Pacific **Biomarkers**
The Value of Expertise

KIM-1 (Kidney Injury Molecule-1), Urine

Analyte: Kidney Injury Molecule 1

Specimen Type: Urine (first morning void with stabilizer(s) recommended); Please contact PBI for collection instructions

Optimum Volume: 2 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
6 days**	N.A.*	N.A.*

Reporting Units: pg/mL; ng/mg creatinine (normalized)

Method: ELISA

Biological or Clinical Significance:

Acute kidney injury has been defined as a rapid decline in glomerular filtration rate. Blood urea nitrogen and serum creatinine are not specific or sensitive enough for the diagnosis of acute kidney injury because they are affected by many renal and non-renal (age, sex, race, muscle mass, nutritional status, infection) factors that are independent of kidney injury or kidney function. Kidney injury molecule-1 (KIM-1) is a recently discovered biomarker that appears to overcome some of the shortcomings associated with BUN and serum creatinine. KIM-1 is a type I transmembrane glycoprotein. It is undetectable in healthy kidney tissue, but expressed at very high levels in proximal tubule epithelial cells in human kidneys after ischemic or toxic injury.

Principle of Test Method:

The KIM-1 assay is solid-phase ELISA that employs the quantitative sandwich enzyme immunoassay technique. KIM-1 is reported as a normalized ratio to urinary creatinine in order to account for variations in urine flow rate. Therefore KIM-1 and urine creatinine are preferably tested from the same aliquot.

*Please contact PBI for stability information.

**Note: Refrigerated stability for stabilized urine is 6 days, for non-stabilized urine 3 days.

References:

1. Chaturvedi S, Farmer T, Kapke GF. Assay validation of KIM-1: human urinary renal dysfunction biomarker. Int J Biol Sci 2009; 5:128-134.

2. Vaidya VS, Ozer JS, Dieterle F, Collings FB, Ramirez V, Troth S, Muniappa N, Thudium D, Gerhold D, Holder DJ, Bobadilla NA, Marrer E, Perentes E, Cordier A, Vonderscher J, Maurer G, Goering PL, Sistare FD, Bonventre JV. Kidney injury molecule-1 outperforms traditional biomarkers of kidney injury in preclinical biomarker qualification studies. Nature Biotechnology 2010; 28:478–485