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# MATERIAL DATA SHEET

## Canine 20S Immunoproteasome
## Cat. # E-377

The 20S Immunoproteasome is a modified form of the constitutively active 20S Proteasome core particle and is the catalytic subunit of the multi-complex Immunoproteasome. The structure of the 20S Immunoproteasome is similar to the 20S Proteasome, which is composed of 28 non-identical subunits arranged into four stacked rings (1,2). However, during 20S Immunoproteasome assembly, the three catalytic beta subunits, beta 1, 2, and 5, in the two interior rings of the 20S Proteasome are replaced by three IFN-gamma-inducible catalytic subunits: beta 1i/LMP2, beta 2i/LMP7, and beta 5i/MECL-1 (3). The 20S Immunoproteasome is commonly associated with the 19S, PA28 alpha/beta, or the PA28 gamma regulatory complexes (3,4). 20S Immunoproteasome expression is enriched in antigen presenting cells of the immune system where the 20S Immunoproteasome selectively degrades intracellular proteins in a manner that optimizes the generation of peptides for MHC class I antigen presentation (3,5,6). Selective inhibition of 20S Immunoproteasome proteolytic activity using small molecule inhibitors is being examined for therapeutic intervention in cancer and inflammatory diseases (7).

This protein has been purified from canine spleen.

| Product Information | |
|---|---|
| **Quantity:** | 25 µg |
| **MW:** | 700 kDa |
| **Source:** | Canine spleen |
| **Stock:** | X mg/ml (X µM) in 50 mM HEPES pH 7.6, 100 mM NaCl, 1mM DTT |
| **Purity:** | >95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain. |

## Use & Storage

**Use:** The Canine 20S Immunoproteasome is able to degrade substrates in an ATP-independent manner. It can be activated chemically with SDS (0.035%) or by the addition of PA28. Reaction conditions will need to be optimized for each specific application. We recommend an initial Canine 20S Immunoproteasome concentration of 0.5-5 nM.

**Storage:** **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -70 °C as supplied.
- 3 months, -70 °C under sterile conditions after opening.

## Literature

**References:**

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2. Xie, Y. (2010) J. Mol. Cell Biol. **2**:308.
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4. Stadtmueller, B.M. & C.P. Hill (2011) Mol. Cell **41**:8.
5. Cascio, P. *et al.* (2001) EMBO J. **20**:2357.
6. Ferrington, D.A. & D.S. Gregerson (2012) Prog. Mol. Biol. Transl. Sci. **109**:75.
7. Lee, W. & K.B. Kim (2011) Curr. Top. Med. Chem. **11**:2923.

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