

# Results from First Human Clinical Study Demonstrate ChromaDex's NIAGEN(R) Nicotinamide Riboside Effectively Increases the Co-enzyme NAD+ and is Safe

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- Clinical Data Presented Today at the FASEB Science Research Conference on NAD+ Metabolism and Signaling -

IRVINE, Calif., Aug. 12, 2015 (GLOBE NEWSWIRE) -- ChromaDex Corp. (OTCQX:CDXC), an innovator of proprietary health, wellness, and nutritional ingredients that creates science-based solutions for dietary supplements, food and beverage, skin care, sports nutrition, and pharmaceutical products, announced today that results of the first controlled human clinical study on the use of the Company's NIAGEN<sup>®</sup> nicotinamide riboside (NR) were presented at **4<sup>th</sup> Federation of American Societies for Experimental Biology (FASEB) Science Research Conference on NAD+ Metabolism and Signaling**, currently being held in Germany.

**Charles Brenner, PhD**, a key member of the ChromaDex Scientific Advisory Board presented an oral platform talk on "How Nicotinamide Riboside Promotes Weight Loss." In addition, Dr. Brenner, Mr. Frank Jaksch, Dr. Ryan Dellinger, and their co-workers presented a poster entitled, "Dose-Dependent Elevation of the Blood NAD Metabolome by NR in Healthy Human Beings."

The oral presentation and poster presented data which indicate that single doses of NIAGEN<sup>®</sup> NR can elevate the co-enzyme NAD+ in the blood by as much as 2.7-fold. In the first-in-humans clinical trial which involved dosing twelve healthy adult subjects, the group showed that blood cell NAD+ increased with single 100 mg, 300 mg and 1 gram doses of NIAGEN<sup>®</sup> NR. Average maximal increases in blood NAD+ were approximately 30% at the 100 mg dose and approximately 50% at the higher doses. Increases in blood NAD+ tended to be sustained for longer times at higher doses.

These observations validate NIAGEN® as an effective agent at elevating blood cell NAD+ metabolism in healthy human beings and are expected to support additional clinical studies that will further characterize the pharmacokinetics of NIAGEN® and associations between elevated or depressed NAD+ metabolism with other metabolic markers, diseases and conditions.

Dr. Brenner commented, "The results of this study constitute a significant milestone in the translation of NR technologies as it is the first time an increase in NAD+ in humans has been demonstrated through NR supplementation. Importantly, this initial single dose study showed an increase of NAD+ across all three doses of NR. It was, in fact, somewhat surprising that a molecule as tightly regulated and abundant as NAD+ could be elevated by single doses of NR."

**Nobel Laureate Dr. Roger Kornberg**, who chairs ChromaDex's Scientific Advisory Board, commented, "Numerous published studies have demonstrated the potential health and therapeutic benefits of NR as a precursor to NAD+. Based on encouraging findings in this single dose study, ChromaDex is planning its second human study to both further validate NR as an effective NAD+ precursor as well as to begin evaluating the therapeutic benefits of increasing NAD+."

NAD+ is a critically important cellular cofactor that is required for fuel utilization and function of every cell in the human body. When fuel is oxidized, NAD+ is converted to NADH for cellular energy production. The related compound NADP is converted to NADPH for synthesis of lipids and detoxification of reactive oxygen species. In 2004, then at Dartmouth College, Dr. Brenner reported NR as a previously unappreciated vitamin precursor of NAD+ in humans.

**ChromaDex's NIAGEN®** is the first and only commercially available form of NR and is supported by five patents issued and several pending, with patent rights acquired from Dartmouth College, Cornell University and Washington University.

In addition to functioning as a cofactor, NAD+ is required for the function of sirtuins, a family of enzymes that control gene expression, metabolism and mitochondrial functions, particularly during changing nutritional conditions. Sirtuins are key target enzymes in healthy aging, such that the search for sirtuin activators has been a major goal of academic, biotechnology and pharmaceutical research for the last decade. In 2007, Dr. Brenner reported that NR extends yeast lifespan by elevating cellular NAD and increasing sirtuin function. More recently, NR has been shown to improve the metabolism of mice on high fat diet, protect mice from noise-induced hearing loss, and protect mice from the damaging effects of mitochondrial mutations.

In the same presentations, Dr. Brenner reported a University of Iowa discovery of elevated nicotinic acid adenine dinucleotide (NAAD) as an unanticipated and highly sensitive biomarker of increased NAD+ metabolism. The study

showed NAAD increases from non-detectable levels prior to NR supplementation, to levels that are clearly correlated with increasing levels of NAD+ with NR supplementation. A provisional patent on the discovery has been filed.

