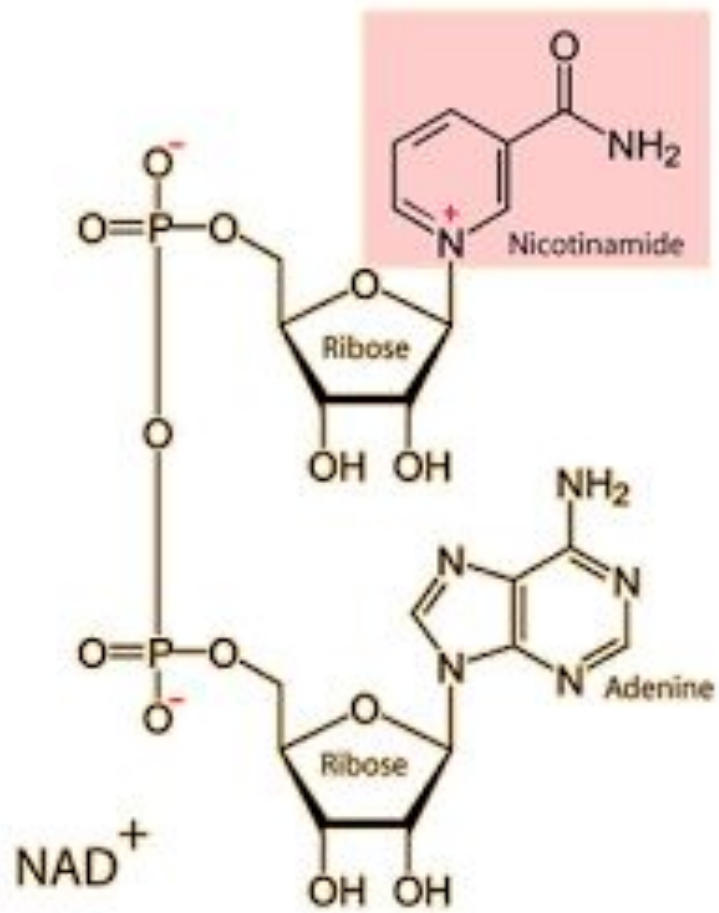


The Fuel of Youth?

Exploring the Role of NAD in Aging



What is NAD?

- **NAD (nicotinamide adenine dinucleotide) is a coenzyme present in all living cells.**
- **It plays a vital role in cellular energy production by transferring electrons in metabolic pathways.**
- **NAD exists in two main forms:**
 - NAD⁺ (oxidized) and NADH (reduced).**
- **NAD⁺ is the form required by enzymes for energy production, while NADH donates electrons to the electron transport chain.**

NAD Levels and Aging

- **Research shows that NAD⁺ levels naturally decline with age in various tissues.**
- **This decline is believed to contribute to age-related cellular dysfunction.**
- **Lower NAD⁺ levels may impair the activity of sirtuins (enzymes known for their role in cellular repair and stress resistance).**
- **Additionally, reduced NAD⁺ may hinder DNA repair mechanisms (via PARPs) and increase oxidative stress, both of which contribute to cellular aging.**

NAD and Potential Anti-Aging Effects

- **Increasing NAD+ levels is a potential target for promoting healthy aging.**
- **Studies in animal models suggest that boosting NAD levels may:**
 - **Enhance cellular repair mechanisms.**
 - **Improve mitochondrial function (energy production)**
 - **Increase lifespan**
 - **Offer protection against age-related diseases**

Strategies to Increase NAD+ Levels

Several strategies may help increase NAD+ levels:

- **Dietary sources:** Certain foods, such as yeast, green vegetables, and milk, contain precursors to NAD+.
- **Lifestyle modifications:** Exercise, calorie restriction, and good sleep hygiene may promote NAD+ synthesis.
- **Supplements:** NAD+ precursors, such as nicotinamide mononucleotide (NMN) and nicotinamide riboside (NR), are available as supplements. However, the long-term safety and efficacy of these supplements are still under investigation.