

# Anemia Panel CLIA Microparticles

*Cat. No.: Folate--CMS0202*

*Vitamin B12--CMS0302*

*Ferritin--CMB0902*



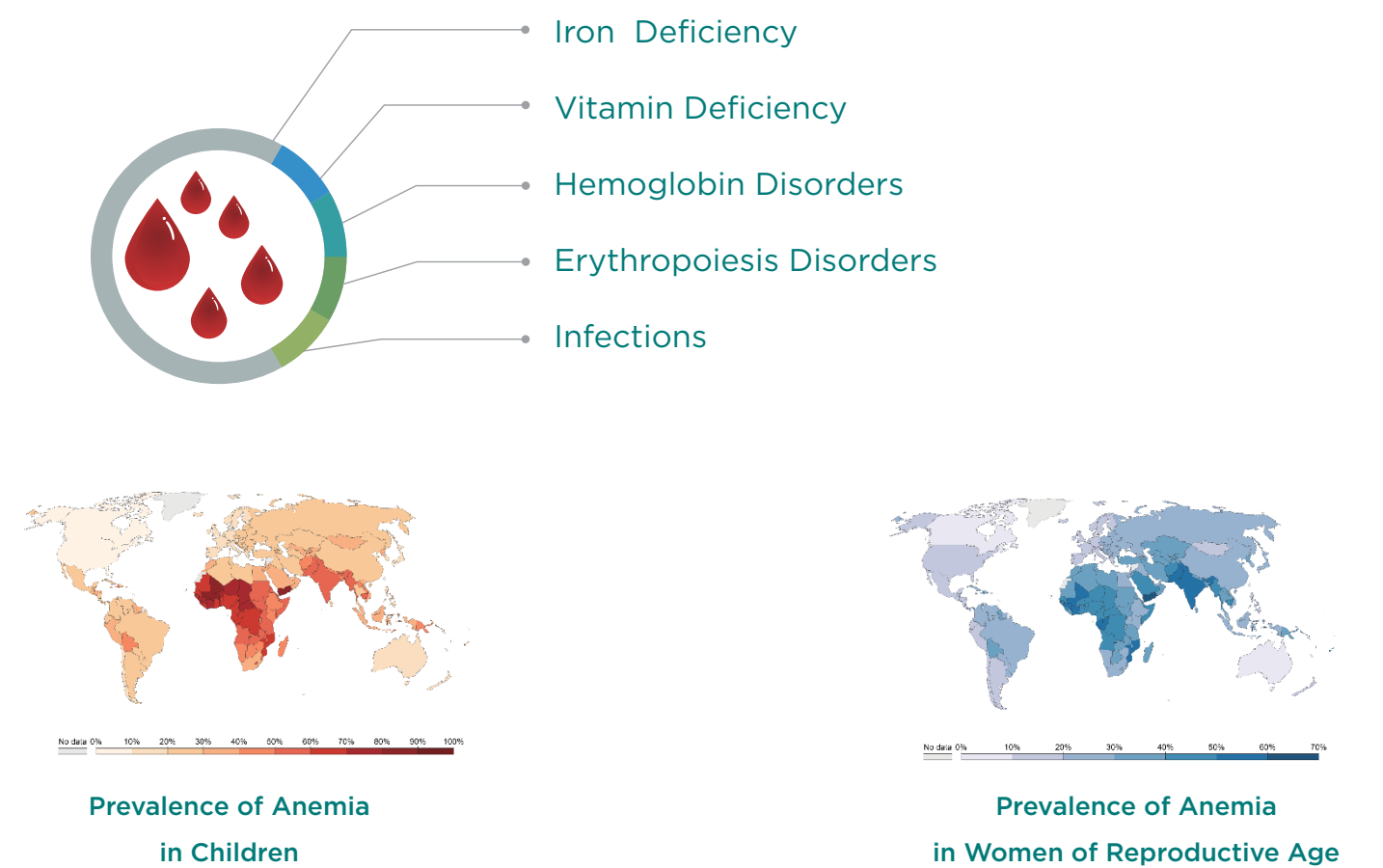
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Anemia is a common worldwide disease. A WHO report, published in 2015, on the global prevalence of anemias indicates that 1.5 billion people are suffering from anemia. Above 50% of the anemia cases are due to iron deficiency, followed by anemia due to vitamin deficiencies, acute and chronic infections, congenital or acquired disorders of hemoglobin synthesis or erythropoiesis [1].



