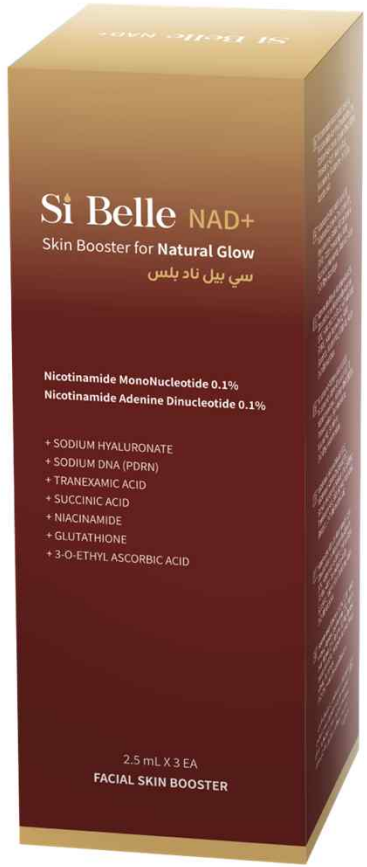
AB Life

Si Belle

NAD+

NAD+ & NMN
Scientific background and product documentation



AB LIFE GLOBAL

AB Life

Reading the evidence

From NAD+ biology to product evaluation

01 RESEARCH BACKGROUND

The source introduces NAD-related skincare through market trends and media coverage. Such context does not establish efficacy, safety or an approved use for Si Belle NAD+.

02 INGREDIENT-LEVEL EVIDENCE

The following pages retain the source literature, figures and study context. Mechanistic reviews, tissue observations and non-product experiments must be read within their original scope.

03 FINISHED-PRODUCT EVIDENCE

No direct clinical study of Si Belle NAD+ was supplied. Clinical performance, local delivery, stability and safety cannot be inferred from ingredient research alone.

EDITORIAL EXCLUSIONS

Celebrity quotations, television frames and third-party brand imagery are omitted. No endorsement is implied. The page mapping and QA retain the source record and exclusion rationale.

AB Life

Product composition & specifications



ITEM	SI BELLE SPECIFICATION	LABEL BASIS
NAD	0.1%	Actual product packaging
NMN	0.1%	Actual product packaging
Pack size	2.5 mL x 3 EA	Displayed on supplied product packaging
Documentation	Current label values	Full formula, ingredient forms and batch CoA to be filed

Additional ingredients visible on supplied packaging

Sodium hyaluronate; Sodium DNA (PDRN); tranexamic acid; succinic acid; niacinamide; glutathione; 3-O-ethyl ascorbic acid. Amounts and complete INCI: confirmation required.

