

TOMORROW IS HERE TODAY

Is Anti-Aging Merely A Dream?



NOT Anymore!

N M N
 β -Nicotinamide Mononucleotide

GRAS	GENERALLY RECOGNIZED AS SAFE
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NUTRALAND USA, INC.

**POTENT
NAD⁺
BOOSTER**

**SELF
AFFIRMED
GRAS**

**PURE
&
SAFE**

www.nutralandusa.com
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SELF-AFFIRMED NMN FROM NUTRALAND

Crazy Little Thing Called Mitochondria



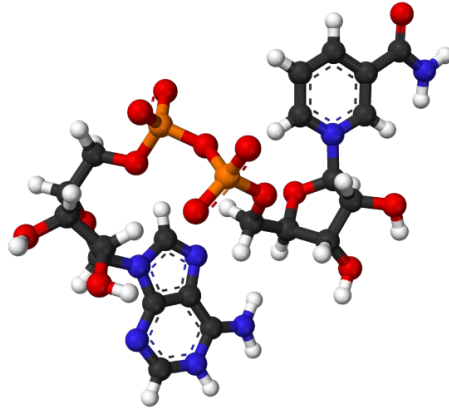
Mitochondria are unusual organelles. They act as the power plants of the cell, are surrounded by two membranes, and have their own genome. (<https://www.nature.com/scitable/topicpage/mitochondria-14053590>)

Mitochondria generate most of the cell's supply of adenosine triphosphate (ATP), used as a source of chemical energy. A decline in mitochondrial quality and activity has been associated with normal aging and correlated with the development of a wide range of age-related diseases. ([Mol Cell. 2016 Mar 3; 61\(5\): 654–666](#))

Over the last decade, accumulating evidence has suggested a causative link between mitochondrial dysfunction and major phenotypes associated with aging. ([J Clin Invest. 2013 Mar 1; 123\(3\): 951–957](#))

Mitochondrial dysfunction is a central event in many pathologies and contributes as well to age-related processes. ([Genes \(Basel\). 2018 Jan 9;9\(1\). pii: E22. doi: 10.3390/genes9010022](#))

What Is NAD⁺?



NAD (Nicotinamide Adenine Dinucleotide) is a cofactor found in all living cells.

NAD⁺ (Nicotinamide Adenine Dinucleotide) is a central metabolic coenzyme/cosubstrate involved in cellular energy metabolism and energy production. NAD⁺ plays a key role in mitochondrial function via participation in pyruvate dehydrogenase, tricarboxylic acid cycle, and oxidative phosphorylation chemistries. ([Methods Mol Biol. 2015;1241:39-48](#))

The biosynthesis, transport, and catabolism of NAD and its key intermediates play an important role in the regulation of NAD-consuming mediators, such as sirtuins, poly-ADP-ribose polymerases, and CD38/157 ectoenzymes, in intra- and extracellular compartments. ([Trends Endocrinol Metab. 2012 Sep; 23\(9\): 420–428](#))

Mitochondrial NAD⁺ levels dictate cell survival, and leakage of NAD⁺ from mitochondria is a cause of aging and memory loss. (<https://genetics.med.harvard.edu/sinclair/research.php>)

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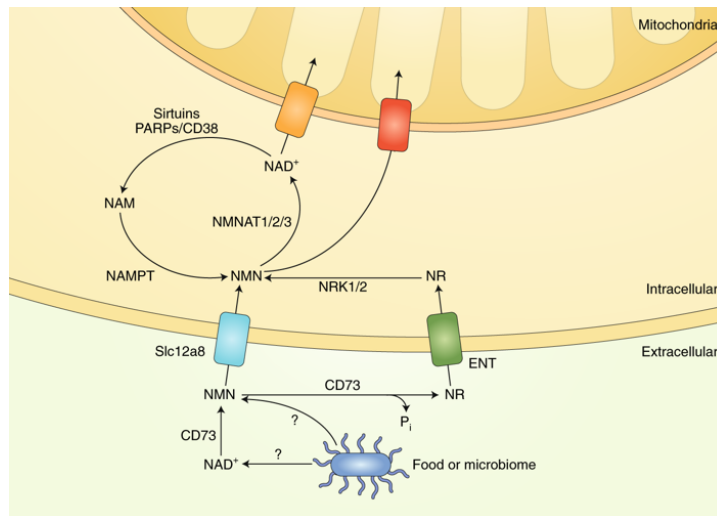
NMN: POTENT NAD⁺ BOOSTER

NMN

Nicotinamide Mononucleotide
Potent NAD⁺ Booster

Breaking News

The elusive NMN transporter is found!



<https://www.nature.com/articles/s42255-018-0009-4>

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Solid Science Behind NMN

- **Long-Term Administration of Nicotinamide Mononucleotide Mitigates Age-Associated Physiological Decline in Mice.** (<https://www.ncbi.nlm.nih.gov/pubmed/28068222>)
- **Nicotinamide mononucleotide supplementation reverses vascular dysfunction and oxidative stress with aging in mice.** (<https://www.ncbi.nlm.nih.gov/pubmed/26970090>)
- **Effect of nicotinamide mononucleotide on brain mitochondrial respiratory deficits in an Alzheimer's disease-relevant murine model.** (<https://www.ncbi.nlm.nih.gov/pubmed/25884176>)
- **Short-term administration of Nicotinamide Mononucleotide preserves cardiac mitochondrial homeostasis and prevents heart failure.** (<https://www.ncbi.nlm.nih.gov/pubmed/28882480>)
- **β -Nicotinamide Mononucleotide, an Anti-Aging Candidate Compound, Is Retained in the Body for Longer than Nicotinamide in Rats.** (<https://www.ncbi.nlm.nih.gov/pubmed/27725413>)
- **Cardioprotection by nicotinamide mononucleotide (NMN): Involvement of glycolysis and acidic pH.** (<https://www.ncbi.nlm.nih.gov/pubmed/29958828>)
- **Nicotinamide mononucleotide inhibits JNK activation to reverse Alzheimer disease.** (<https://www.ncbi.nlm.nih.gov/pubmed/29958828>)
- **Nicotinamide Mononucleotide, an NAD⁺ Precursor, Rescues Age-Associated Susceptibility to AKI in a Sirtuin 1-Dependent Manner.** (<https://www.ncbi.nlm.nih.gov/pubmed/28246130>)
- **Aging and homeostasis. Age-associated diseases and clinical application of NMN (Nicotinamide Mononucleotide).** (<https://www.ncbi.nlm.nih.gov/pubmed/28649105>)

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Not All NMN Are Created Equal

NMN available in the market place can be of dramatically different purity & quality.

Low purity NMN with unknown impurities may pose health risks to consumers!

NMN from Nutraland is with validated purity and proven safety and has obtained self-affirmed GRAS (Generally Recognized As Safe) status following a detailed scientific review by an independent expert panel.

The above mentioned GRAS affirmation will allow the inclusion of NMN from Nutraland in a wide range of food, beverage and supplement products.



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Please feel free to reach out to us with any question or inquiry on our NMN with Self-Affirmed GRAS status.



NUTRALAND USA, INC.

212 Technology Drive, Ste X, Irvine, CA 92618 USA

www.nutralandusa.com

sales@nutralandusa.com

949-988-7615



*** THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE, OR PREVENT ANY DISEASE.**

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