

## Mammalian Protamine Proteins

Native and synthetic forms of the P1 and P2 protamine proteins are available.

- Native protamine molecules:
  - Protamine P1 as isolated from sperm
  - Protamine P1 isolated from sperm and then purified by HPLC
  - Protamine P1P2 Mix as isolated from sperm
- Synthetic HPLC purified human, mouse and stallion P1 and P2 protamines

If you are interested in protamines isolated from the sperm of a species other than those listed on our website, please contact us – we may be able to help.

### Concentration

The protamines are dissolved in 100 mM 2-mercaptoethanol and are provided at a concentration of 1.0 mg/ml. If you need to produce a more concentrated protamine stock solution, one of the following three approaches should work well.

1. Transfer the protamine stock solution supplied (1.0 mg/ml) to a small Pyrex or equivalent tube and freeze on dry ice. Lyophilize to remove the solvent. The protein can then be dissolved in distilled water containing 10-100 mM 2-mercaptoethanol (MSH) or 10 mM HCL to the desired concentration.
2. Transfer the protamine stock solution supplied (1.0 mg/ml) into a SpeedVac microcentrifuge tube and centrifuge the sample under vacuum in a SpeedVac centrifuge until the desired volume and concentration is reached.
3. Mix the protamine stock solution with an equal volume of 40% trichloroacetic acid (TCA) to produce a final TCA concentration of 20% and allow the protein to precipitate on ice for 1 hr. Centrifuge to sediment the precipitated protamine, carefully remove the supernatant, and add 2-3 ml acidified acetone (2 drops 1N HCL added to 10 ml acetone) to rinse the protamine pellet, centrifuge again, carefully remove the supernatant, and repeat the acidified acetone wash twice more. After removing the acetone supernatant the final time, let the protein pellet air-dry. It is important to note that if small amounts of protamine are being precipitated in this manner, the resulting precipitate can be very difficult to see. It may appear as a barely visible white coating or a clear “glass-like” film on the bottom of the tube. The protein can then be dissolved in distilled water containing 10-100 mM 2-mercaptoethanol (MSH) or 10 mM HCL to the desired concentration.

### Volumes Provided

Amount of Protein	100 µg	200 µg	500 µg
Volume	100 µl	200 µl	500 µl

### Storage

These proteins can be stored as provided for up to six months at 4-6 °C. If they are to be maintained for longer periods of time, store at -20 °C. Protamines stored in the dried state form intramolecular disulfides over time and can become insoluble. The formation of these intermolecular disulfides can be minimized by storing the dried proteins under an inert gas, such as nitrogen or argon. If disulfides form, they can be reduced by adding concentrated 2-mercaptoethanol to the dry protein, allowing reduction of the disulfides to proceed for 30 min, and then adding water to adjust the protein and MSH concentration.

**Our products are sold for research use only and are not intended for diagnostic or therapeutic use in humans.**