AB Life

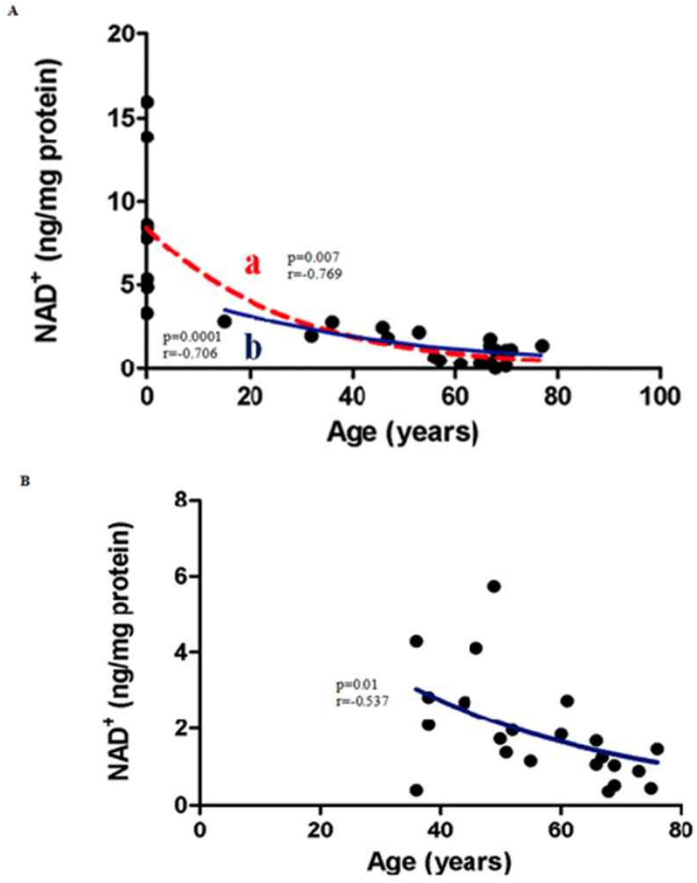
NAD+ and age in human tissue

WHAT IS NAD+?

Nicotinamide adenine dinucleotide is a cellular coenzyme involved in redox metabolism and a substrate for several enzyme families. Vitamin B3-related pathways contribute to its biosynthesis.

HOW TO READ THESE DATA

The source cites human tissue observations showing an association between age and NAD+ levels. These data do not measure an effect of Si Belle NAD+ or establish a universal decline rate.

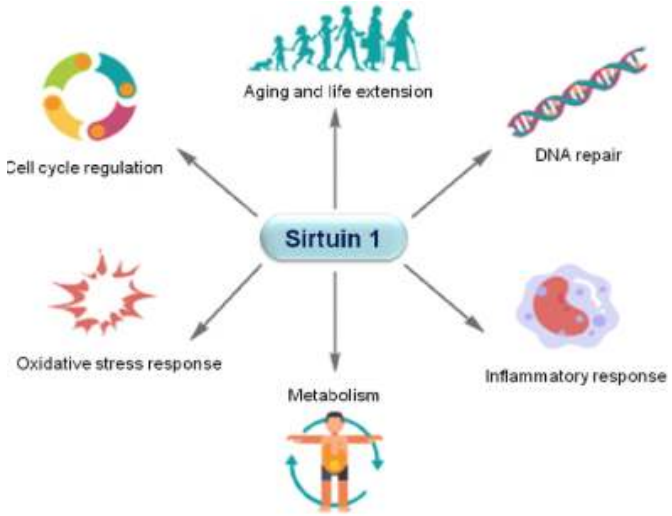


Original Fig. 4A/B plots. Male: n=27, ages 0-77; post-pubescent subset n=19. Female: n=22, ages 36-76. Graph labels and fitted lines unchanged.

Massudi et al. Age-Associated Changes in Oxidative Stress and NAD+ Metabolism in Human Tissue. PLoS ONE (2012). doi:10.1371/journal.pone.0042357

