Edition: BP 2025 (Ph. Eur. 11.6 update)

Tetracosactide Injection

General Notices

Action and use

Corticotropic peptide.

DEFINITION

Tetracosactide Injection is a sterile solution of Tetracosactide in Water for Injections.

The injection complies with the requirements stated under Parenteral Preparations and with the following requirements.

Content of tetracosactide, $C_{136}H_{210}N_{40}O_{31}S$

80.0 to 110.0% of the stated amount of the peptide.

CHARACTERISTICS

A colourless solution.

IDENTIFICATION

Mix 24 mL of *pyridine* and 16 mL of *glacial acetic acid* and add sufficient *water* to produce 100 mL (solution A). Carry out the method for *zone electrophoresis*, Appendix III F, using cellulose acetate foil as the support medium and an electrolyte solution containing 8% v/v of *glacial acetic acid* and 2% v/v of *pyridine*. Immerse the cellulose acetate foil in the electrolyte solution for 5 minutes and press dry between sheets of filter paper. Apply separately to the foil at points 1 cm from the anode edge and 2.5 cm apart 2 µL of each of the following solutions. For solution (1) evaporate to dryness a volume of the injection containing 0.5 mg of the peptide and dissolve the residue in 0.1 mL of solution A with the aid of gentle heat. For solution (2) dissolve 3.5 mg of *tetracosactide EPCRS* in 10 mL of *water* containing 10 µL of *glacial acetic acid*, 8.2 mg of *sodium acetate* and 81 mg of *sodium chloride*, evaporate 2 mL of the solution and dissolve the residue in 0.1 mL of solution A with the aid of gentle heat. Apply a voltage of 100 volts and allowing electrophoresis to proceed for 2 hours. Press the strips dry and immerse in a solution prepared by dissolving 1 g of *potassium hexacyanoferrate*(III) in 50 mL of *water* and adding 2 mL of a saturated solution of *iron*(III) *chloride hexahydrate*. Wash with a 5% v/v solution of *orthophosphoric acid* until the background is as pale as possible and finally wash with *water*. Examine the electrophoretograms while still moist. The principal spot in the electrophoretogram obtained with solution (1) corresponds to that in the electrophoretogram obtained with solution (2).

TESTS

Acidity

pH, 3.8 to 4.5, Appendix V L.

Tetracosactide sulfoxide

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions prepared with de-aerated solvents. For solution (1) dilute the injection, if necessary, with *water* to give a final concentration of 0.025% w/v of the peptide. For solution (2) add 10 µL of a solution prepared by diluting 1 volume of *hydrogen peroxide solution* (*20 vol*) to 200 volumes with *water* to 1 mL of solution (1) and allow to stand for 2 hours.

The chromatographic conditions described under Assay may be used. Take care to ensure that the syringe used to inject solution (1) is not contaminated with peroxide.

The chromatogram obtained with solution (2) exhibits a peak due to tetracosactide corresponding to the principal peak in the chromatogram obtained with solution (1) and a peak with a shorter retention time, due to tetracosactide sulfoxide, of significantly greater area than any corresponding peak in the chromatogram obtained with solution (1). In the chromatogram obtained with solution (1) the relative amount of tetracosactide sulfoxide is not more than 10% by *normalisation*.

ASSAY

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions. For solution (1) dilute the injection, if necessary, with *water* to give a final concentration of 0.025% w/v of the peptide. For solution (2) dissolve an amount of *tetracosactide EPCRS* in sufficient *water* to produce a solution containing 0.025% w/v of the peptide.

The chromatographic procedure may be carried out using (a) a stainless steel column (25 cm × 4.6 mm) packed with *end-capped octadecylsilyl silica gel for chromatography* (10 µm) (Nucleosil C18 is suitable), (b) a mixture of 10 mL of *glacial acetic acid*, 365 mL of *acetonitrile* and 10 g of *ammonium sulfate* diluted to 2000 mL with *water* as the mobile phase with a flow rate of 2 mL per minute and (c) a detection wavelength of 280 nm.

Calculate the content of the peptide $C_{136}H_{210}N_{140}O_{31}S$ from the chromatograms obtained and using the declared content of $C_{136}H_{210}N_{140}O_{31}S$ in *tetracosactide EPCRS*.

The result obtained is not valid unless the *resolution factor* between the peaks due to tetracosactide and tetracosactide sulfoxide in the chromatogram obtained with solution (1) in the test for Tetracosactide sulfoxide is at least 7.

STORAGE

Tetracosactide Injection should be protected from light and stored at a temperature of 2° to 8°.

LABELLING

The strength is stated in terms of the equivalent amount of the peptide in micrograms per mL.