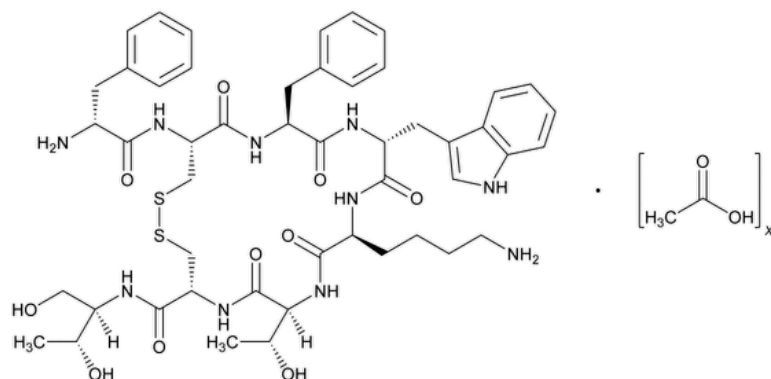


Status: Currently Official on 16-Feb-2025
 Official Date: Official as of 01-Dec-2016
 Document Type: USP Monographs
 DocId: GUID-A55374AA-36D3-4315-AE8B-0E5458F1D1E0_1_en-US
 DOI: https://doi.org/10.31003/USPNF_M58310_01_01
 DOI Ref: lv1td

© 2025 USPC
 Do not distribute

Octreotide Acetate



$C_{49}H_{66}N_{10}O_{10}S_2 \cdot xC_2H_4O_2$ 1019 (as free base)

L-Cysteinamide, D-phenylalanyl-L-cysteinyl-L-phenylalanyl-D-tryptophyl-L-lysyl-L-threonyl-N-[2-hydroxy-1-(hydroxymethyl)propyl]-, cyclic (2→7)-disulfide, [R-(R*,R*)]-, acetate (salt);

D-Phenylalanyl-L-cysteinyl-L-phenylalanyl-D-tryptophyl-L-lysyl-L-threonyl-N-[(1R,2R)-2-hydroxy-1-(hydroxymethyl)propyl]-L-cysteinamide cyclic (2→7)-disulfide acetate (salt);

D-Phenylalanyl-L-hemicystyl-L-phenylalanyl-D-tryptophyl-L-lysyl-L-threonyl-L-hemicystyl-L-threoninol cyclic (2→7)-disulfide acetate (salt) CAS RN®: 79517-01-4; UNII: 75R0U2568I.

DEFINITION

Octreotide Acetate is a long-acting synthetic octapeptide with pharmacologic properties mimicking those of the natural hormone somatostatin.

It contains NLT 95.0% and NMT 105.0% of octreotide ($C_{49}H_{66}N_{10}O_{10}S_2$), calculated on the anhydrous, acetic acid-free basis.

IDENTIFICATION

• A. HPLC

Solution A, Solution B, Mobile phase, System suitability solution, Standard solution, Sample solution, Chromatographic system, and

System suitability: Proceed as directed in the Assay.

Identification sample solution: Mix an equal volume of the *Standard solution* and the *Sample solution*.

Analysis

Samples: *Identification sample solution*, *Standard solution*, and *Sample solution*

Examine the chromatograms of the *Identification sample solution*, *Standard solution*, and *Sample solution*.

Acceptance criteria: The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, and the major peak of the *Identification sample solution* elutes as a single peak.

• B. AMINO ACID ANALYSIS

[NOTE—The following method is given for informational purposes; any validated amino acid analysis method can be used.]

Diluent: 0.1 M hydrochloric acid

Standard amino acid mixture: 2500 nmol/mL each of *Lys*, *His*, *NH₃*, *Arg*, *Asp*, *Thr*, *Ser*, *Glu*, *Pro*, *Gly*, *Ala*, *Val*, *Met*, *Ile*, *Leu*, *Tyr*, *Phe*, and 1250 nmol/mL of *Cys-Cys* in *Diluent*

Standard tryptophan solution: 0.2042 mg/mL of tryptophan in *Diluent*. This solution contains 1000 nmol/mL of *Trp*.

Standard threoninol solution: 0.1052 mg/mL of *Thr-ol* in *Diluent*. This solution contains 1000 nmol/mL *Thr-ol*. [NOTE—1000 nmol/mL = 1 mM]

Standard solution: *Diluent*, *Standard amino acid mixture*, *Standard tryptophan solution*, and *Standard threoninol solution* (76:4:10:10). The concentration is 100.0 nmol/mL for each amino acid.

Sample solution A: Weigh 1.00–1.50 mg of Octreotide Acetate into a 5-mL ampule. Add 1000 µL of *Diluent* and 1.2 mL of 30% (w/w) hydrochloric acid, cool the ampule in dry ice, evacuate, and seal by melting. Heat the ampule for 16 h at 115°. Allow to cool and transfer the

contents of the ampule quantitatively into a 25-mL round-bottomed flask, rinse with *Diluent*, and evaporate to dryness on a rotary evaporator. Dissolve the residue in 10.00 mL of *Diluent*.

Sample solution B: Weigh 1.00–1.50 mg of Octreotide Acetate into a 5-mL ampule. Add 1000 µL of *Diluent* and 1.2 mL of 30% (w/w) hydrochloric acid with 1% (v/v) thioglycolic acid, cool the ampule in dry ice, evacuate, and seal by melting. Heat the ampule for 16 h in a heating block at 115°. Allow to cool and transfer the contents of the ampule quantitatively into a 25-mL round-bottomed flask, rinse with *Diluent*, and evaporate to dryness on a rotary evaporator. Dissolve the residue in 10.00 mL of *Diluent*.

Analysis

Samples: *Standard solution*, *Sample solution A*, and *Sample solution B*

Standardize the instrument with the *Standard solution*. Inject a suitable volume of *Standard solution*, *Sample solution A*, and *Sample solution B*. Evaluate the peak areas of each amino acid found in relation to the peak areas of the respective amino acids in the *Standard solution*, express the content of each amino acid in nmoles.

Calculate *A*, the average number of nmoles of the amino acids found to be stable under hydrolysis conditions (three stable amino acids—2 *Phe* and 1 *Lys*) taken:

$$A = N_T/3$$

N_T = total nmoles of the stable amino acids

Calculate the ratio of the amino acids taken:

$$\text{Result} = N_E/A$$

N_E = nmoles of each amino acid

[NOTE—For *Trp* use only data obtained with *Sample solution B*. For *Cys* use only data obtained with *Sample solution A*.]

Acceptance criteria: See [Table 1](#).

Table 1

Name	Acceptance Criteria
<i>Thr</i>	0.7–1.1
<i>Lys</i>	0.9–1.3
<i>Phe</i>	1.8–2.2
<i>Trp</i>	0.4–1.1
<i>Cys</i>	1.0–2.2
<i>Thr-ol</i>	0.6–1.3

ASSAY

• PROCEDURE

Solution A: 0.02% (v/v) of trifluoroacetic acid in water

Solution B: Acetonitrile

Mobile phase: See [Table 2](#).

Table 2

Time (min)	Solution A (%)	Solution B (%)
0	90	10
25	65	35
30	10	90