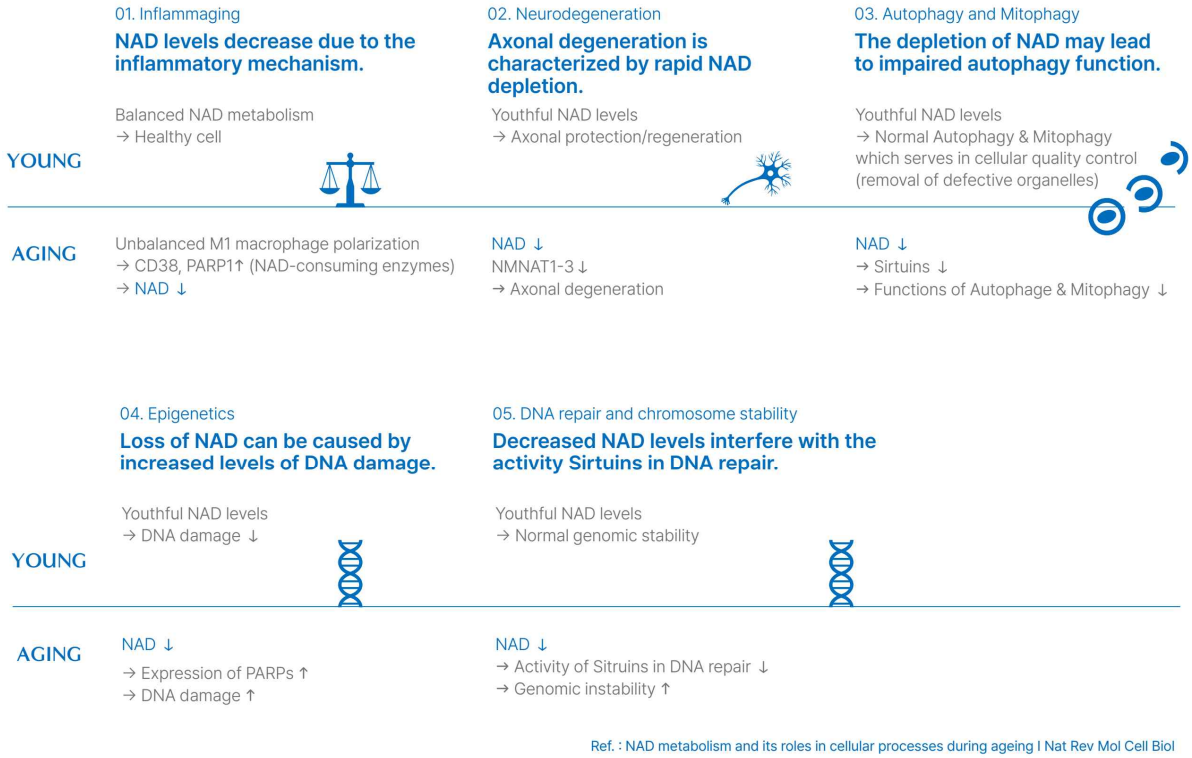
AB Life

NAD+ metabolism in ageing



Five research themes

Inflammageing; neurodegeneration; autophagy and mitophagy; epigenetics; DNA repair and chromosome stability.



Original source schematic at right retains the young/ageing comparison, NAD-related pathways and all five themes. It summarizes literature across experimental settings.

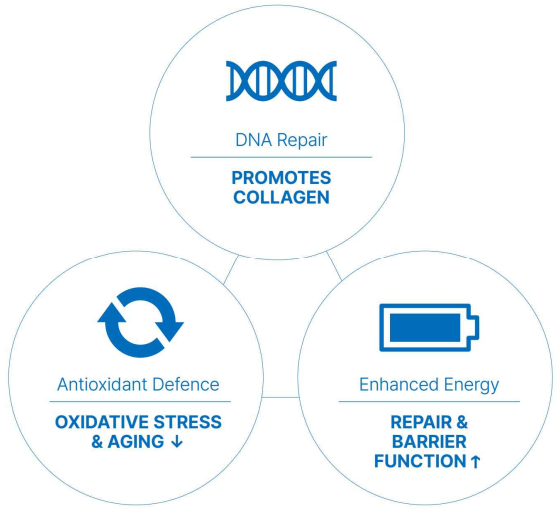
Covarrubias, Perrone, Grozio & Verdin. NAD+ metabolism and its roles in cellular processes during ageing. Nat Rev Mol Cell Biol 22, 119-141 (2021). doi:10.1038/s41580-020-00313-x

AB Life

Mechanisms under investigation

SOURCE THEME	SCIENTIFIC CONTEXT / PRODUCT LIMIT
SIRTs / PARPs	NAD-dependent processes are studied in genome maintenance; product DNA repair is unproven.
Redox homeostasis	NAD(P) systems participate in oxidative balance; product antioxidant performance is unproven.
Energy metabolism	NAD+/NADH function in metabolic reactions; product barrier repair is unproven.
Pathway restoration	NAD repletion is a research strategy; no reversal of ageing is demonstrated for this product.

The source repeats the same mechanism table on pp.6-9. Its categories are consolidated here; the underlying figures follow on pp.7-9.



