



ACTH (18-39), human



Description:	Peptide
Peptide Sequence:	H-Arg-Pro-Val-Lys-Val-Tyr-Pro-Asn-Gly-Ala-Glu-Asp-Glu-Ser-Ala-Glu-Ala-Phe-Pro-Leu-Glu-Phe-OH
Chemical Formula:	C ₁₁₂ H ₁₆₅ N ₂₇ O ₃₆
Molecular Weight:	2465.72
Purity:	≥ 95% (By HPLC)
Uses/Limitations:	Various research procedures. For Research Use Only. Do not use past expiration date.
Precautions:	Do not pipette reconstituted product by mouth.
Storage:	When peptides are received, ensure they are kept in a cool, dark place. For best preservation, store them under refrigeration at 4° C or colder, away from bright light. Dry peptides are stable at room temperature for days to weeks, but for long term storage, -20° C is preferred.

Contamination with moisture will greatly decrease long term stability of solid peptides. Each time you use some of the peptide, remove the container from cold storage and allow it to equilibrate to room temperature before opening it. This will reduce the uptake of moisture from the air onto the cold surface of the solid peptide or the inside of the container. After removing the required quantity, re-seal the container, preferably under an atmosphere of dry nitrogen. This can be achieved by blowing a GENTLE stream of dry nitrogen into the container, avoiding the risk of blowing the peptide powder right out of the container. After the air is displaced, quickly cap the container, then return it to cold storage.

Redissolving Peptide: Peptides are not very useful if they are insoluble in the aqueous buffers required for testing in bioassay systems. This should always be considered prior to selection of peptides for synthesis, and not afterwards. To some degree, solubility difficulties can be predicted, and by careful design of the peptide these difficulties can be minimised. Even apparently minor changes to peptide polarity can sometimes significantly improve solubility.

Storage: 2°C  8°C

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Many crude synthetic peptides, especially those that were precipitated and dried several times, may be notoriously insoluble in standard HPLC solvents, due to the following reasons:



1. A high content of hydrophobic residues; these peptides tend to "oil-out" and form compact clusters to minimize contact with water and maximize hydrophobic interactions.
2. Non-specific aggregation.
3. Disulfide formation in Cys-containing peptides.
4. Secondary structure formation, especially in longer sequences.
5. Specific interactions of reactive side-chains, including various types of hydrogen-bonding, salt-bridges, etc.

The following procedures may be used to solubilize peptides (disulfides are covalent interactions and must be reduced chemically):

1. For highly hydrophobic peptides with aromatic or hydrocarbon side-chains (Val, Leu, Ile, Met, Phe, Tyr, Ala), add DMF (up to 50%); or dissolve the peptide in a minimal amount of DMF and then dilute with HPLC buffer. Upon reversed phase chromatography, DMF will elute with the buffer front. The DMF peak may be large, but most peptides are retained longer, and the DMF does not interfere with the analysis. If the peptide is not retained on the column upon injection in DMF, the gradient must be adjusted to decrease the initial concentration of buffer B.
2. If there are many *basic* amino acids, dissolve the peptide in aqueous acetic acid (1-10%).
3. If *acidic* amino acids are present, dissolve the peptide in a volatile basic buffer (up to pH 8) such as *N*-ethyl morpholine acetate or bicarbonate. (If the peptide is dissolved in a basic solution, the pH may have to be adjusted before chromatography, unless a small amount is injected onto the column.)
4. Longer sequences may dissolve in salts. High concentrations of chaotropic salts, such as guanidine HCl or urea, assist in dissolving the peptide by breaking up the secondary structure.
5. Propanol may be used to help dissolve medium-sized peptides (the amount of propanol injected should be minimized to reduce the effect on retention time.)
6. Small amounts of TFA may help to dissolve aggregates. This technique is useful, but may damage C18 columns during reverse-phase HPLC.


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General Hints on Storage and Handling of Synthetic Peptides

Both natural and synthetic peptides may irreversibly attach to glass and plastics (e.g., polystyrene and nitrocellulose). Silylation of glassware prior to use prevents peptides from binding to the surface of the glass. Pure silylating reagents must be used to avoid the introduction of contaminants. Polypropylene containers appear to have less of a tendency to adsorb peptides and are, therefore, suggested. It is recommended to leave the peptide attached to the solid support for storage and to cleave it from the support in small quantities. Once the side-chain protecting groups are removed from the peptide, the amino acids may react inter- and intramolecularly, as well as with other contaminants. Peptides and proteins may retain a significant amount of solvent even after lyophilization; care should be taken to replace the potentially harmful solvents with inert ones. For example, if the peptide was lyophilized from acid, residual amounts may cause unwanted reactions, including slow hydrolysis of acid-labile peptide bonds such as Asp-Pro, deamidation of Gln and Asn, and cyclization of *N*-terminal Gln to pGlu. Thus, suspend/redissolve the peptide in water, re-dry, and repeat until all the residual acid is removed. This procedure should be performed if the peptide is to be stored for any length of time without purification.

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