

## Product Information

### SILu™Prot B2M, Beta-2-microglobulin, human recombinant, expressed in HEK cells SIL MS Protein Standard, <sup>13</sup>C- and <sup>15</sup>N-labeled

Catalog Number **MSST0015**

Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Synonym:  $\beta$ -2-microglobulin

#### Product Description

SILu™B2M is a recombinant, stable isotope-labeled human B2M which incorporates [<sup>13</sup>C<sub>6</sub>, <sup>15</sup>N<sub>4</sub>]-Arginine and [<sup>13</sup>C<sub>6</sub>, <sup>15</sup>N<sub>2</sub>]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of B2M in mass spectrometry. SILu™B2M is a monomer of 119 amino acids (including C-terminal polyhistidine and FLAG® tags), with a calculated molecular mass of 14.3 kDa.

B2M is the light chain of the major histocompatibility class (MHC) I molecule expressed on the cell surface of all nucleated cells.<sup>1</sup> Increased urinary B2M excretion has been observed to be an early marker of tubular injury in a number of settings, including nephrotoxicant exposure,<sup>2</sup> cardiac surgery,<sup>3</sup> and renal transplantation,<sup>4</sup> preceding rises in serum creatinine by as many as 4–5 days.<sup>5</sup> B2M may also serve as an early biomarker for AKI (Acute Kidney Injury).<sup>6</sup>

Each vial contains 10–13  $\mu\text{g}$  of SILu™Prot B2M standard, lyophilized from a solution of phosphate buffered saline. Vial content was determined by the Bradford method using BSA as a calibrator. The correction factor from the Bradford method to Amino Acid Analysis is 55% for this protein.

Identity: Confirmed by peptide mapping

Purity:  $\geq 95\%$  (SDS-PAGE)

Heavy amino acid incorporation efficiency:  $\geq 98\%$  (MS)

UniProt: P61769

#### Sequence Information

The C-terminal polyhistidine and FLAG tags are italicized.

IQRTPKIQVYSRHPAENGKSNFLNCYVSGFHPSDIEV  
DLLKNGERIEKVEHSDLSFSKDWSFYLLYYTEFTPTE  
KDEYACRVNHVTLSQPKIVKWDRDMDYKDDDDKGH  
HHHHHHHGGQ

Transitions for three peptides (underlined) suggested for selected reaction monitoring analysis (SRM) are provided for download on the product display page at [www.sigmaaldrich.com](http://www.sigmaaldrich.com).

#### **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**

Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile ultrapure water to a final concentration of 100  $\mu\text{g}/\text{mL}$ .

#### **Storage/Stability**

Store the lyophilized product at  $-20\text{ }^{\circ}\text{C}$ . The product is stable for at least 2 years as supplied. After reconstitution, it is recommended to store the protein in working aliquots at  $-20\text{ }^{\circ}\text{C}$ .

## References

1. Chiou, S-J., and Chen, C-H., Decipher  $\beta$ 2-microglobulin: Gain- or loss-of-function (a mini-review). *Medical Science Monitor Basic Research*, **19**, 271-273 (2013).
2. Chapelsky, M.C. et al., Renal tubular enzyme effects of clarithromycin in comparison with gentamicin and placebo in volunteers. *Drug Saf.*, **7(4)**, 304-9 (1992).
3. Dehne, M.G. et al., Tamm-Horsfall protein, alpha-1 and beta-2-microglobulin as kidney function markers in heart surgery. *Anaesthesist.*, **44(8)**, 545-51 (1995).
4. Schaub, S. et al., Proteomic-based identification of cleaved urinary beta2-microglobulin as a potential marker for acute tubular injury in renal allografts. *Am. J. Transplant*, **5**, 729-38 (2005).
5. Tolkoff-Rubin, N.E. et al., Noninvasive renal diagnostic studies. *Clin. Lab. Med.*, **8(3)**, 507-26 (1988).
6. Herget-Rosenthal, S. et al., Prognostic value of tubular proteinuria and enzymuria in nonoliguric acute tubular necrosis. *Clin. Chem.*, **50(3)**, 552-8 (2004).

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## Legal Information

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