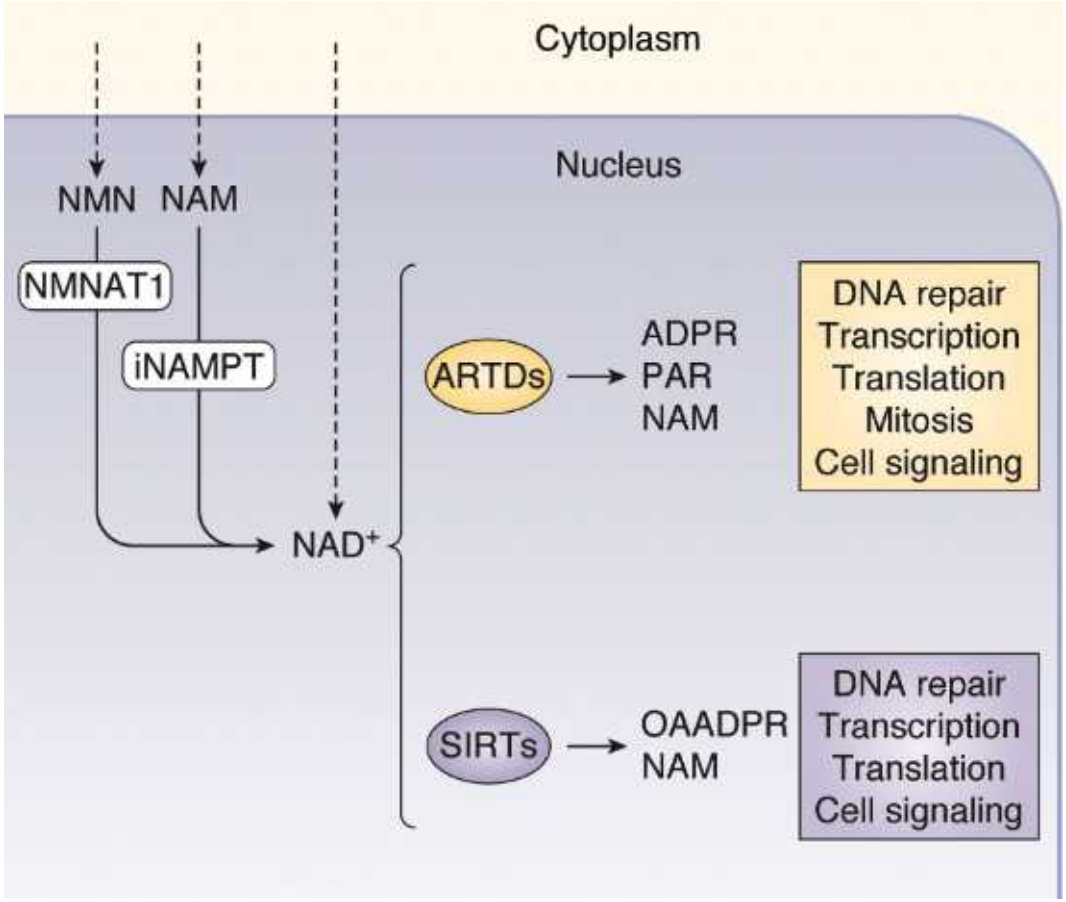
Original source exhibit

Supplier benefit wording is reproduced for traceability. It is not an AB LIFE clinical claim.

Sirtuins, PARPs & genome maintenance

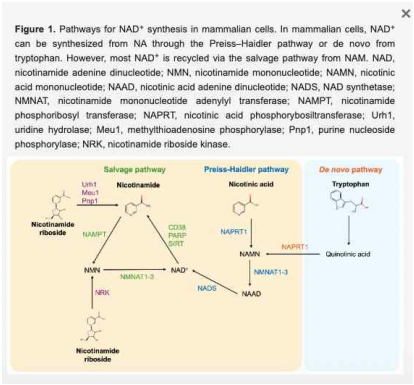
NAD-DEPENDENT ENZYME FAMILIES

Sirtuins and poly(ADP-ribose) polymerases use NAD+ in processes associated with genome maintenance. Biological involvement does not demonstrate DNA repair by the finished product.



Original source figures and captions; no Si Belle NAD+ clinical subjects or endpoints are shown.

