Lab Dept: Chemistry

Test Name: DHRP FLOW CYTOMETRIC PMA, BLOOD

General Information

Lab Order Codes:	DHRP
Synonyms:	Neutrophil Chemiluminescence Assay; Chemiluminescence; Neutrophil Oxidative Burst
CPT Codes:	82657 – Enzyme activity in blood cells, each 88184 – Flow cytometry, cell surface, cytoplasmic,or nuclear marker, technical component only; first marker
Test Includes:	Functional assay that measures the oxidation (and resultant fluorescence) of dihydrorhodamine 123 (DHR 123) due to oxygen radical generation during the oxidative burst. The DHR 123 is preloaded into the cells, PMA is added to stimulate the neutrophils, and the neutrophil fluorescence is quantitated as the blood is analyzed on a flow cytometer.

Logistics

Test Indications:	Diagnosis of chronic granulomatous disease (CGD), X-linked and autosomal recessive forms, complete myeloperoxidase (MPO) deficiency; monitoring chimerism and NADPH oxidase function posthematopoietic cell transplantation. Assessing residual NADPH oxidase activity pretransplant. Identification of carrier females for X-linked CDG; assessment of changes in lionization with age in carrier females.
Lab Testing Sections:	Chemistry - Sendouts
Referred to:	Mayo Medical Laboratories (MML Test: DHRP)
Phone Numbers:	MIN Lab: 612-813-6280 STP Lab: 651-220-6550
Test Availability:	Monday – Thursday ONLY
Turnaround Time:	3 -5 days
Special Instructions:	Specimen must arrive with 48 hours of collection. A control sample is required in addition to the patient sample. Obtain special tube from the laboratory (Green Sodium Heparin tube). Restricted draw time, Monday-Thursday, ONLY.

Specimen

Specimen Type:	Whole blood
Container:	Green top (Na Heparin) tube obtained from the lab
Draw Volume:	5 mL (Minimum: 1 mL) Na heparinized whole blood
Processed Volume:	Same as Draw Volume
Collection:	Routine venipuncture
Special Processing:	Lab Staff: **Do Not** centrifuge. Send specimen in original collection container. **Lab must also collect a 5 mL Na Heparin "control" sample from a normal, unrelated person at the same time.** Clearly label patient and normal control samples on specimen labels. Ship specimens at room temperature as priority delivery. Ordering physician name and phone number are required with the specimen.
Patient Preparation:	None
Sample Rejection:	Specimen is more that 48 hours old; hemolyzed; clotted; mislabeled or unlabeled specimens

Interpretive

Reference Range:	Interpretative report provided
Critical Values:	N/A
Limitations:	This test should not be used to identify carriers for autosomal recessive forms of CGD. Genetic testing should be used to identify carriers of autosomal recessive CGD. Genetic testing should also be performed for females who do not show typical carrier pattern for X-linked CGD, but have male offspring or relatives with a confirmed diagnosis (flow cytometry and genetic testing) of X-linked CGD. In males, this test is typically not indicated in patients >40 years of age. Before ordering this test, the clinician should investigate potential local causes of infection such as foreign bodies, skin maceration, repeated trauma, or congenital cysts, as well as assess the patient's environment for evidence of repeated infection. An investigation into allergic rhinitis and asthma is also recommended. If all the common causes are absent, the differential includes cystic fibrosis (even in adults), ciliary immobility syndrome, autoimmune disease such as Wegener granulomatosis, common variable immune deficiency (CVID), and finally CGD.

	Clinical consultation by specialists in immune deficiency is recommended.
Methodology:	Flow cytometry
References:	Mayo Medical Laboratories October 2014