

Product Information

SILu™Lite HAVCR1,
Hepatitis A virus cellular receptor 1, human
recombinant, expressed in HEK cells
MS Protein Standard

Catalog Number **MSST0042**

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™Lite HAVCR1 is a recombinant human protein expressed in human 293 cells. It is a protein consisting of 290 amino acids (the extracellular domain: Ser²¹-Gly²⁹⁰, and including C-terminal polyhistidine and FLAG® tags), with a calculated molecular mass of 31.4 kDa. SILu™Lite HAVCR1 is an analytical standard designed to be used as starting material for preparation of calibrators and controls in LC-MS applications.

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 rodents² 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 50–65 µg of SILu™Lite 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: $\geq 95\%$ (SDS-PAGE)

UniProt: Q96D42

Sequence Information

The C-terminal polyhistidine and FLAG tags are italicized.

SVKVGGEAGPSVTLPCHYSGAVTSMCWNRGSCSLF
TCQNGIVWTNGTHVTRYRKDTRYKLLGDLRRDVS
LTI ENTAVSDSGVYCCRVEHRGWFNMDKITVSLEIVPPK
VTTTPIVTTVPTVTTVRTSTTVPTTTTVPTTTVPTTMSI
PTTTTVLTTMTVSTTTSVPTTTTSIPTTTTSVPVTTTVSTF
VPPMPLPRQNHEPVATSPSSPQPAETHPTTLQGAIR
REPTSSPLYSYTTDGNDDTVTESSDGLWNNNQTLFL
EHSLLTANTTKGDKDDDDKGHHHHHHHHGGQ

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).
- FLAG is a registered trademark and SILu is a trademark of Sigma-Aldrich Co. LLC.

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