Figure 1. NAD^+ biosynthesis pathway and subcellular equilibrium: NAD^+ is synthesized via three major pathways, including *de novo* biosynthesis (also called the kynurenine pathway), the Preiss–Handler pathway, and the salvage pathway. The kynurenine pathway starts with the catabolism of the amino acid Trp that is converted to FK, which is further converted to kynurenine. Kynurenine can be converted to KA and finally QA. In addition, kynurenine can be converted to 3-HK by KMO and further to 3-HAA by KYNU. The next step is performed by 3HAAO to produce ACMS and then converts to QA, which further formulates to NAMN by QPRT and finally to NAD^+. NAD^+-consuming enzymes include sirtuins, PARPs, cADPRSs, and SARM1. The equilibrium of NAD^+ is a balance of synthesis, consumption, and recycling in various subcellular compartments including the cytosol, the nucleus, and the mitochondria. NAD^+, nicotinamide adenine dinucleotide; KA, kynurenic acid; 3-HK, 3-hydroxykynurenine.



Source citation: Fueling genome maintenance: On the versatile roles of NAD+ in preserving DNA integrity. Journal of Biological Chemistry (2022). PMCID: PMC9194868.

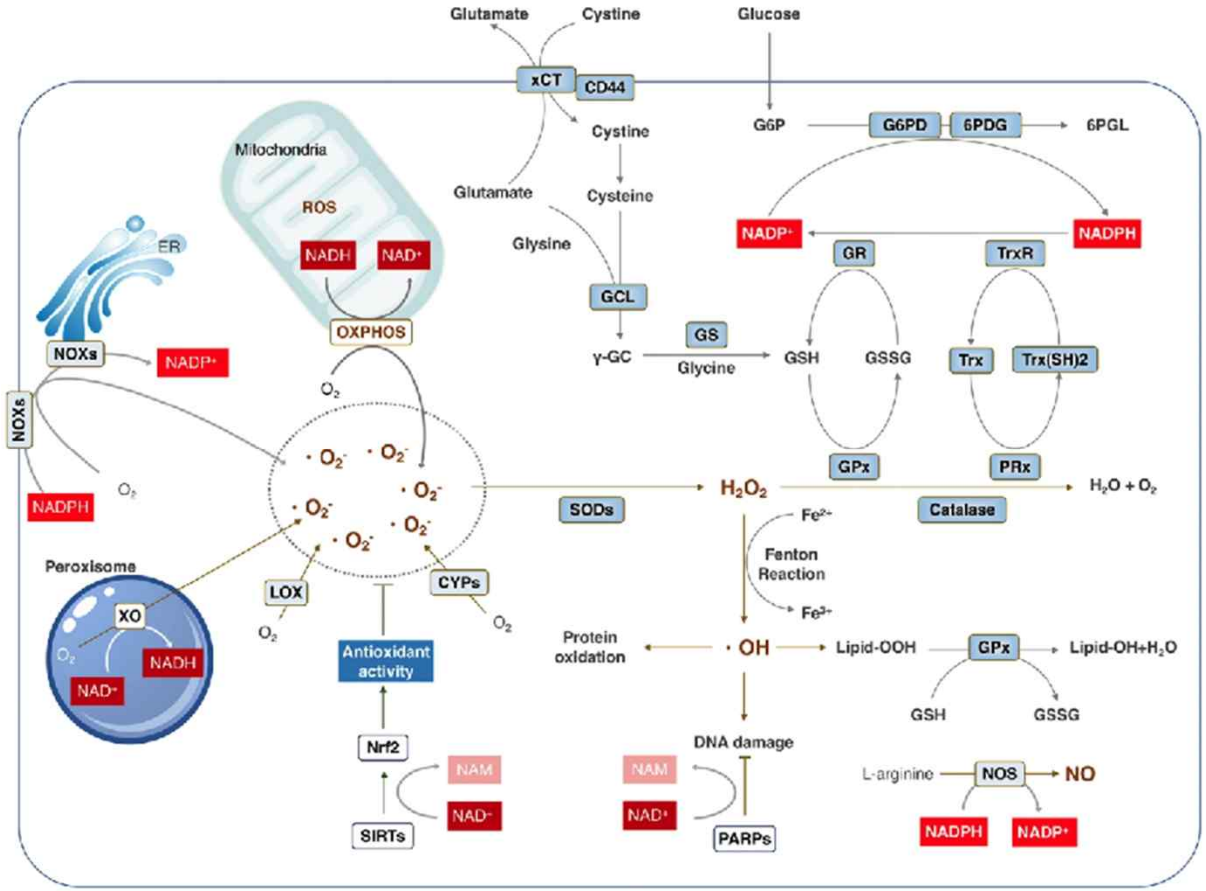
NADPH & antioxidant systems

RELATED COFACTORS, DISTINCT ROLES

NAD+/NADH and NADP+/NADPH are related cofactor systems with distinct metabolic roles. NADPH provides reducing capacity used in glutathione and thioredoxin systems.