Category	Mean Corpuscular Volume (MCV)	Items
Microcytic Anemias	< 81 fL	Ferritin/Serum Iron/TIBC
Normocytic Anemias	81-100 fL	Bone Marrow Biopsy/ Hemolysis Test
Macrocytic Anemias	> 100 fL	Folate/Vitamin B12


Red blood cells (RBCs) indices, such as hemoglobin, hematocrit, or RBC count, are useful in classifying anemias caused by a production deficit. Mean corpuscular volume (MCV) is a measure of RBC size. Decreases in MCV define microcytosis anemia and increases reflect macrocytosis anemia [2].

The diagnosis of anemia is based on laboratory findings, and the evaluation for anemia should be based on a systematic approach. Iron deficiency is the most common cause of microcytic anemia, and if it is necessary, serum iron, total iron-binding capacity (TIBC), and ferritin levels are tested. Suspicion of macrocytic anemia should prompt the ordering of folate and vitamin B12 levels. The differential diagnosis of anemia facilitates the patients' management and treatment in clinic.


[1] Jansen V. Transfusion and Apheresis Science, 2019, 58(4): 375-385.  
[2] Johnson R L, Rubenstein S D. Emergency medicine practice, 2013, 15(11): 1-5.

Fe

Ferritin is a ubiquitous intracellular protein that stores iron and releases it in a controlled fashion. In humans, it acts as a buffer against iron deficiency and iron overload. It is found in most tissues as a cytosolic protein, but small amounts are secreted into the serum where it functions as an iron carrier. Serum ferritin plays an essential role in the diagnosis of iron deficiency anemia.



Folate, which is known as folic acid, folacin and vitamin B9, is one of the vitamin B. Folate in the form of folic acid is used to treat anemia caused by folic acid deficiency. Folate is necessary for the production and maintenance of new cells, for DNA synthesis and RNA synthesis through methylation. Folic acid is also used as a supplement by women during pregnancy to prevent neural tube defects (NTD) in the baby.

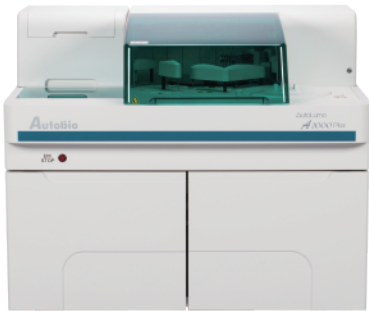


Vitamin B12, also called cobalamin, is a water-soluble vitamin that is involved in the metabolism of every cell of the human body. Vitamin B12 or cobalamin plays essential roles in folate metabolism and in the synthesis of the citric acid cycle intermediate, succinyl-CoA. Impairment of vitamin B12 absorption can cause megaloblastic anemia and neurologic disorders in deficient subjects.

Assay Characteristics

	Ferritin	Folate	Vitamin B12
Cat. No.	CMB0902	CMS0202	CMS0302
Package	100 T/kit	100 T/kit	100 T/kit
Test Principle	One-step Sandwich Method	One-step Competitive Method	One-step Competitive Method
Specimens	Serum	Serum	Serum
Sample Volume	15 µL	40 µL	50 µL
Limit of Detection	1.0 ng/mL	1.0 ng/mL	50 pg/mL
Onboard Stability	28 days	14 days	28 days

AutoLumo A2000 Plus



AutoLumo A1000

