

# Triptorelin

Triptorelin is a synthetic decapeptide analogue of gonadotropin-releasing hormone with D-tryptophan at position 6. It is an FDA-approved GnRH agonist (Trelstar and others) used in long-acting formulations to suppress gonadal sex-steroid production.



■ Hydrophobic ■ Acidic ■ Basic ■ Polar ■ Gly, Pro, Cys ■ Non-standard

|                   |                                                                 |
|-------------------|-----------------------------------------------------------------|
| Length            | 10 residues                                                     |
| Formula           | C <sub>64</sub> H <sub>82</sub> N <sub>18</sub> O <sub>13</sub> |
| Average mass      | 1,311.45 g/mol                                                  |
| Monoisotopic mass | 1,310.6309 Da                                                   |
| Evidence          | Approved drug                                                   |
| US status         | FDA-approved (Trelstar and others)                              |
| WADA              | Prohibited in males (S2)                                        |

GnRH analogue with D-Trp6.

## Expected ions (monoisotopic)

| [M+H] <sup>+</sup> | [M+2H] <sup>2+</sup> | [M+3H] <sup>3+</sup> | [M+4H] <sup>4+</sup> |
|--------------------|----------------------|----------------------|----------------------|
| 1,311.6382         | 656.3227             | 437.8842             | 328.6650             |

## What the COA should show

A certificate of analysis should confirm identity by mass spectrometry, with the observed mass matching the expected mass shown on this page, and report HPLC purity with the chromatogram. The salt form is especially important for triptorelin because the pamoate and acetate salts have very different molecular weights per unit of peptide and different solubility, so net peptide content must be stated. Diastereomeric impurities, such as the L-Trp6 epimer, should be resolved by the HPLC method. With two tryptophan residues, the peptide is prone to oxidation, and oxidized species should be reported among related substances.

## Storage and stability

Store lyophilized triptorelin sealed at -20 °C or in refrigerated conditions as indicated on its documentation, protected from light and moisture, and let vials reach room temperature before opening. Its two tryptophan residues make it light- and oxidation-sensitive. Acetate salts dissolve readily in water, whereas the pamoate salt is poorly water-soluble and is intended for suspension formulations. Aliquot solutions for lab use, store them at -20 °C or below, and avoid repeated freeze-thaw cycles.