FIGURE CONTEXT

The original pathway depicts ROS-related metabolism and antioxidant networks. It is not a measurement of antioxidant activity, skin uptake or efficacy of Si Belle NAD+.



GR: glutathione reductase. TrxR: thioredoxin reductase. Original pathway labels retained.

Xie et al. NAD+ metabolism: pathophysiologic mechanisms and therapeutic potential. Signal Transduction and Targeted Therapy (2020). doi:10.1038/s41392-020-00311-7

AB Life

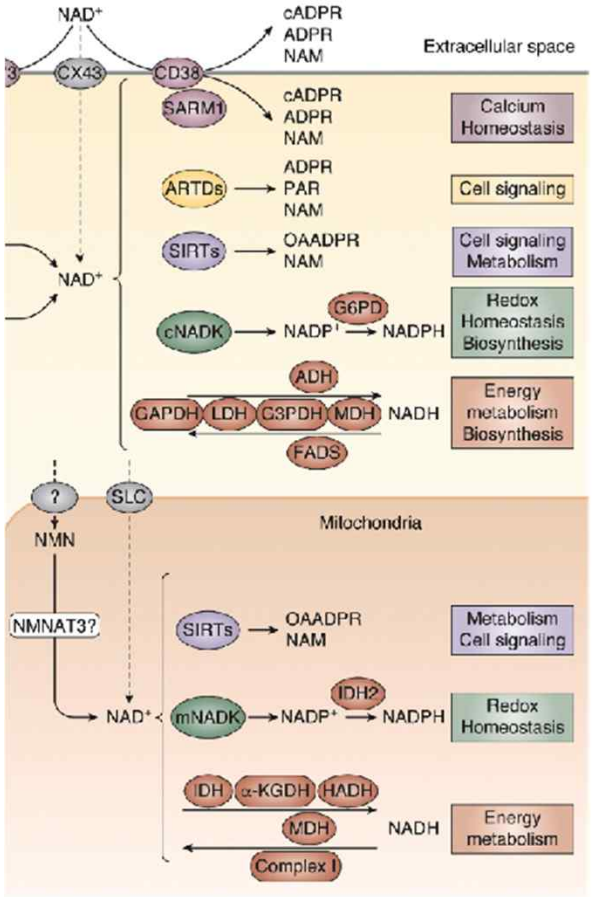
Cellular energy & NAD+ turnover

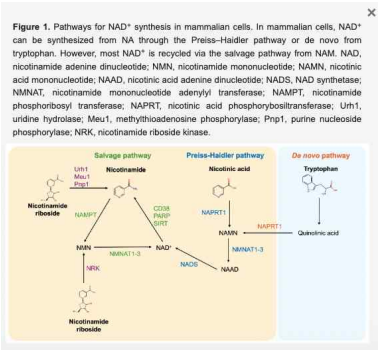
A COENZYME IN ENERGY METABOLISM

NAD+/NADH participate in cellular oxidation-reduction reactions. NAD+ is also consumed by signaling and regulatory enzyme systems, connecting metabolism with other cellular functions.

FROM MECHANISM TO EVIDENCE

The source associates energy metabolism with repair and barrier function. These are research concepts; local delivery, dose-response and clinical skin outcomes require product-specific evaluation.





Source citation: Fueling genome maintenance: On the versatile roles of NAD+ in preserving DNA integrity. J Biol Chem (2022). https://pmc.ncbi.nlm.nih.gov/articles/PMC9194868/

AB Life

HA, PDRN & NAD: source comparison

DIFFERENT RESEARCH EMPHASES

HA: hydration and structural support.

