Niagen Bioscience Announces First-Ever Peer-Reviewed Study Highlighting the Potential of Nicotinamide Riboside (NR) for Werner Syndrome, a Rare Genetic Disorder

Results demonstrated that nicotinamide riboside (NR) significantly elevated NAD+ levels and improved multiple clinical markers in people with Werner Syndrome

Niagen Bioscience expands rare disease research portfolio, supporting further investigation of NAD+ augmentation with NR as a therapeutic strategy in rare progeroid diseases

LOS ANGELES – Niagen Bioscience, Inc. (NASDAQ: NAGE) (formerly ChromaDex Corp.), the global authority on NAD+ (nicotinamide adenine dinucleotide) with a focus on the science of healthy aging, shares positive results from a clinical study published in the peer-reviewed journal *Aging Cell,* by a team led by Masaya Koshizaka, M.D., Ph.D., Associate Professor, and Koutaro Yokote, M.D., Ph.D., MBA, President of Chiba University, both of the Center for Preventive Medical Sciences, Chiba University, and the Department of Diabetes, Metabolism and Endocrinology, Chiba University Hospital, Japan. This is the first study to demonstrate the safety and efficacy of Niagen Bioscience's patented nicotinamide riboside (NR) ingredient, Niagen®, in individuals with Werner syndrome (WS), a rare genetic disorder marked by rapid aging and premature mortality.

The newly published double-blind, placebo-controlled study found that daily supplementation with Niagen significantly elevated blood NAD+ levels by approximately 140% and improved multiple clinical markers of cardiovascular and skin health in individuals with WS. Affecting approximately 1 in 380,000 to 1 in 1,000,000 people globally (*GeneReviews*), Werner syndrome is caused by mutations that impair DNA repair, leading to cellular aging decades ahead of normal progression.

Dr. Koshizaka noted, "We hope our work will accelerate studies on not only WS but also other premature aging disorders and common age-related diseases-ultimately helping to extend health span and improve quality of life in both patients and the broader population."

Developing NAD+ Therapies for Rare, Age-Related Diseases

This study builds on the growing body of clinical research demonstrating Niagen's potential in rare, age-related diseases (see Table 1 below). In Ataxia Telangiectasia (AT), Niagen has shown improvements in neurological function, coordination, and immune markers, including in pediatric populations.

Rob Fried, CEO of Niagen Bioscience, stated, "Rare disease research is a priority for Niagen Bioscience, particularly those indications associated with accelerated aging, mitochondrial

dysfunction, or NAD+ deficiency."

The U.S. Food and Drug Administration (FDA) previously granted Orphan Drug Designation (ODD) and Rare Pediatric Disease (RPD) Designation to NR for the treatment of AT. These designations underscore the urgent unmet need and potential therapeutic value of Niagen in rare disease populations.

Why NAD+ Matters in Rare Disease

Scientific research has shown that declining NAD+ levels can contribute to age-related decline, mitochondrial dysfunction, and impaired DNA repair. In both Werner syndrome and AT, NAD+ deficiency appears to play a central role in disease progression (Fang et al., 2019). By restoring NAD+ levels, Niagen may help activate protective enzymes like SIRT1 and PARP1, reduce oxidative stress, and improve tissue function (Fang et al., 2016; Veenhuis et al., 2021; Presterud et al., 2023; Shoji et al., 2025; Lautrup et al., 2025).

Vilhelm Bohr, M.D., Ph.D., D.Sc., former National Institute on Aging (NIA) Chief of the Laboratory of Molecular Genetics, and current Affiliate Professor in Genome Instability and Neurodegeneration at the University of Copenhagen and Scientific Advisor to Niagen Bioscience and coauthor on the study, commented, "Werner syndrome is a rare genetic disorder that has long served as a valuable model for understanding the mechanisms of human aging. This study marks the first clinical trial using Niagen in those with Werner syndrome, and the findings-particularly improvements in cardiovascular markers-are promising. As Werner syndrome is a well-established model for normal aging, these results also suggest that NAD+ supplementation may support healthier aging in the broader population."

Study Highlights

This 52-week randomized, double-blind, placebo-controlled crossover trial evaluated the safety and efficacy of oral Niagen supplementation in individuals with WS. The study randomized nine individuals (mean age: 47) who received 1,000 mg/day of Niagen or placebo for 26 weeks before crossing over to the alternate treatment for an additional 26 weeks.

Key findings include:

- Robust increase in NAD+ levels: Niagen supplementation led to a ~140% increase in plasma NAD+ levels, compared to a ~4% decrease in the placebo group.

