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Field of interest – Compartmentalization of NAD

Most biological processes require energy and are tightly regulated. Energy is extracted from food supplies and eventually transformed into ATP, the universal energy carrier of the cell. These pathways consist of many reactions which involve NAD or NADP, small molecules which serve as intermediate energy transmitters.

Vitamin B3 is essential for the synthesis of these nucleotides. Interestingly, the key molecules in energy transduction also have important roles in the regulation of all vital cellular activities. While this has long been known for ATP, the multiple signalling functions of NAD and its derivatives have only over the past decade been fully appreciated. Research in many laboratories has now revealed several unexpected biochemical conversions of these nucleotides which might even have an impact on the organism as a whole, for example, life-span regulation.

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