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Product Information

SILu™Prot HAVCR1,
Hepatitis A virus cellular receptor 1, human recombinant, expressed in HEK cells
SIL MS Protein Standard, ^{13}C- and ^{15}N-labeled

Catalog Number **MSST0041**
Storage Temperature –20 °C

Synonyms: Kidney injury molecule 1 (KIM-1), T-cell immunoglobulin and mucin domain-containing protein 1 (TIMD-1), T-cell immunoglobulin mucin receptor 1 (TIM-1)

Product Description

SILu™Prot HAVCR1 is a recombinant, stable isotope-labeled human HAVCR1 which incorporates [$^{13}C_6$, $^{15}N_4$]-Arginine and [$^{13}C_6$, $^{15}N_2$]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of HAVCR1 in mass spectrometry. SILu™Prot HAVCR1 is a protein consisting of 290 amino acids (the extracellular domain: Ser^{21}-Gly^{290}, and including C-terminal polyhistidine and FLAG® tags), with a calculated molecular mass of 31.5 kDa.

HAVCR1 is a transmembrane glycoprotein that is highly expressed in kidney proximal tubular cells with kidney injury.[1] The KIM-1 ectodomain is cleaved, released into urine, and can be quantified as a sensitive and specific biomarker for Acute Kidney Injury (AKI) in rodents[2] and humans.[3] In a recent study it was demonstrated HAVCR1 is released into the circulation where it reports kidney injury in mice, rats, and humans with AKI and chronic kidney disease (CKD).[4] Urinary HAVCR1 and MCP-1 levels, either alone or in combination, were significantly higher than those in AKI negative patients.[5] Importantly, the combination of HAVCR1 and MCP-1 outperformed either biomarker alone.[5]

Each vial contains 10–13 μg of SILu™Prot HAVCR1 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 150% for this protein.

Identity: Confirmed by peptide mapping

Purity: ≥95% (SDS-PAGE)

Heavy amino acid incorporation efficiency: ≥98% (MS)

UniProt: Q96D42

Sequence Information
The C-terminal polyhistidine and FLAG tags are italicized.

SVKVGGEAGPSVTLPCHYSGAVTSMCWNRGSCSLF
TCQNGIVWTNGTHVTYRKDTRYKLLGDLSRRDVSLTI
ENTAVSDSGVYCCRVEHRGWFNDMKITVSLEIVPPK
VTTTPIVTTVPTVTTVRTSTTVPTTTTVPTTTVPTTMSI
PTTTTVLTTMTVSTTTSVPTTTSIPTTTSVPVTTTVSTF
VPPMPLPRQNHEPVATSPSSPQPAETHPTTLQGAIR
REPTSSPLYSYTTDGNDTVTESSDGLWNNNQTQLFL
EHSLLTANTTKG*DYKDDDDKGHHHHHHHHGGQ*

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 μg/mL.

Storage/Stability

Store the lyophilized product at –20 °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 °C.

References

1. Ichimura, T. et al., Kidney Injury Molecule-1 (KIM-1), a putative epithelial cell adhesion molecule containing a novel immunoglobulin domain, is up-regulated in renal cells after injury. *J. Biol. Chem.,* **273**, 4135-4142 (1998).
2. Ichimura, T. et al., Kidney injury molecule-1: a tissue and urinary biomarker for nephrotoxicant-induced renal injury. *Am. J. Physiol. Renal Physiol.,* **286**, F552-F563 (2004).
3. Koyner, J.L. et al., Urinary Biomarkers in the Clinical Prognosis and Early Detection of Acute Kidney Injury. *Clin. J. Am. Soc. Nephrol.,* **5**, 2154-2165 (2010).
4. Sabbisetti, V.S. et al., Blood kidney injury molecule-1 is a biomarker of acute and chronic kidney injury and predicts progression to ESRD in type I diabetes. *J. Am. Soc. Nephrol.,* **25**, 2177-2186 (2014).
5. Shinke, H. et al., Urinary kidney injury molecule-1 and monocyte chemotactic protein-1 are noninvasive biomarkers of cisplatin-induced nephrotoxicity in lung cancer patients. *Cancer Chemother. Pharmacol.,* **76**, 989-996 (2015).

Legal Information

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