PDRN: tissue-response research.

NAD: cellular metabolism and NAD-dependent enzyme pathways.

	HA	PDRN	NAD
Primary Target	Hydration, sturctural support	Tissue regeneration	Cellular metabolism, genetic
Mechanism	Moisture barrier, volume fill	Cell proliferation, TGF-β activation	Energy boost, Sirtuin activation, DNA repair
Anti-aging Focus	Extrinsic (dehydration, volume loss)	Intrinsic/extrinsic (damage repair)	Intrinsic (gene regulation)
Onset	Immediate (Hydration)	Steady (Regeneration)	Gradual (Cellular)

Immediate / steady / gradual are source descriptors, not validated treatment timelines.

Original supplier comparison

The table includes regeneration, TGF-beta activation, sirtuins, DNA repair, gene regulation and onset categories. These are source generalizations. No comparative trial, matched dose, route or Si Belle NAD+ cohort is supplied.

AB Life

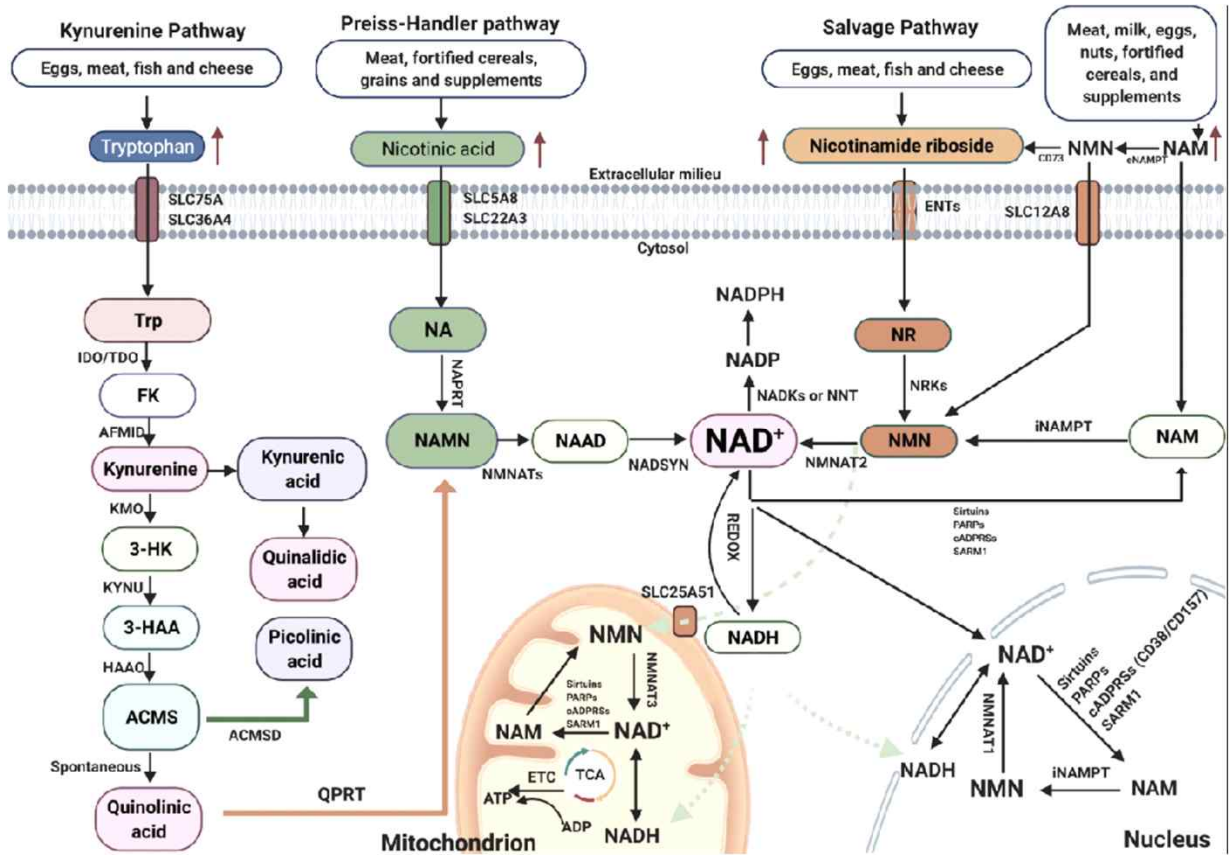
NMN in NAD+ biosynthesis

NICOTINAMIDE MONONUCLEOTIDE

NMN is an intermediate in NAD+ biosynthesis. NMNAT catalyzes conversion of NMN to NAD+. NAMPT acts upstream in the nicotinamide salvage route.

ORIGINAL REVIEW CONTEXT

The cited review covers NMN biotherapy and digestive-system disease research, including animal work and human oral studies. It is not a Si Belle NAD+ skin-booster trial.



Original pathway: de novo (kynurenine), Preiss-Handler and salvage routes. Source diagram and compartment labels preserved.

Liao et al. Advancements in NMN biotherapy and research updates in the field of digestive system diseases. J Transl Med 22, 805 (2024). doi:10.1186/s12967-024-05614-9

AB Life

NMN delivery: what needs verification

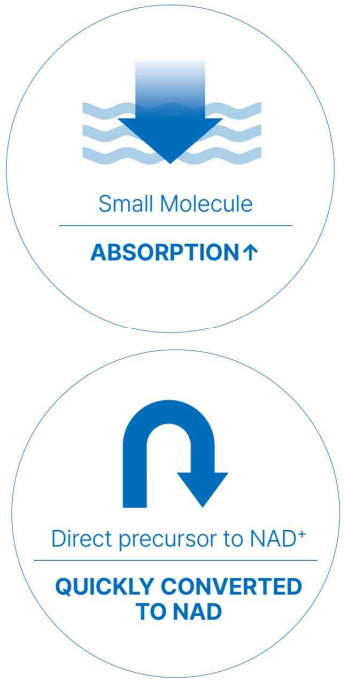
BIOCHEMICAL PATHWAY

NAM -- NAMPT --> NMN -- NMNAT --> NAD+

