell penetrating peptide from the first generation, which is derived from Drosophila Antennapedia Homeodomain. It contains a nuclear localization sequence and facilitates internalization of cargo into living cells. Transport of the cargo requires in most cases the formation of a conjugate or fusion protein. Addition of a 10- to 20-fold excess of free penetratin to these constructs increases rate and efficiency of internalization. In some cases penetratin is able to form non-covalent complexes with the cargo. Penetratin shows only small cytotoxic effects on a number of cell lines (including HeLa, Jurkat, Swiss 3T3, NIH 3T3, NB-4, HT-1080, COS-7 and Leishmania tarentolae) and can used for internalization of proteins, nucleic acids as well as single nucleotides and nucleotide analogs. For cell survival the critical concentration of Penetratin in serum-free transduction medium is in the range of 20 µg/ml at which cell viability and cell membrane integrity are only marginally reduced (approx. 10-30 %).

**Sequence:**
RQIKIWFQNRRMKWKK

**Positive Charges:**
Peptide provides 8 positive charges for complex formation. Due to ε-amino and guanido groups up to 11 trifluoro acetate residues may be present resulting in an apparent MW of about 3.1 kDa.

**Stock solution:**
Dissolve 0.5 mg in 1.5 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 detailed protocols given in the general manual.

**Jena Bioscience Publications using Penetratin:**
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. (2014). Transduction of proteins into Leishmania tarentolae by formation of non-covalent complexes with cell-
Penetratin
Cell penetrating peptide for transduction of peptides and proteins into live cells


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. 10 to 20 µl of stock solution are necessary for complexation of 1 µg of a nucleoside triphosphate (MW approx. 0.5 kDa carrying 4 negative charges). For different MWs and/or different charges adjust amount of stock solution accordingly.

Selected References:


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


Exclusively distributed in Japan by Greiner BioOne