# Instructions for Use of Peptide

## Transport and Storage

**1. Peptide storage:** Peptides in the form of freeze-dried powder can be transported stably at room temperature (about 2 weeks) after sealed packaging. Dissolved peptides are not suitable for long-term storage.

Peptides that need to be stored for a long time should be stored in a sealed container containing a desiccant in the form of freeze-dried powder and stored at -20°C, and -80°C is better. It can minimize peptide degradation and oxidation, and also avoid the formation of secondary structures. Most peptides can be stored in this way for more than half a year, and peptides with poor stability can generally be stored for more than 3 months.

**2. Open the package:** Before opening the package and weighing, please equilibrate the peptide to room temperature in a desiccator. Because peptides are often hygroscopic, peptides that have not been equilibrated to room temperature are prone to condensation after opening the tube cap, thereby reducing the stability of the peptide product.

**3. Weighing:** Quickly weigh the peptides you need, and continue to store the remaining peptides at -20°C or lower. If freeze-drying is not possible, it is recommended to store the peptides in aliquots, take them in batches, and use them as soon as possible.

**4. Others:** Peptides containing Met, Cys, Trp, Gln or Asn are easily degraded and have a shorter shelf life than peptides without these amino acids, especially those with Gln at the N-terminus. It is recommended to use them as soon as possible.

## Dissolution of peptides

Dissolution of peptides is a critical step. Improper dissolution may lead to loss of peptides or experimental failure. The solubility of peptides mainly depends on their sequence. Therefore, when designing peptides, it is recommended that the sequence should contain 20% charged residues to increase their solubility.

**Suggestions for peptide dissolution:**

1) Store peptides in aliquots. Thaw as much as needed and discard the remaining after use. Repeated thawing and freezing will reduce the stability of peptides.

2) Most peptides are recommended to use dd$H_2O$ or pH 5-7 buffer as solvent. After dissolution, they can be stored at -20℃ for days.

3) For hydrophobic and poorly soluble peptides, they can be dissolved with organic solvents (DMF, DMSO) first, and then diluted with water or pH 5-7 buffer to an appropriate concentration. However, DMSO cannot be used as a solvent for easily oxidized peptides containing Cys, Met, and Try.

4) For easily oxidized peptides containing Cys, Met, Try and easily degraded peptides containing Gln, Asn, Asp in the sequence, it is recommended to prepare them before use and not to store them in solution.