Maintenance of sufficient levels of NAD+ is key to cellular energy metabolism and mitochondrial function. If NAD+ levels go down or are redirected (as in cancer cells), mitochondrial function erodes, creating numerous adverse effects. For example, results of a mouse study conducted by the National Institutes of Health (NIH) in collaboration with ChromaDex **published in November 2014** indicated that NR was effective at restoring NAD+ levels in mitochondria and rescuing phenotypes associated with a devastating accelerated aging disease known as **Cockayne Syndrome (CS)**. The researchers concluded that NR showed promise as a potential therapy for the disease, as well as for other age-related neurodegenerative conditions.

Published research has shown that NR is perhaps the most effective precursor to boost the co-enzyme NAD+ in the cell. NAD+ is arguably the most important cellular co-factor for improvement of mitochondrial performance and energy. In recent years, NAD+ has also been shown to participate as an extracellular signaling molecule in cell-to-cell communication. NAD+ is essential in supporting healthy cellular metabolism, including the efficient conversion of blood glucose into energy.

As organisms age, NAD+ levels are reported to drop, which leads to a decrease in mitochondrial health; this in turn may lead to age-related health issues. Low NAD+ levels limit the activity of a group of enzymes called sirtuins, which are believed to play key roles in longevity. NAD+ levels can be depleted by many of the stresses of life. By boosting NAD+, NR can increase mitochondrial health and induce creation of new mitochondria.

About the FASEB Science Research Conference on NAD+ Metabolism and Signaling:

A main aspect of this conference will be to foster exchange of information and technology between researchers working on the biochemical, molecular, genetic and cell biological aspects of NAD+ and related molecules. Moreover, the conference will provide a unique venue for those researchers worldwide who are interested in the basic and translational aspects of NAD metabolism and signaling. For more information about the conference, visit: <http://www.faseb.org/SRC-NAD/Home.aspx>.

About FASEB:

Founded in 1912, the Federation of American Societies for Experimental Biology (FASEB) was originally created by three independent scientific organizations to provide a forum in which to hold educational meetings, develop publications, and disseminate biological research results. What started as a small group of dedicated scientists has grown to be the nation's largest coalition of biomedical researchers, representing 27 scientific societies and over

125,000 researchers from around the world. FASEB is now recognized as the policy voice of biological and biomedical researchers.

#### About ChromaDex:

ChromaDex leverages its complementary business units to discover, acquire, develop and commercialize patented and proprietary ingredient technologies that address the dietary supplement, food, beverage, skin care and pharmaceutical markets. In addition to our ingredient technologies unit, we also have business units focused on natural product fine chemicals (known as "phytochemicals"), chemistry and analytical testing services, and product regulatory and safety consulting (known as Spherix Consulting). As a result of our relationships with leading universities and research institutions, we are able to discover and license early stage, IP-backed ingredient technologies. We then utilize our in-house chemistry, regulatory and safety consulting business units to develop commercially viable ingredients. Our ingredient portfolio is backed with clinical and scientific research, as well as extensive IP protection. Our portfolio of patented ingredient technologies includes NIAGEN<sup>®</sup> nicotinamide riboside; pTeroPure<sup>®</sup> pterostilbene; PUREENERGY<sup>®</sup>, a caffeine-pTeroPure<sup>®</sup> co-crystal; ProC3G<sup>®</sup>, a natural black rice containing cyanidin-3-glucoside; IMMULINA<sup>™</sup>, a spirulina extract; and Suntava<sup>®</sup> Purple Corn derived from a proprietary non-GMO purple corn hybrid which contains an extraordinarily high level of anthocyanins. To learn more about ChromaDex, please visit [www.ChromaDex.com](http://www.ChromaDex.com).

#### 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. 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. Actual results may differ materially from those set forth in this release due to the risks and uncertainties inherent in ChromaDex's business. More detailed information about ChromaDex and the risk factors that may affect the realization of forward-looking statements is set forth in ChromaDex's Annual Report on Form 10-K for the fiscal year ended January 3, 2015, ChromaDex's Quarter Reports on Form 10-Q and other filings submitted by ChromaDex to the SEC, copies of which may be obtained from the SEC's website at [www.sec.gov](http://www.sec.gov). Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. All forward-looking statements are qualified in their entirety by this cautionary statement and ChromaDex undertakes no obligation to revise or update this release to reflect events or circumstances after the date hereof.

Statements in this press release have not been evaluated by the Food and Drug Administration. Products or ingredients are not intended to diagnose, treat, cure or prevent any disease.

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