Lab Dept: Chemistry
Test Name: PYRUVATE KINASE, RBC

General Information
Lab Order Codes: PYKI
Synonyms: Pyruvate Kinase, Erythrocytes
CPT Codes: 84220 – Pyruvate kinase
Test Includes: Pyruvate kinase RBC level reported in U/g Hb.

Logistics
Test Indications: Useful for the workup of cases of nonspherocytic hemolytic anemia, for a family workup to determine inheritance pattern (pyruvate kinase deficiency is autosomal recessive), and for genetic counseling.
Lab Testing Sections: Chemistry - Sendouts
Referred to: Mayo Medical Laboratories (MML Test: PK)
Phone Numbers: MIN Lab: 612-813-6280
STP Lab: 651-220-6550
Test Availability: Daily, 24 hours
Turnaround Time: 1 - 4 days, test set up Monday - Saturday
Special Instructions: N/A

Specimen
Specimen Type: Whole blood
Container: Lavender (EDTA) top tube
Alternate tube: Yellow top (ACD- Solution B) tube
Draw Volume: 6 mL (Minimum: 1 mL) blood
Processed Volume: Same as Draw Volume
Collection: Routine blood collection
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: Specimen cannot be frozen; mislabeled or unlabeled specimens; gross hemolysis

**Interpretive**

Reference Range: ≥12 months: 6.7 – 14.3 U/g Hb

Reference values have not been established for patients <12 months of age.

Interpretation: Most hemolytic anemias due to pyruvate kinase (PK) deficiency are associated with activity levels less than 40% of mean normal. However, some patients with clinically significant hemolysis can have normal or only mildly decreased PK enzyme activity, which paradoxically may occur in individuals with most severe symptoms. Carriers (heterozygotes) may show mildly decreased activity and are hematologically normal.

Elevated PK concentrations can be found in those patients with younger erythrocyte population. This may be due to the patient being a newborn or young red cells are being produced in response to the anemia (reticulocytosis).

Critical Values: N/A

Limitations: Because leukocytes also contain pyruvate kinase that is not diminished in hereditary erythrocytic pyruvate kinase deficiency, freeing the blood of white blood cells is always critical to this test.

Methodology: Kinetic Spectrophotometry (KS)

References: [Mayo Medical Laboratories](https://www.mayoclinic.org) January 2018