



Erythropoietin

Atellica IM Analyzer and ADVIA Centaur Systems

Erythropoietin (EPO) is a hormone that is essential for the production of red blood cells (RBCs), which carry oxygen from the lungs to the rest of the body. Erythropoietin (EPO) is used primarily to help diagnose the cause of anemia. Sometimes it is used to help diagnose the cause of too many red blood cells (polycythemia or erythrocytosis) or as part of an evaluation of a bone marrow disorder.¹

A failure to produce sufficient EPO accounts for the moderate to severe anemias observed in end-stage renal disease. Decreased EPO production is attributed to the destruction of renal production sites.^{2,3}

Examples of anemias in which EPO levels are elevated include iron deficiency anemia, reduction of blood flow to the kidney (as in blood loss), and hemoglobinopathies, which exhibit an increased affinity of hemoglobin for oxygen.⁴

Measurement of EPO is useful in distinguishing primary from secondary polycythemia. In polycythemia vera (PV), EPO levels are diminished and erythropoiesis is primary and autonomous, independent of stimulation by EPO.² Secondary polycythemia is characterized by elevated EPO levels, which leads to increased red blood cell mass.

This condition is dependent on EPO and may result from a variety of factors, including defective hemoglobin, smoking, pulmonary fibrosis, cardiac disease, and tumors.^{4,5}

The Siemens Healthineers EPO assay* offered on the ADVIA Centaur® XP/XPT Immunoassay systems and the Atellica® IM Analyzer uses state-of-the-art, patented acridinium-ester (NSP-DMAE) technology with low non-specific binding allowing for excellent sensitivity.

EPO Assay Benefits

- Achieve high accuracy with an EPO assay that has excellent sensitivity and precision compared to other commercially available EPO assays.
- Enhance clinical reporting with a wide extended measuring interval up to 7500 mIU/mL.
- Gain lab efficiency by consolidating anemia testing on one trusted system.

** Not available for sale in the U.S.*

Assay Characteristics

System	Sample Type	Sample Volume	LoB	LoD	LoQ	Assay Range	Calibration Interval	Onboard Stability	Time to First Result
Atellica IM	Serum, plasma (dipotassium EDTA, lithium heparin, sodium heparin)	100 µL	0.69 mIU/mL	0.98 mIU/mL	0.98 mIU/mL	0.98–750.00 mIU/mL	Lot: 28 days Pack: 14 days	28 days	19 min
ADVIA Centaur	Human serum, plasma (K2-EDTA, lithium heparin, sodium heparin)	100 µL	0.46 mIU/mL	0.75 mIU/mL	0.83 mIU/mL	0.83–750.00 mIU/mL	14 days	28 days	57 min

Method Comparison Data ^{6,7}

System	Specimen	Comparative Assay (x)	Regression Equation	Sample Interval	N	r
Atellica IM	Serum	ADVIA Centaur EPO	$Y = 0.94x + 0.58$ mIU/mL	3.92–682.96 mIU/mL	119	1.00
ADVIA Centaur	Serum	Beckman Access EPO	$Y = 0.99x + 0.36$ mIU/mL	4.17–535.82 mIU/mL	122	1.00

Standardization

The ADVIA Centaur and Atellica IM EPO assays are traceable to the World Health Organization (WHO) 2nd International Reference Preparation for Erythropoietin (Human, urinary derived); NIBSC code 67/343. Assigned values for calibrators are traceable to this standard. The ADVIA Centaur and Atellica IM EPO assays are also traceable to the 3rd World Health Organization (WHO) International Standard for Erythropoietin, recombinant, for bioassay; NIBSC code 11/170.

Ordering Information

System	SMN No.	Tests per Kit	Contents/Description
Atellica IM	10733006	100	1 ReadyPack® primary reagent pack containing Atellica IM EPO Lite Reagent and Solid Phase
			1 vial ADVIA Centaur EPO low calibrator 1 vial ADVIA Centaur EPO high calibrator
	10733008	1 x 7.0 mL control 1 1 x 7.0 mL control 2 1 x 7.0 mL control 3	Atellica IM EPO Quality Control Material
ADVIA Centaur XP/XPT	10995096	100	1 ReadyPack® primary reagent pack containing ADVIA Centaur EPO Lite Reagent and Solid Phase
			1 vial ADVIA Centaur EPO low calibrator 1 vial ADVIA Centaur EPO high calibrator
	10995099	1 x 7.0 mL control 1 1 x 7.0 mL control 2 1 x 7.0 mL control 3	ADVIA Centaur EPO Quality Control Material

References:

1. Labtestsonline.org
2. Eschbach JW, Adamson JW. Recombinant human erythropoietin: implications for nephrology. *Am J Kidney Dis.* 1988;11:203-9.
3. Jelkmann W. Erythropoietin: structure, control of production, and function. *Physiol Rev.* 1992 Apr;72(2):449-89.
4. Eckardt KU, Bauer C. Erythropoietin in health and disease. *Europ J Clin Invest.* 1989 Apr;19(2):117-27.
5. Bunn HF. Erythropoietin. *Cold Spring Harb Perspect Med.* 2013 Mar 1;3(3):a011619.
6. ADVIA Centaur XP/XPT EPO Instruction for use: RPBL1252/R1_EN Rev. A, 2017-11
7. Atellica IM EPO Instruction for use: RPBL1337R02_EN Rev.02, 2018-09

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