
Lab Dept: Chemistry

Test Name: RBC ENZYME EVALUATION

General Information

Lab Order Codes: REE

Synonyms: RBC Enzyme Study; Red Cell Enzymes

CPT Codes: 82955 – G6PD
84087 – Glucose phosphate isomerase
84220 – Pyruvate kinase
82978 – Glutathione (if appropriate)
83915 – RBC Enzymes (if appropriate)

Test Includes: Erythrocyte Enzyme Interpretation; G-6-PD, Quantitative RBC; Pyruvate Kinase, RBC; Glucose Phosphate Isomerase; Hexokinase. This is a consultative evaluation in which the case will be evaluated at Mayo Medical Laboratories, the appropriate tests performed at an additional charge, and the results interpreted. **Possible reflexed tests include:** Glutathione and Reflexed RBC Enzymes.
Note: RBC Enzymes include: adenosine deaminase, adenylate kinase, phosphofructokinase, phosphoglycerate kinase, triosephosphate isomerase, and pyrimidine 5' nucleotidase.

Logistics

Test Indications: Useful for identifying defects of red cell enzyme metabolism and evaluating patients with hemolytic anemia.

All enzyme defects, including erythrocyte enzyme errors, are inherited; some are sex-linked and located on the X chromosome. Some family members have no hematologic abnormalities, while others have a hemolytic anemia. For a number of red blood cell enzyme defects (eg., deficiencies of hexokinase, glucose phosphate isomerase, pyruvate kinase), the sole clinical manifestation is hemolytic anemia. Glucose-6-phosphate dehydrogenase deficiency is the most common metabolic error of the red cell and presents with acute hemolytic anemia in response to oxidant stress (eg., drugs, acute infections, fava bean ingestion).

This is a consultative evaluation looking at red cell enzyme defects as the cause for early red cell destruction.

Lab Testing Sections: Chemistry - Sendouts

Referred to: Mayo Medical Laboratories (MML Test: EEEVP)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability:	Daily, 24 hours
Turnaround Time:	2 - 10 days, test set up Monday – Friday (not reported Saturday or Sunday)
Special Instructions:	Please see Container for collection tube information.

Specimen

Specimen Type:	Whole blood
Container:	Yellow top (ACD) tube Solution B tube
Draw Volume:	12 mL (Minimum: 5 mL) blood
Processed Volume:	Same as Draw Volume
Collection:	Routine venipuncture
Special Processing:	Lab Staff: Do Not centrifuge. Send whole blood refrigerated in original collection container. Do Not transfer blood to other containers. Store and ship at refrigerated temperatures. Forward promptly.
Patient Preparation:	None
Sample Rejection:	Frozen specimens; mislabeled specimens; specimens other than ACD whole blood; gross hemolysis

Interpretive

Reference Range:	Definitive results and an interpretive report will be provided. A hematopathologist expert in these disorders evaluates the case, appropriate tests are performed, and an interpretive report is issued.
Critical Values:	N/A
Limitations:	N/A
Methodology:	Kinetic Spectrophotometry
References:	Mayo Medical Laboratories February 2017
Updates:	8/25/2010: Updated units and reference ranges for Pyruvate Kinase and G6PD portions of testing. 6/7/2012: New reference range for Adenylate Kinase. 2/28/2017: Draw volume/CPT update.

