Product Information

Hirudin recombinant

Catalog Number H0393
Storage Temperature –20 °C

CAS RN 8001-27-2 (native form)

Product Description
The anticoagulant hirudin is the most potent natural inhibitor of both soluble and clot-bound thrombin. Hirudin occurs naturally in leeches (*Hirudo medicinalis*).1,2. Hirudin binds thrombin at 1:1 stoichiometry with high affinity, and covers more than 20% of the surface area of thrombin, occluding both the active site and exosite I (fibrinogen and PAR recognition site). This coverage blocks thrombus growth and platelet activation.1 Hirudin is not metabolized in the bloodstream of humans and is eliminated unchanged via kidney filtration.

Hirudin is a ~7 kDa acidic protein containing 65 amino acid residues. Native hirudin contains a sulfated tyrosyl residue (Tyr63), three disulfide bridges, and a high proportion of dicarboxylic acids.3-5. Hirudin is not glycosylated and lacks tryptophan, arginine, and methionine residues. At least 20 isoforms have been identified and sequenced.5

Hirudin variant 1 (HV-1) is a recombinant protein, produced from cDNA expressed in a proprietary host. This product corresponds to the HV-1 variant sequence, except the Tyr63 residue is not sulfated.1 This product is supplied as a powder, containing glycine as a bulk stabilizer.

Specific Activity: ≥7,000 antithrombin units/mg protein

One antithrombin unit (ATU) will neutralize one NIH unit of thrombin at 37 °C, based on direct comparison to an NIH thrombin reference standard.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
Hirudin is soluble in water. The literature cites the use of "Dilution Fluid II" (35.7 mM acetic acid, 35.7 mM sodium diethyl barbiturate, 0.85% NaCl, 1% bovine serum albumin, and 0.5% PEG, pH 7.4) to dissolve hirudin (500 ATU/mL) and thrombin.6 Hirudin is reported to be soluble in pyridine, but practically insoluble in alcohol, ether, acetone, or benzene.7

Stability testing of frozen solutions of this product has not been performed in our laboratories. One published reference cites storage of 1.0 mg/mL stock solutions of recombinant hirudin in saline at –30 °C.8

Storage/Stability
Store the product at –20 °C.

References