- Improved arterial stiffness: Niagen significantly improved cardio-ankle vascular index (CAVI), a measure of arterial stiffness.

- Cardioprotective lipid shift: Niagen increased the number of large HDL particles,

indicating potential cardiovascular benefits.

- Wound healing support: Niagen reduced skin ulcer size and heel pad thinning, while ulcers worsened in the placebo group.

- Clinical safety profile: No moderate or severe adverse events were reported. Mild adverse events were fewer in individuals who received Niagen (7) compared to those who received placebo (12).

- Tolerability in complex individuals: Although mild liver enzyme elevations were noted, they were deemed manageable and consistent with underlying liver sensitivities common in Werner syndrome.

This study represents the first clinical evaluation of Niagen in WS and supports further investigation of NAD+ augmentation as a therapeutic strategy in rare progeroid diseases.

For additional information on the science supporting Niagen®, visit www.niagenbioscience.com.

Table 1

The table below provides an overview of the clinical research published to date on Niagen in rare age-related conditions.

Publication	Dose	Duration	Health Area	Study Design	Key Outcomes
Shoji et al., 2025	1000 mg	52 weeks	Werner syndrome	Randomized, double-blind, placebo-controlled crossover study in 11 individuals with Werner syndrome	~140% increase in plasma NAD+ levels; improved arterial stiffness and reduced skin ulcer size. No moderate or severe adverse events reported.
Presterud et al., 2023	500 mg	2 years	Ataxia Telangiectasia (AT)	Open-label, single-arm observational study in 10 AT individuals	Significant improvements in motor coordination and eye movements. No serious adverse events. Longest NR supplementation trial to date.
Veenhuis et al., 2021	25 mg/kg	4 months	Ataxia Telangiectasia (AT)	Open-label proof-of-concept study in 24 AT individuals	Improved ataxia scores (SARA, ICARS); effects reversed after withdrawal. Increased IgG levels in immunodeficient individuals.
Tinnevelt et al., 2020	25 mg/kg	4 months	Ataxia Telangiectasia (AT)	Comparative study in 14 individuals with AT	NR-related pathways and metabolites significantly increased following NR supplementation.

About Niagen Bioscience:

Niagen Bioscience, Inc. (NASDAQ: NAGE), formerly ChromaDex Corp., is the global leader in NAD+ (nicotinamide adenine dinucleotide) science and healthy-aging research. As a trusted pioneer of NAD+ discoveries, Niagen Bioscience™ is dedicated to advancing healthspan

through precision science and innovative NAD+-boosting solutions.

The Niagen Bioscience team, composed of world-renowned scientists, works with independent investigators from esteemed universities and research institutions around the globe to uncover the full potential of NAD+. A vital coenzyme found in every cell of the human body, NAD+ declines with age and exposure to everyday lifestyle stressors. NAD+ depletion is a key contributor to age-related changes in health and vitality.

Distinguished by state-of-the-art laboratories, rigorous scientific and quality protocols, and collaborations with leading research institutions worldwide, Niagen Bioscience sets the gold standard for research, quality, and innovation. There's a better way to age.

At the heart of its clinically proven product portfolio is Niagen® (patented nicotinamide riboside, or NR), the most efficient, well-researched, high-quality, and legal NAD+ booster available.

Niagen Bioscience's robust patent portfolio protects NR and other NAD+ precursors. Niagen Bioscience maintains a website at www.niagenbioscience.com, where copies of press releases, news, and financial information are regularly published.

Forward Looking Statements:

This release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities and Exchange Act of 1934, as amended, including statements related to infringement or non-infringement of intellectual property rights. Statements that are not a description of historical facts constitute forward-looking statements and may often, but not always, be identified by the use of such words as "expects," "anticipates," "intends," "estimates," "plans," "potential," "possible," "probable," "believes," "seeks," "may," "will," "should," "could" or the negative of such terms or other similar expressions. Risks that contribute to the uncertain nature of these forward-looking statements include the impact of the COVID-19 pandemic on our business and the global economy; our history of operating losses and need to obtain additional financing; the growth and profitability of our product sales; our ability to maintain sales, marketing and distribution capabilities; changing consumer perceptions of our products; our reliance on a single or limited number of third-party suppliers; and the risks and uncertainties associated with our business and financial condition. Xx Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof, and actual results may differ materially from those suggested by these forward-looking statements. All forward-looking statements are qualified in their entirety by this cautionary statement and Niagen Bioscience undertakes no obligation to revise or update this release to reflect events or circumstances after the date hereof.

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