



BRIAR PATCH BIOSCIENCES LLC

SAFETY DATA SHEET for Protamine Proteins, Peptides and Antibodies

Version 4b

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PRODUCT DESCRIPTIONS:

This Material Safety Data Sheet covers all products sold or provided by Briar Patch Biosciences:

1. **Hup1N, Hup2B and Hup1M** are IgG1 anti-protamine monoclonal antibodies that have been generated in mice. **Hup1N and Hup2B** recognize and bind to protamine P1 and P2 molecules, respectively, from many types of mammals. **Hup1M** is selective for human protamine P1 only. These antibodies are provided as affinity-purified reagents dissolved in PBS buffer, pH7.

2. **BPB anti-protamine monoclonal antibodies** (see Table) have been generated in mice and are provided as affinity-purified reagents dissolved in PBS buffer, pH7; they have similar utility in labeling P1/P2 as the Hup MAbs but provide a range of different isotypes and epitopes.

MAb	isotype	antigen selectivity (ELISA)
BPB-2 A11	IgG1	P1 (human, mouse)
BPB-5 A2	IgG1	P1 (human, mouse)
BPB-6 F3	IgG1	P1 (human, mouse)
BPB-8 F5	IgG1	P1 (human, mouse)
BPB-9 F1	IgG1	P1 (human, mouse)
BPB-5 D1	IgG2a	P1 (human, mouse, bull) and P2 (mouse, stallion)
BPB-11 C1	IgG1	P1 (human, mouse, bull) and P2 (mouse, stallion (low))
BPB-20 D4	IgG2b	P1 (human, mouse, stallion, bull) and P2 (human, mouse, stallion (low))
BPB-26 B11	IgG2a	P1 (human)
BPB-17 B8	IgG2b	P2 (human)
BPB-26 F6	IgG2a	P2 (human, mouse)
BPB-18 C10	IgG1	native human P1/P2 mix only

3. **Native protamines isolated from sperm of various mammalian species.**
 - Protamine P1 as isolated from sperm (bull, boar, ram)
 - Protamine P1 isolated from sperm and then purified by HPLC (bull and hamster)
 - Protamine P1P2 Mix as isolated from sperm (hamster, stallion, and human)

The native protamines are dissolved in 100 mM 2-mercaptoethanol and are provided at a concentration of 1.0 mg/ml.

4. **Synthetic human, mouse and stallion P1 and P2 protamines** are HPLC purified, dissolved in 100 mM 2-mercaptoethanol and provided at a concentration of 1.0 mg/ml.
5. **Synthetic peptides containing the protamine P1 and protamine P2 epitopes recognized by the antibodies Hup1N and Hup2B**, respectively. The peptides are HPLC purified, dissolved in 10 mM 2-mercaptoethanol and provided at a concentration of 2.0 mg/ml.

COMPANY IDENTIFICATION

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TOXICOLOGICAL INFORMATION

- (1) There are no studies that indicate anti-protamine monoclonal antibodies are toxic or present a hazard.
- (2) There is no data available on the toxicological effects of mammalian protamines or their peptide fragments.
- (3) The low concentration (0.1M) and the very small volumes of 2-mercaptoethanol used to maintain the cysteines in protamines and protamine-derived peptides in a reduced state indicate that the protamine and protamine peptide products are neither hazardous or toxic, consistent with the reported LD₅₀ data for 2-mercaptoethanol (CAS# 60-24-2): Dermal, guinea pig: LD₅₀ = 300 µl/kg, Oral, mouse: LD₅₀ = 190 mg/kg, Inhalation, mouse: LD₅₀ = 13200 mg/m³, Skin, rabbit: LD₅₀ = 150 µl/kg, Oral, rat: LD₅₀ = 244 mg/kg
- (4) When using these products always follow Good Laboratory and Industrial Hygiene Practices and wear proper personal protective equipment as you would when handling any chemical or laboratory reagent.

CHEMICAL PROPERTIES

Boiling Point: Unknown **Melting Point:** Unknown **Specific Gravity:** Unknown **Vapor Pressure:** Unknown **Vapor Density:** Unknown **Evaporation Rate:** Unknown **Solubility in Water:** Unknown **Appearance and Odor** Antibodies, proteins, and peptides are odorless and provided in PBS buffer. 2-mercaptoethanol used to prevent crosslinking of cysteines in proteins and peptides has a disagreeable and choking odor characteristic of rotten eggs.

FIRE FIGHTING PROCEDURES

Flashpoint: N/A **Flammable Limits:**

- LEL: not applicable
- UEL: not applicable

Extinguishing Media: Use media appropriate for site conditions.

Unusual Fire & Explosion Hazards: None known. Wear self-contained breathing apparatus and protective garments appropriate for site conditions.

REACTIVITY DATA

Stability/Incompatibility: Stable. See insert sheets for product-specific storage information. Avoid subjecting antibodies to repeated and frequent freeze/thaw cycles. Keep antibodies in current use in refrigerator. Protamines are highly basic proteins and not soluble in SDS or high ionic strength solutions.

Hazardous Decomposition: None known.

FIRST AID MEASURES

Eye Contact: Check for contact lenses and remove if present. Flush eyes with large volumes of water for at least 15 minutes. Seek medical attention if eyes remain red and/or irritated.

Skin Contact: Wash contact areas thoroughly with soap and water after handling. Seek medical attention if area remains irritated. Immediately remove contaminated clothing; contaminated clothing should not be worn until after it has been properly cleaned.

Ingestion: Seek medical attention or call poison control center immediately.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the products with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the products. Briar Patch Biosciences shall not be held liable for any damage resulting from handling or from contact with the above products.