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**Lab Dept:** Chemistry

**Test Name:** RBC ENZYME EVALUATION REFLEX

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***General Information***

**Lab Order Codes:** REE

**Synonyms:** RBC Enzyme Study; Red Cell Enzymes

**CPT Codes:** 82955 – G6PD  
84087 – Glucose phosphate isomerase  
84220 – Pyruvate kinase  
82657 – Hexokinase  
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.

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***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)

<b>Phone Numbers:</b>	MIN Lab: 612-813-6280 STP Lab: 651-220-6550
<b>Test Availability:</b>	Daily, 24 hours
<b>Turnaround Time:</b>	2 - 13 days, test set up Monday – Friday (not reported Saturday or Sunday)
<b>Special Instructions:</b>	Please see <a href="#">Container</a> for collection tube information.

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### ***Specimen***

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

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### ***Interpretive***

<b>Reference Range:</b>	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.
<b>Critical Values:</b>	N/A
<b>Limitations:</b>	N/A
<b>Methodology:</b>	Kinetic Spectrophotometry
<b>References:</b>	<a href="#">Mayo Medical Laboratories</a> January 2018

**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.