Lab Dept: Chemistry

Test Name: THIOPURINE METHYLTRANSFERASE, RBC

General Information

Lab Order Codes:	TMT
Synonyms:	TPMT (Thiopurine Methyltransferase); Myelotoxicity
CPT Codes:	83789 – Mass Spectrometry,Tandem Mass Spectrometry ,NOS
Test Includes:	Thiopurine Methyltransferase level reported in U/mL RBC.

Logistics

Test Indications:	Useful for detection of individuals with low TPMT activity who will have excessive myelosuppression or severe hematopoietic toxicity when taking azathioprine (Imuran) or 6-MP (Purinethol).
Lab Testing Sections:	Chemistry - Sendouts
Referred to:	Mayo Medical Laboratories (MML Test#: TPMT/80291), temporary forward to ARUP (FATPM)
Phone Numbers:	MIN Lab: 612-813-6280 STP Lab: 651-220-6550
Test Availability:	Daily, 24 hours
Turnaround Time:	2 – 4 days
Special Instructions:	N/A

Specimen

Specimen Type:	Whole blood
Container:	Green top (Sodium Heparin) tube Alternate: Lavender top (EDTA) or Green top (Lithium Heparin) tube
Draw Volume:	5 mL (Minimum: 3 mL) blood
Processed Volume:	Same as Draw Volume

Collection: Routine venipuncture

Special Processing: Lab Staff: **Do Not** Centrifuge. Store specimen at refrigerated temps before shipping. Stable for 6 days at 2-8 degrees centrigrade. Forward specimen to reference lab on a cold pack. **Do Not** Freeze. Forward promptly.

Patient Preparation: None

Sample Rejection: Gross hemolysis; mislabeled or unlabeled specimens

Interpretive

Reference Range:

Reference ranges apply to all ages	
Normal	24.0 – 44.0 U/mL Individuals are predicted to be at low risk of bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine therapy; no dose adjustment is recommended.
Intermediate:	17.0 – 23.9 U/mL Individuals are predicted to be at intermediate risk of bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine therapy; a dose reduction and therapeutic drug management is recommended.
High:	>44.0 U/mL Individuals are not predicted to be at risk for bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine dosing, but may be at risk for therapeutic failure due to excessive inactivation
Low:	<17.0 U/mL Individuals are not predicted to be at high risk for bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine dosing. It is recommended to avoid use of thiopurine drugs.

Critical Values: N/A

Limitations: There is a partial overlap for the distribution of thiopurine methyltransferase activities observed between patients with normal and heterozygous genotypes; thus, results that fall within the low normal range can occur because of assay variability or biological variation.

Methodology:	Enzymatic End Point/Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)
References:	Mayo Medical Laboratories December 2015
Updates:	3/8/2012: Tube type changed from Green to Lavender. Temporary change due to test issue at Mayo. Mayo is forwarding testing to Prometheus until further notification. 12/26/2012: Test reinstated at MML. Updated reference ranges. 12/7/2015: Updated for temporary test referral to ARUP. Internal test as MML is unavailable.