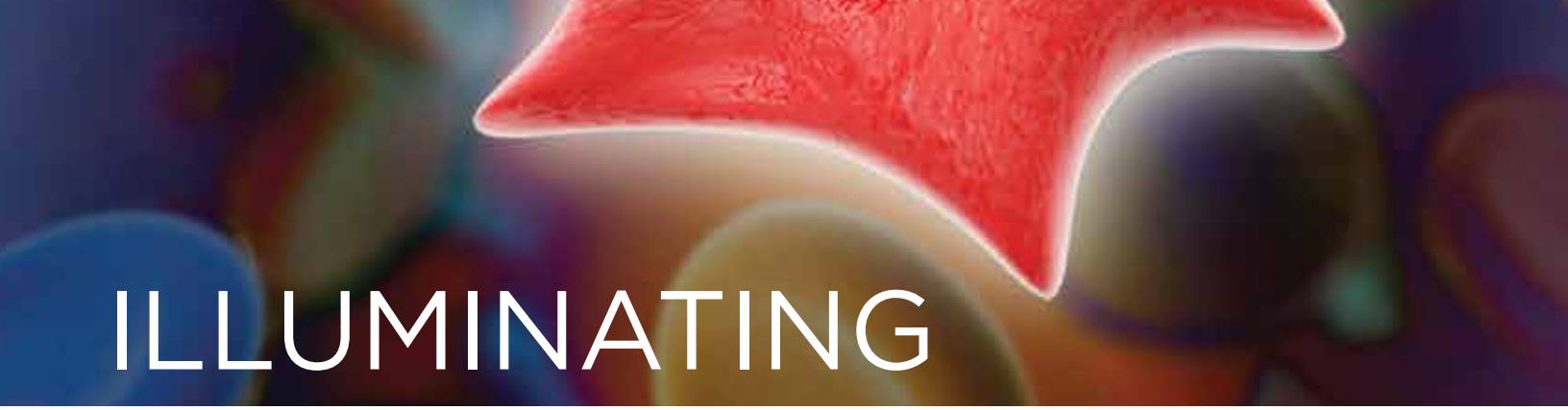


ILLUMINATING

AN UNDERLYING CAUSE OF HEMOLYTIC ANEMIA

Diagnosing PK Deficiency

PK deficiency is a lifelong, chronic disease characterized by hereditary hemolytic anemia, which results from a deficiency of the enzyme pyruvate kinase (PK).

Patient presentation is highly variable, ranging from mild to life-threatening, with severe debilitating co-morbidities.[1,2]

The disease may be underrecognized,[3] particularly in adults and patients on the milder end of the spectrum of disease severity.[2]

Clinical Presentation

- Anemia
- Dyspnea
- Exercise intolerance
- Abdominal pain
- Iron overload
- Fatigue/weakness
- Jaundice
- Splenomegaly
- Gallstones

Laboratory Findings

Typically Decreased: Hemoglobin/hematocrit, pyruvate kinase (PK) activity, haptoglobin

Typically Elevated: Reticulocytes, platelets, bilirubin, MCV, ferritin

Differential Diagnosis

- Paroxysmal nocturnal hemoglobinuria
- Glucose-6-phosphate dehydrogenase deficiency
- Hereditary spherocytosis
- Autoimmune hemolytic anemia
- Beta thalassemias
- Hereditary elliptocytosis

