

# BIOHIT ACTIVE B12 (HOLOTRANSCOBALAMIN)

ELISA test

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## Product specifications

- Measures the concentration of active vitamin B12 (holotranscobalamin) available to the cells
- Proven ELISA technology, support for both automated and manual analysis methods
- Unlike total B12 kits, no issues with Intrinsic Factor Blocking Antibody (IFBA) interferences
- Numerous clinical studies proving the performance of Active B12 over total B12

## Ordering details:

Cat. No.	Item
602290	Biohit Active B12 (holotranscobalamin), 96 tests



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## BIOHIT ACTIVE B12 (HOLOTRANSCOBALAMIN)

ELISA test

Only the active vitamin B12 is  
dependable

Vitamin B12 has the most complex molecular structure of all vitamins and it is also essential for the normal function of the human neurological system. The only natural source of vitamin B12 is food products of animal origin. A person on an average diet should receive a sufficient amount of vitamin B12 from their food, but vitamin B12 deficiency is not uncommon especially among the elderly because of poor diet. Another common reason for vitamin B12 deficiency is an anacidic stomach, caused either by 1) atrophic gastritis (AG - see GastroPanel) or 2) long-term use of anti-acid medication (PPI or H2-blocker).



### Accurate test for measuring the levels of active vitamin B12

The traditional method of diagnosing vitamin B12 deficiency has been to measure the concentration of total vitamin B12 in the serum. The total vitamin B12 concentration essentially reflects vitamin B12 which is bound to its two carrier proteins forming, holo-haptocorrin (holoHC) and holotranscobalamin (holoTC). Whilst holoHC accounts for 70 % - 80 % of the vitamin B12 in serum<sup>2</sup>, only holoTC (active vitamin B12) can be used by human cells. Measurement of total vitamin B12 can hence give erroneous results because it measures the vitamin B12 which is in circulation but does not indicate the active vitamin B12 that is available to the cells of the body.

**Biohit Active B12** test provides a solution to this diagnostic paradox: this test directly measures (holoTC) – the biochemically active form of vitamin B12 – from the human serum. This test is well suited for the screening of patients with a suspected vitamin B12 deficiency. Biohit Active B12 test can also be used for confirming the vitamin B12 status in the large number of patients who get an inconclusive result from total vitamin B12 tests.



### Expected values

135 serum samples from asymptomatic apparently healthy donors with an age range of 18-75 years, comprising approximately equal numbers of males [n = 65] and females [n = 70], were tested using the Biohit Active B12 (Holotranscobalamin) ELISA.

The overall mean active-B12 (Holotranscobalamin) concentration for this population was 72 pmol/L (range 15 to 147 pmol/L). On the basis of this reference population data, the reference range (central 95% of the results) is:

Reference Range	21 – 123 pmol/L
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### Literature

1. Nexø E, Hvas A-M, Bleie Ø et al. Holo-transcobalamin is an early marker of changes in cobalamin homeostasis. A randomized placebo-controlled study. *Clin Chem* 2002;48(10):1768-71.
2. Valente E, Scott JM, Ueland PM et al. Diagnostic accuracy of holotranscobalamin, methylmalonic acid, serum cobalamin, and other indicators of tissue vitamin B12 status in the elderly. *Clin Chem* 2011;57(6):856-863.
3. Nexø E, Hoffmann-Lucke E. Holotranscobalamin, a marker of vitamin B12 status: analytical aspects and clinical utility. *Am J Clin Nutr* 2011;94(1):359S-365S.
4. Obeid R, Jouma M, Hermann W. Cobalamin status (holotranscobalamin, methylmalonic acid) and folate as determinants of homocysteine concentration. *Clin Chem* 2002;48(11):2064-5.
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7. Chen X, Remacha AF, Sarda MP et al. Influence of cobalamin deficiency compared with that of cobalamin absorption on serum holo-transcobalamin II. *Am J Clin Nutr* 2005;81:110-14.