

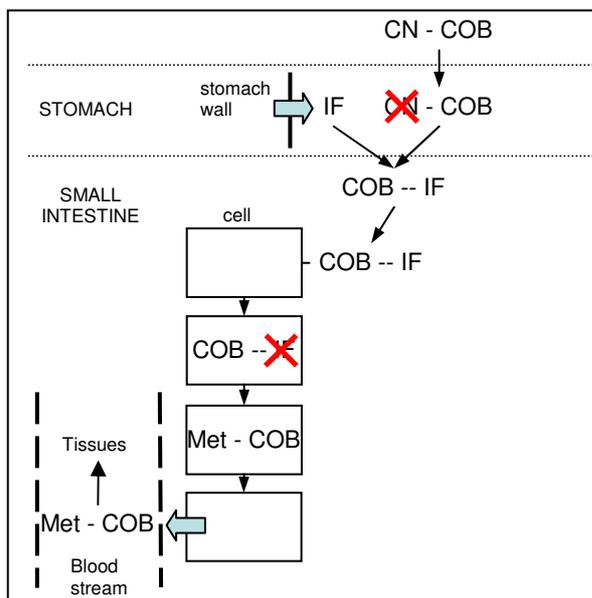
The active form of B₁₂

MecobalActive is Ferrer HealthTech's brand for methylcobalamin, the active form of vitamin B₁₂, and approved in food supplements [1]. Ferrer HealthTech produces MecobalActive in its Barcelona (Spain) facility with a proprietary process protected by Patent WO 2006/10059.

Cobalamins – Vitamin B₁₂

The European Food Safety Authority (EFSA), defines vitamin B₁₂ as a specific group of cobalt-containing corrinoids with biological activity in humans, also known as cobalamins. In practice, the term "vitamin B₁₂" is often misleadingly used to design the compound cyanocobalamin. However, cyanocobalamin does not occur in nature. It is a synthetic form used in supplements, pharmaceuticals and in the fortification of food. In nature, cobalamins only occur in animal and human tissue, and under the form of methylcobalamin [2].

Humans are incapable of synthesising cobalamins and thus are entirely dependent



upon dietary sources. In case of supplementation with cyanocobalamin, the human body must first remove and detoxify the cyanide molecule. The cobalamin is then bound to intrinsic factor, secreted mainly from gastric parietal cells. This complex binds to cell wall receptors in the small intestine, where it enters the cell. In the cell, the intrinsic factor is degraded and the cobalamin converted into methylcobalamin. The methylcobalamin is then transported through the bloodstream to the different tissue to execute the vital functions of vitamin B₁₂ [2], [3]. Thus, cobalamins are present in nature, i.e. in mammalian tissues, under

the form of methylcobalamin, which is the metabolically active form.

With age, the absorption of cobalamins decreases dramatically. Furthermore, also vegetarians suffer from deficiency, since the only dietary intake of cobalamin is through foodstuffs of animal origin. And because MecobalActive is the metabolically active form, it is the ideal form of vitamin B₁₂ to treat and prevent its deficiency.

Since cobalamin is an essential nutrient, deficiency triggers a cascade of health threatening events. These usually comprise anaemia, numbness of the extremities, fatigue, decreased immune system and increased cardiovascular risk and dementia.

EFSA health claim approval

EFSA has recognised the importance of maintaining appropriate cobalamin levels by awarding four health claims with a positive opinion:

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- **Cobalamin contributes to normal red blood cell formation**

The first consequence of cobalamin deficiency is anaemia [4], where plasma methylcobalamin is 60% lower than in healthy controls. In a clinical trial, anaemia patients were treated with MecobalActive [6]. Correction from haematological and neurological parameters was prompt, normality was reached after one month and maintained with 7 day treatments every 2 months.

- **Cobalamin contributes to a normal function of the immune system**

A clinical study in cobalamin deficient patients with MecobalActive [7] has demonstrated that MecobalActive acts as an immunomodulator of cellular immunity.

- **Cobalamin contributes to normal cell division**

Cell division should be seen here in the context of the Central Nervous system. This health claim is based on several clinical studies that have demonstrated that cobalamin supplementation improves cognitive and cerebral function in older, cobalamin deficient persons [8].

- **Cobalamin contributes to normal energy metabolism**

Recommended dosage

EFSA has based its work on the conclusions of the Expert Group on Vitamins and Minerals of the UK Health Authorities [2]. Their first conclusion is that due to the absence of adverse effects, there is insufficient data to set a Safe Upper Dosage Level. And secondly, they recommend a supplemental intake of 2 mg/day of cobalamin as recommended dosage.

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