MAYO CLINIC LABORATORIES

NEW TEST

Notification Date: March 5, 2024
Effective Date: March 12, 2024

Mast Cell Mediators, Random, Urine

Test ID: MCMRU

Useful for:

Evaluating patients at risk for mast cell activation syndrome (eg, systemic mastocytosis) using random urine collections

Profile Tests:

Test ID	Reporting Name	Available Separately	Always Performed
CRTFR	Creatinine, Random, U	No	Yes
RLTE1	Leukotriene E4, Random, U	Yes	Yes
R23B1	2,3-dinor 11B-Prostaglandin F2a	Yes	Yes
RNMH1	N-Methylhistamine, Random	Yes	Yes

Methods:

CRT2F: Enzymatic Colorimetric Assay
RLTE1, R23B1, RNMH1: Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)

Reference Values:

LEUKOTRIENE E4:
< or =104 pg/mg creatinine

2,3-DINOR 11B-PROSTAGLANDIN F2a:
<1802 pg/mg creatinine

N-METHYLHISTAMINE:
0-5 years: 120-510 mcg/g creatinine
6-16 years: 70-330 mcg/g creatinine
>16 years: 30-200 mcg/g creatinine

CREATININE:
> or =18 years old: 16-326 mg/dL
Reference values have not been established for patients who are younger than 18 years.

Specimen Requirements:

Patient Preparation	1. Patient must not be taking monoamine oxidase inhibitors (MAOI) or aminoguanidine, as these medications increase N-methylhistamine (NMH) levels. 2. Patients taking aspirin or nonsteroidal anti-inflammatory drugs (NSAID) may have decreased concentrations of prostaglandin F2 alpha (23BP). If possible, the patient should discontinue use for 2 weeks or 72 hours, respectively, before specimen collection.
Supplies:	Urine Container, 60 mL (T313)
Collection Container/Tube:	Plastic urine container
Submission Container/Tube:	Plastic, 60-mL urine bottle
Specimen Volume:	20 mL
Collection Instructions:	1. Collect a random urine specimen within a few hours of symptom onset. 2. No preservative.
Minimum Volume:	10 mL

Specimen Stability Information:

Specimen Type	Temperature	Time
Urine	Frozen	28 days

Cautions:

N-methylhistamine:
While an average North American diet has no effect on urinary N-methylhistamine (NMH) levels, mild elevations (around 30%) may be observed on very histamine-rich diets. This problem is more pronounced in random urine specimens, especially when collected following a histamine-rich meal.

NMH levels may be depressed in individuals who have an alteration in the histamine-N-methyltransferase gene (HNMT), which encodes the enzyme that catalyzes NMH formation. This alteration results in an amino acid change that decreases the rate of NMH synthesis.

When N-acetylcysteine is administered at levels sufficient to act as an antidote for the treatment of acetaminophen overdose, it may lead to falsely decreased creatinine results.

2,3-Dinor-11beta-prostaglandin F2 alpha:
Elevated levels of 2,3-dinor-11beta-prostaglandin F2 alpha (2,3 BPG) in urine are not specific for systemic mast cell disease and may be found in patients with angioedema, diffuse urticaria, or myeloproliferative diseases in the absence of diffuse mast cell proliferation. Systemic mast cell disease is a heterogeneous disease, and some patients may not have elevated 2,3 BPG in urine.

Leukotriene E4
Patients taking 5-lipoxygenase inhibitor zileuton (Zyflo) may have decreased concentrations of leukotriene E4 (LTE4) if dosage has not been discontinued for 48 hours. Systemic mastocytosis is a heterogenous disease, and lack of elevated LTE4 does not exclude the diagnosis of mast cell disease. Increased excretion of LTE4

has also been reported in the following conditions: asthma, eosinophilic pneumonia, respiratory syncytial virus infection, atopic dermatitis, Crohn disease, and rheumatoid arthritis.

CPT Code:
82570
84150
82542 x 2

Day(s) Performed: Monday, Tuesday, Thursday **Report Available:** 2 to 9 days

Questions

Contact Joshua Yang, Laboratory Resource Coordinator at 800-533-1710.