Certificate Of Analysis - Custom Peptide

PEPTIDE:

Sequence: NH2- MDYKDHDGDY KDHDIDYKDD DDK -COOH
MW: 2861.87 g/mol (MS)
Purity: 95.93% (HPLC)
Gross Weight: 5.0mg
Lot n°: P181210-1CQ687567
Reconstitution advice : ACN:H2O=1:9

QUALITY CONTROL: MS and HPLC: see attached documents

Handling of Lyophilized Peptide

Lyophilized peptides can be **stored at -20°C to -80°C for years.**
To avoid moisture, allow the peptide to warm at room temperature before opening the tube.
Close the tube immediately after use.

1) General guideline

The amino acid composition determines the properties of every individual peptide. Conjugation might also influence the solubilization. Testing of peptide solubility with a small amount of product is recommended. Use of distilled and sterile water or aqueous solution is preferable. Heating (<40°C) or sonication (bath) may improve solubilization. For peptides containing residue(s) sensitive to oxidation (C, M, W), preferably use degazed water and avoid basic solutions as well as DMSO. You may constitute a concentrated stock solution (≥ 1 mg/ml) for long-term storage at -20°c to -80°C.

2) Preparing peptide solutions

2.1) Peptide solubility in aqueous solutions

Optimal peptide solubility is generally obtained at neutral pH. Using a buffered solution is then recommended (*e.g.* phosphate-buffered saline or Tris-buffered saline pH 7-8).

Peptides shorter than 5 residues are generally soluble in water or aqueous buffer, except if all residues are hydrophobic (W, I, L, F, M, V or Y).

Peptides containing >25% charged residues (D, K, R, H, E) and <25% hydrophobic amino acids are usually soluble in water or aqueous buffer if charged residues are fairly distributed throughout the sequence.

Peptides containing > 50% hydrophobic residues may be insoluble or only partially soluble in aqueous solutions. In this case we recommend using organic solvents like DMSO (dimethylsulfoxide), DMF (dimethylformamide) or ACN (acetonitrile) for solubilization (see § 2.2).

Peptides containing >75% hydrophobic residues will not dissolve in aqueous solutions. These peptides generally require solubilization in very strong solvents such as TFA (Trifluoroacetate) or formic acid.

Peptide sequences containing a very high (>75%) proportion of S, T, E, D, K, R, H, N, Q or Y are capable of forming intermolecular hydrogen bonding networks and have a tendency to form gels in aqueous solutions. These peptides may have to be treated similarly to peptides with >50% hydrophobic residues.

2.2) Guideline for hydrophobic peptides

If a product is insoluble in water / buffer due to high hydrophobicity, addition of an organic solvent may be necessary. Please note that the solvent should be compatible with the experiment.

Example of solubilization with DMSO: dissolve the peptide in the smallest possible volume of a 50% (v/v) DMSO / water mixture, then slowly add water / buffer drop wise until the desired peptide concentration is achieved. If product precipitates during this process and cannot be re-dissolved by adding DMSO, lyophilization is required and another attempt of solubilization is needed.

If DMSO interferes with your experimental conditions (C, M or W residues), DMF, ACN, or isopropyl alcohol can serve as alternative solvents. **Basic peptides** are usually well solubilized in 10% acetic acid or 0.1% TFA. **Acidic peptides** are usually well solubilized in 1% NH4OH. **When solubilization is challenging**, 1% SDS or 4-8M urea may give good results.

In some cases, the final peptide solution may require a high concentration of organic solvent or denaturant, which may not be applicable in biological studies.