Lab Dept:	Chemistry THIOPURINE METHYLTRANSFERASE (TPMT), RBC	
Test Name:		
General Information		
Lab Order Codes:	ТМТ	
Synonyms:	TPMT (Thiopurine Methyltransferase); Myelotoxicity	
CPT Codes:	82657 – Enzyme activity in blood cells, cultured cells, or tissue, not elsewhere specified; nonradioactive substrate, each specimen	
Test Includes:	Thiopurine Methyltransferase Activity in RBC's reported for 6- Methylmercaptopurine, 6-Methylmercaptopurine riboside and 6- Methylthioguanine riboside in nmol/ml/hr.	
Logistics		
Test Indications:	Detection of individuals with low thiopurine methyltransferase (TPMT) activity who are at risk for excessive myelosuppression or severe hematopoietic toxicity when taking thiopurine drugs.	
	Detection of individuals with hyperactive TPMT activity who have therapeutic resistance to thiopurine drugs and may develop hepatotoxicity treated with these drugs.	
Lab Testing Sections:	Chemistry - Sendouts	
Referred to:	Mayo Medical Laboratories (MML Test: TPMT3)	
Phone Numbers:	Minneapolis: 612-813-6280	
	Saint Paul: 651-220-6550	
Test Availability:	Daily, 24 hours	
Turnaround Time:	4 – 6 days	
Special Instructions:	TPMT inhibitors may contribute to falsely low results; patients should abstain from these drugs for at least 48 hours prior to TPMT testing.	

Specimen Type: Whole blood

Container:	Lavender (EDTA) top tube Alternate tube: Green (Li Heparin or Na Heparin) top 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. Do Not Freeze. Forward promptly.		
Patient Preparation:	TPMT inhibitors may contribute to falsely low results; patients should abstain from these drugs for at least 48 hours prior to TPMT testing.		
Sample Rejection:	Mislabeled or unlabeled specimens		
Interpretive			
Reference Range:	6-Methylmercaptopurine (normal)	3.00 – 6.66 nmol/mL/hr	
	6-Methylmercaptopurine riboside (normal)	5.04 – 9.57 nmol/mL/hr	
	6-Methylguanine riboside (normal)	2.70 – 5.84 nmol/mL/hr	
Critical Values:	N/A		
Limitations:	Thiopurine methyltransferase (TPMT) activity is measured in RBCs. If a patient has had a recent blood transfusion, his true enzyme activity may not be accurately reflected.		
	TPMT enzyme activity can be inhibited by several drugs such as: naproxen (Aleve), ibuprofen (Advil, Motrin), ketoprofen (Orudis), furosemide (Lasix), suflasalazine (Azulfidine), mesalamine (Aslacol), olsalazine (Dipentum), mefenamic acid (Ponstel), trimethhoprim (Proloprim), methotrexate, thiazide diuretics, and benzoic acid inhibitors. TPMT inhibitors may contribute to falsely low results; patients should abstain from these drugs for at least 48 hours prior to TPMT testing.		
	Patients with acute lymphoblastic leukemia (ALL) may have lower TPMT activities before treatment and higher activities following treatment.		
Methodology:	Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)		
References:	Mayo Medical Laboratories February 2017		

Updates:

2/21/17: Testing now performed at MML with updated test, note new reference ranges.