



## B12 the Antidote

### Hydroxocobalamin toxin scavenger

Preclinical evaluation of injectable reduced hydroxocobalamin as an antidote to acute carbon monoxide poisoning.  
[www.ncbi.nlm.nih.gov/pubmed/26406423](http://www.ncbi.nlm.nih.gov/pubmed/26406423)

Vitamin B12: the forgotten micronutrient for critical care.  
[www.ncbi.nlm.nih.gov/pubmed/20717016](http://www.ncbi.nlm.nih.gov/pubmed/20717016)

Biochemical impedance on intracellular functions of vitamin B12 in chronic toxigenic mold exposures.  
[www.ncbi.nlm.nih.gov/m/pubmed/17982599/?i=6&from=/15606130/related](http://www.ncbi.nlm.nih.gov/m/pubmed/17982599/?i=6&from=/15606130/related)

A scarlet pimpernel for the resolution of inflammation? The role of supra-therapeutic doses of cobalamin, in the treatment of systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis, and septic or traumatic shock.  
[www.ncbi.nlm.nih.gov/pubmed/16545917](http://www.ncbi.nlm.nih.gov/pubmed/16545917)

Antidotal treatment of cyanide poisoning.  
[www.ncbi.nlm.nih.gov/pubmed/12854870](http://www.ncbi.nlm.nih.gov/pubmed/12854870)

Mechanistic studies on the reaction between cob(II)alamin and peroxyntirite: evidence for a dual role for cob(II)alamin as a scavenger of peroxyntirous acid and nitrogen dioxide.  
[www.ncbi.nlm.nih.gov/pubmed/21922568](http://www.ncbi.nlm.nih.gov/pubmed/21922568)

High dose hydroxocobalamin administered after H<sub>2</sub>S exposure counteracts sulfide poisoning induced cardiac depression in sheep.  
[www.ncbi.nlm.nih.gov/pmc/articles/PMC4332828/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4332828/)

Hydroxocobalamin treatment of acute cyanide poisoning from apricot kernels.  
[www.ncbi.nlm.nih.gov/pubmed/21856998](http://www.ncbi.nlm.nih.gov/pubmed/21856998)

Hydroxocobalamin for poisoning caused by ingestion of potassium cyanide: a case study  
[www.ncbi.nlm.nih.gov/pubmed/18554843](http://www.ncbi.nlm.nih.gov/pubmed/18554843)

Inhibition of nitric oxide synthase by cobalamins and cobinamides.  
[www.ncbi.nlm.nih.gov/pubmed/19328848](http://www.ncbi.nlm.nih.gov/pubmed/19328848)

Mold Toxin Reduction of Vitamin B12 and Neurological Function  
[www.anapsid.org/cnd/diffdx/mold2.html](http://www.anapsid.org/cnd/diffdx/mold2.html)

A fatal case of acute hydrogen sulfide poisoning caused by hydrogen sulfide: hydroxocobalamin therapy for acute hydrogen sulfide poisoning.  
[www.ncbi.nlm.nih.gov/pubmed/21396232](http://www.ncbi.nlm.nih.gov/pubmed/21396232)

Carbon monoxide exposure can deplete essential antioxidants and nutrients  
[www.chemicalinjury.net/HS/Carbon%20MonoxideCompleteDocAndFootnotes060411.pdf](http://www.chemicalinjury.net/HS/Carbon%20MonoxideCompleteDocAndFootnotes060411.pdf)

## B12 the Antidote - continued

### Methylation - Glutathione

Remethylation defects: guidelines for clinical diagnosis and treatment.

[www.ncbi.nlm.nih.gov/pubmed/9587031](http://www.ncbi.nlm.nih.gov/pubmed/9587031)

Glutathione revisited: a better scavenger than previously thought.

[www.ncbi.nlm.nih.gov/pmc/articles/PMC4245892/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4245892/)

Glutathione depletion is accompanied by increased neuronal nitric oxide synthase activity.

<http://link.springer.com/article/10.1007%2FBF02527669>

Malondialdehyde, glutathione, glutathione peroxidase and homocysteine levels in type 2 diabetic patients with and without microalbuminuria.

[www.ncbi.nlm.nih.gov/pubmed/15829117/](http://www.ncbi.nlm.nih.gov/pubmed/15829117/)

Low glutathione peroxidase activity levels in patients with vitiligo.

[www.ncbi.nlm.nih.gov/pubmed/25775636](http://www.ncbi.nlm.nih.gov/pubmed/25775636)

Evidence for accelerated rates of glutathione utilization and glutathione depletion in adolescents with poorly controlled type 1 diabetes.

[www.ncbi.nlm.nih.gov/pubmed/15616028](http://www.ncbi.nlm.nih.gov/pubmed/15616028)

The effect of oxidative stress on human red cells glutathione peroxidase, glutathione reductase level, and prevalence of anemia among diabetics.

[www.ncbi.nlm.nih.gov/pubmed/22540111/](http://www.ncbi.nlm.nih.gov/pubmed/22540111/)

### Nitric Oxide and peroxynitrite

Elevated Nitric Oxide/Peroxynitrite Theory of Multiple Chemical Sensitivity: Central Role of N-Methyl-D-Aspartate Receptors in the Sensitivity Mechanism.