The source p.12 attributes NMN-to-NAD conversion to NAMPT. That step is catalyzed by NMNAT; NAMPT forms NMN from nicotinamide upstream.

DELIVERY IS A SEPARATE QUESTION

Molecule size alone does not establish efficient cellular or skin uptake. The supplied material does not demonstrate absorption, stability, bioavailability or anti-ageing effects for the Si Belle NAD+ formulation and route.



Original supplier icons: source assertions, not validated product outcomes.

Pathway clarification: Xie et al. (2020), doi:10.1038/s41392-020-00311-7; Liao et al. (2024), doi:10.1186/s12967-024-05614-9. See p.13 for reference links.

Technical documentation & references

References retained from the source

01 Massudi et al. (2012). Age-Associated Changes in Oxidative Stress and NAD+ Metabolism in Human Tissue. PLoS ONE.
https://doi.org/10.1371/journal.pone.0042357

02 Covarrubias et al. (2021). NAD+ metabolism and its roles in cellular processes during ageing. Nat Rev Mol Cell Biol.
https://doi.org/10.1038/s41580-020-00313-x

03 Fueling genome maintenance: On the versatile roles of NAD+ in preserving DNA integrity. J Biol Chem (2022).
https://pmc.ncbi.nlm.nih.gov/articles/PMC9194868/

04 Xie et al. (2020). NAD+ metabolism: pathophysiologic mechanisms and therapeutic potential. Signal Transduct Target Ther.
https://doi.org/10.1038/s41392-020-00311-7

05 Liao et al. (2024). Advancements in NMN biotherapy and research updates in the field of digestive system diseases. J Transl Med.
https://doi.org/10.1186/s12967-024-05614-9

AB LIFE GLOBAL

www.ablife-global.com
alexmoon@ablife-global.com

102, Saemal-Ro, Guro-Gu,
Seoul, Korea

13F, Jafza View 18,
Jebel Ali Freezone, Dubai, U.A.E.

+82-10-5367-4759
+971-50-571-7673