PK Deficiency

TEST FOR PK DEFICIENCY

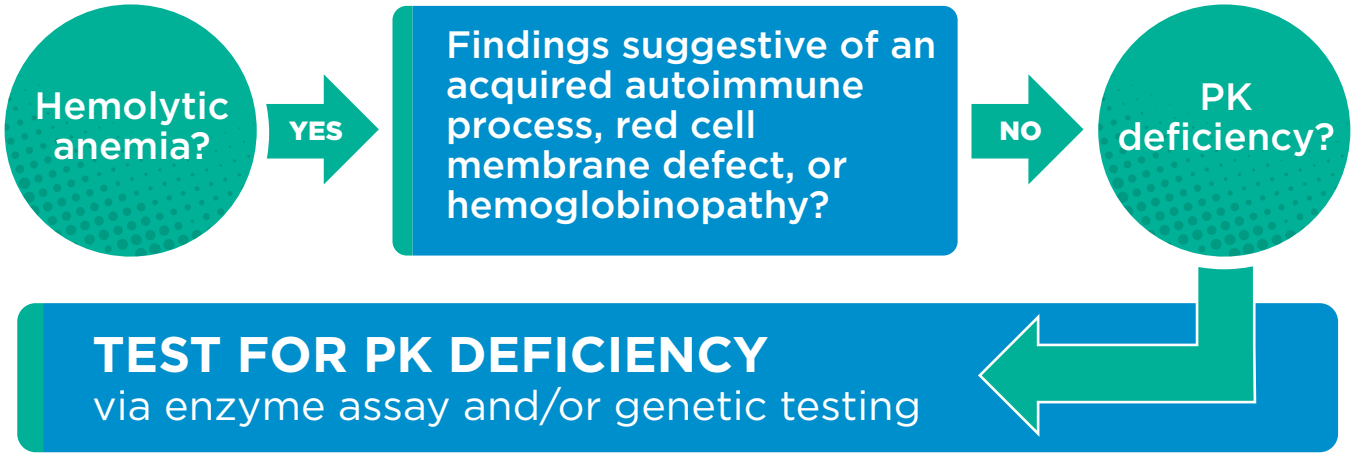
DIAGNOSTIC TESTS

1st ENZYME ASSAY FOR PYRUVATE KINASE ACTIVITY

Enzyme assay is the gold standard for diagnostic testing of PK deficiency.[3]

2nd MOLECULAR PK-LR ANALYSIS

Genetic testing may be conducted to confirm equivocal cases.[3]



Diagnostic Testing for PK Deficiency

Laboratory	Contact Email and Phone	Type of Test
ARUP Laboratories, General Laboratory (Salt Lake City, UT)	Cynthia Gin, BS, MT (ASCP) ginca@aruplab.com 800-242-2787	Enzyme assay
Mayo Clinic, Metabolic Hematology Laboratory (Rochester, MN)	Lea Koon, MS / Michelle Kluge, MS, CGC rstgchemepath@mayo.edu 800-533-1710	Enzyme assay
Cincinnati Children's Hospital Medical Center, Molecular Genetics Laboratory (Cincinnati, OH)	Haley Keller / Chinmayee Nagaraj / Elizabeth Ulm / Emily Wakefield haley.keller@cchmc.org 513-636-4474	Enzyme assay Genetic Testing (PKLR sequencing)
PreventionGenetics, Clinical DNA Testing and DNA Banking (Marshfield, WI)	Guoli Sun, MD, Ph, FACMG / Angela Gruber, PhD / Bruce Krawisz, MD clinicaltesting@preventiongenetics.com 715-387-0484	Enzyme assay
Quest Diagnostics	Client Services: 1-866-MYQUEST (697-8378)	Enzyme assay (Test Code: 38953)

Additional laboratories may also offer PK deficiency testing. For more information, visit www.genetests.org or www.orpha.net.

agios

www.agios.com

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2. Hirono A, Kanno H, Miwa S, Beutler E. Chapter 182: Pyruvate Kinase Deficiency and Other Enzymopathies of the Erythrocyte. Valle D, Beaudet AL, Vogelstein B, et al, eds. The Online Metabolic and Molecular Bases of Inherited Disease. New York, NY: McGraw Hill; 2014. http://ommbid.mhmedical.com/content. aspx?sectionid=62652268&bookid=971&Resultclick=2&q=PK+deficiency. Accessed November 5, 2015.

3. Grace RF, Zanella A, Neufeld EJ, Morton DH, Eber S, Yaish H, Glader B. Erythrocyte Pyruvate Kinase Deficiency: 2015 Status Report. Am J Hematol. 2015 Sep;90(9):825-30.