[www.ncbi.nlm.nih.gov/pmc/articles/PMC1241647/pdf/ehp0111-001461.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241647/pdf/ehp0111-001461.pdf)

Biphasic modulation of NOS expression, protein and nitrite products by hydroxocobalamin underlies its protective effect in endotoxemic shock: downstream regulation of COX-2, IL1 $\beta$ , TNF- $\alpha$ , IL-6, and HMGB1 expression.

[www.ncbi.nlm.nih.gov/pubmed/23781123](http://www.ncbi.nlm.nih.gov/pubmed/23781123)

Decreased Brain Levels of Vitamin B12 in Aging, Autism and Schizophrenia.

[www.ncbi.nlm.nih.gov/pubmed/26799654](http://www.ncbi.nlm.nih.gov/pubmed/26799654)

Age-dependent decrease and alternative splicing of methionine synthase mRNA in human cerebral cortex and an accelerated decrease in autism.

[www.ncbi.nlm.nih.gov/pubmed/23437274](http://www.ncbi.nlm.nih.gov/pubmed/23437274)

Antioxidants as potential therapeutics for neuropsychiatric disorders.

[www.ncbi.nlm.nih.gov/pubmed/23123357](http://www.ncbi.nlm.nih.gov/pubmed/23123357)

## B12 the Antidote - continued

### Nitric Oxide and peroxynitrite - continued

Increased nitric oxide radicals in postmortem brain from patients with schizophrenia.

[www.ncbi.nlm.nih.gov/pubmed/15954198](http://www.ncbi.nlm.nih.gov/pubmed/15954198)

Metabolic biomarkers of increased oxidative stress and impaired methylation capacity in children with autism<sup>1,2</sup>

<http://ajcn.nutrition.org/content/80/6/1611.short>

Nitric oxide pathways in Alzheimer's disease and other neurodegenerative dementias.

[www.ncbi.nlm.nih.gov/pubmed/15265275](http://www.ncbi.nlm.nih.gov/pubmed/15265275)

The potential role of nitric oxide in multiple sclerosis.

[www.ncbi.nlm.nih.gov/pubmed/9762676](http://www.ncbi.nlm.nih.gov/pubmed/9762676)

Nitric oxide and reactive oxygen species in Parkinson's disease.

[www.ncbi.nlm.nih.gov/pubmed/12938735](http://www.ncbi.nlm.nih.gov/pubmed/12938735)

The NO/ONOO- cycle as the etiological mechanism of tinnitus.

[www.ncbi.nlm.nih.gov/pubmed/18229788](http://www.ncbi.nlm.nih.gov/pubmed/18229788)

Neurodegenerative disorders: the role of peroxynitrite.

[www.ncbi.nlm.nih.gov/pubmed/10525172](http://www.ncbi.nlm.nih.gov/pubmed/10525172)

Increased oxidative stress and altered levels of nitric oxide and peroxynitrite in Tunisian patients with chronic obstructive pulmonary disease: correlation with disease severity and airflow obstruction.

[www.ncbi.nlm.nih.gov/pubmed/25074430](http://www.ncbi.nlm.nih.gov/pubmed/25074430)

Increased peroxynitrite activity in AIDS dementia complex: implications for the neuropathogenesis of HIV-1 infection.

[www.ncbi.nlm.nih.gov/pubmed/10201964](http://www.ncbi.nlm.nih.gov/pubmed/10201964)

Nitric Oxide and Thyroid Health

[www.naturalendocrinesolutions.com/articles/nitric-oxide-thyroid-health/](http://www.naturalendocrinesolutions.com/articles/nitric-oxide-thyroid-health/)

Hydroxocobalamin, A Nitric Oxide Scavenger, in the Prophylaxis of Migraine: an Open, Pilot Study

[www.researchgate.net/publication/11158928\\_Hydroxocobalamin\\_A\\_Nitric\\_Oxide\\_Scavenger\\_in\\_the\\_Prophylaxis\\_of\\_Migraine\\_an\\_Open\\_Pilot\\_Study](http://www.researchgate.net/publication/11158928_Hydroxocobalamin_A_Nitric_Oxide_Scavenger_in_the_Prophylaxis_of_Migraine_an_Open_Pilot_Study)

Nitric oxide production in meningococcal disease is directly related to disease severity.

[www.ncbi.nlm.nih.gov/pubmed/10397227](http://www.ncbi.nlm.nih.gov/pubmed/10397227)

NMDA sensitization and stimulation by peroxynitrite, nitric oxide, and organic solvents as the mechanism of chemical sensitivity in multiple chemical sensitivity

[www.fasebj.org/content/16/11/1407](http://www.fasebj.org/content/16/11/1407)

Common etiology of posttraumatic stress disorder, fibromyalgia, chronic fatigue syndrome and multiple chemical sensitivity via elevated nitric oxide/peroxynitrite.

[www.sciencedirect.com/science/article/pii/S0306987701913258](http://www.sciencedirect.com/science/article/pii/S0306987701913258)