PEPTIDE SOLUBILITY GUIDELINES

The solubility of a peptide is determined not only by its sequence but also by impurities and salts present in the final lyophilized powder. Providing precise information on peptide solubility without specific solubility tests is challenging. In such cases, GenScript recommends referring to solubility test reports for guidance on dissolving the peptides. If solubility testing is not required, GenScript will include a recommended solvent in the COA report for your reference. If you prefer to explore the solubility of peptides independently, please note that the following steps provided in the guide are based solely on sequence properties. Additionally, we advise using a minute amount of peptides for solubility exploration.

Reconstituting Your Peptide

1 Calculate the length of the peptide. Generally, for those less than 6 amino acids, the peptide can dissolve in pure water. For those with more than 6 amino acids, the principle for dissolving the peptide can be deduced according to its overall charge and the degree of hydrophobicity.

2 Assign a value of -1 to acidic residues, which include Asp (D), Glu (E), and the C-terminal (-COOH). Assign a value of +1 to basic residues, which include Arg (R), Lys (K), His (H), and the N-terminal ($-NH_2$). Calculate the overall charge of the entire peptide.

Scenario 1: The overall charge is negative:

Option 1-1: First, try dissolving the peptide in water.

Option 1-2: If water fails, add NH_4OH (< 50 µl) and then dilute the peptide solution to the desired concentration. If the peptide contains Cys, do not use NH_4OH. Try the alternative method listed below.

Option 1-3: If the peptide still does not dissolve, add DMSO (50-100 µl) to solubilize the peptide and then dilute the peptide solution to the desired concentration.

Scenario 2: The overall charge is positive:

Option 2-1: First, try dissolving the peptide in water.

Option 2-2: If water fails, try dissolving the peptide in a 10%-30% acetic acid solution.

Option 2-3: If the peptide still does not dissolve, try dissolving the peptide in a small amount of DMSO, and then dilute the peptide solution to the desired concentration.

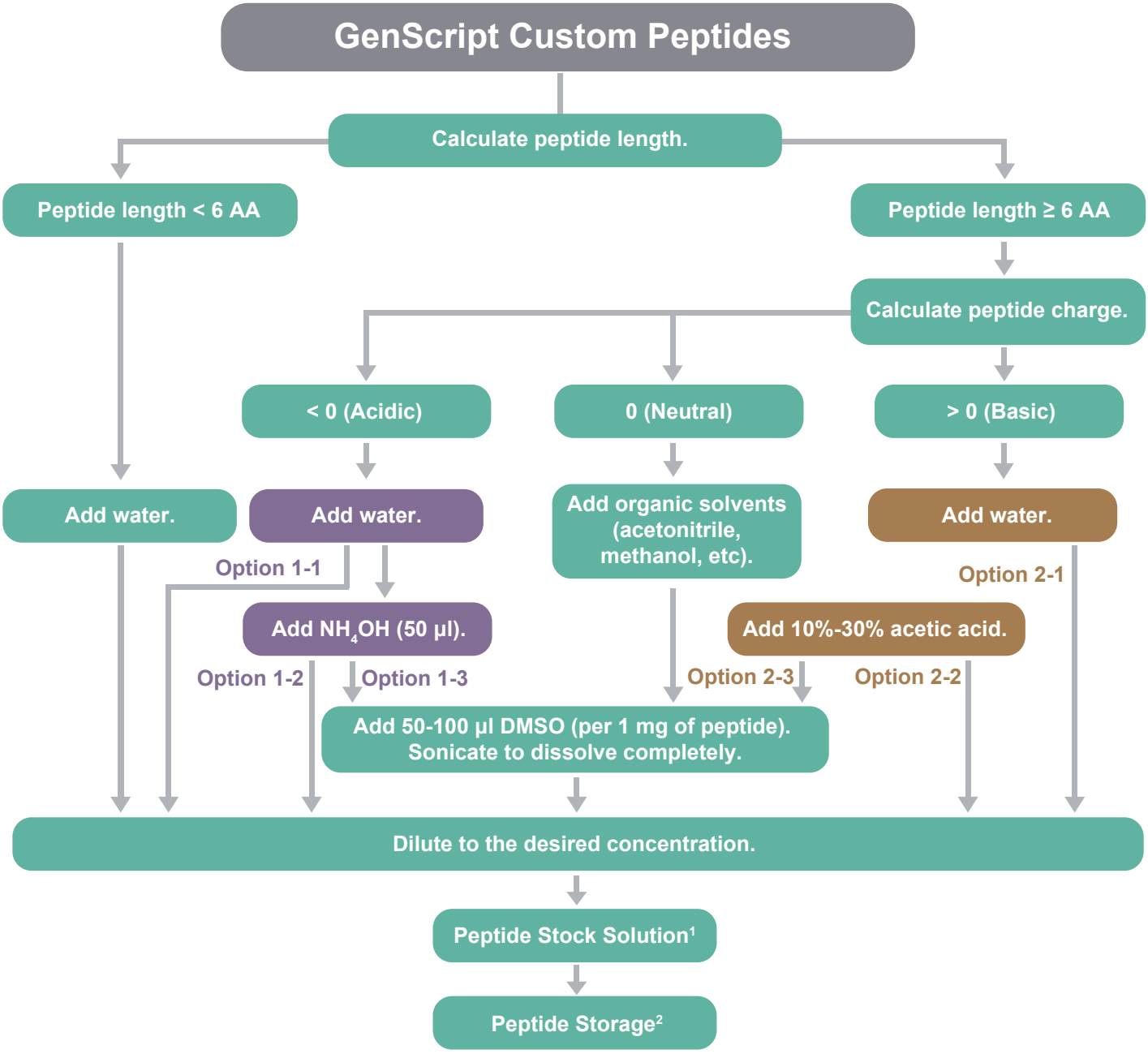
Scenario 3: The overall charge is neutral:

Peptides having an overall charge of zero usually dissolve best in an organic solvent. First, try adding acetonitrile, methanol, etc. For very hydrophobic peptides, try dissolving the peptide in a small amount of DMSO, and then dilute the solution with water to the desired concentration.

Want to make reconstitution even easier? Request a solubility test when you request a quote for your custom peptides by checking the Free Solubility Test box.

GenScript
Scripting Possibilities

RECONSTITUTION INSTRUCTIONS



Notes:

[1] It is recommended that the concentration of the stock solution be around 1-2 mg of peptide per mL of solution. This is dilute enough so that relatively small volumes (< 100 µL) of peptide can be used in an assay; minimizing the effect of the solvents initially used for solubilization.

[2] The stability of each peptide depends on its sequence information. We suggest storing lyophilized peptides at -20 °C. Once in solution we recommend that you aliquot your peptide into tubes and store at -80 °C. It is recommended that peptides containing methionine, cysteine, or tryptophan residues be stored in an oxygen-free atmosphere to avoid oxidation.

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