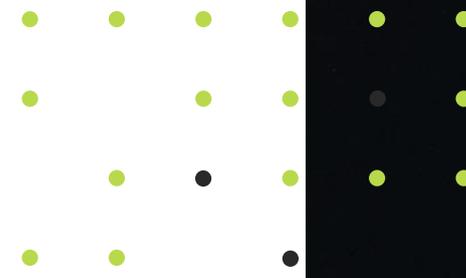


This (these) statement(s) have not been approved by the Food and Drug Administration.
This (these) product(s) are not intended to diagnose, treat, cure or prevent any disease.

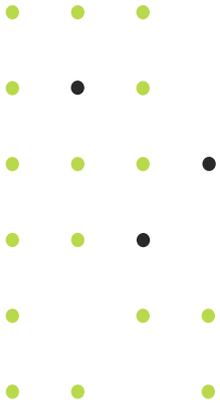


miricellTM

RICE GERM POLYAMINES



www.nutralandusa.com



POLYAMINES & SPERMIDINE

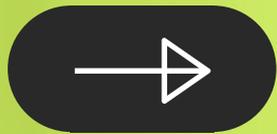
Polyamines (PAs) are organic compound having two or more amino groups.

Spermidine (SPD), along with **Putrescine** (PUT) & **Spermine** (SPM), are the main Polyamines in mammalian cells and plants and play an important role in cell growth/health.

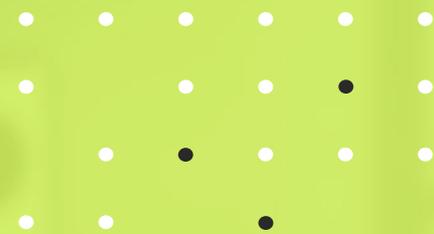
Though it was originally isolated from semen, Spermidine is the main Polyamine found in plants.

THE STORY





POLYAMINES & LONGEVITY



A study published in 2012

Revealed an interesting finding:

Spermine & Spermidine concentration in the age group of 90–106 years-old are found at the same level of those in their 30's.

This may indicate an important correlation between Polyamines levels and longevity.



THE STORY

HEALTH BENEFITS

Polyamines (PAs) play multiple roles in cell growth, survival and proliferation. Changes in polyamine levels have been associated with aging.

There are extensive studies on the physiological functions of polyamines (Spermidine, Putrescine & Spermine) and their importance for cellular health.

"Dietary supplementation of spermidine prolongs life span and health span by protecting from a range of age-associated pathologies in several animal models."

Science 26 Jan 2018
Spermidine in health and disease
<https://pubmed.ncbi.nlm.nih.gov/29371440/>

THE SCIENCE



Healthy Aging

Spermidine delays aging in humans

<https://www.ncbi.nlm.nih.gov/pubmed/30082504>

Spermidine in health and disease

<https://www.ncbi.nlm.nih.gov/pubmed/29371440>

induction of autophagy by spermidine promotes longevity

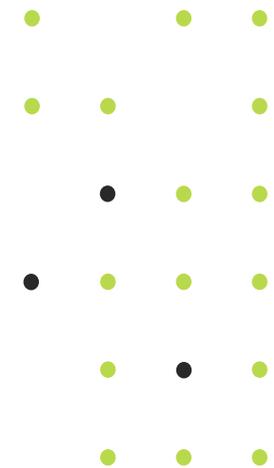
<https://pubmed.ncbi.nlm.nih.gov/19801973/>

Spermidine: a physiological autophagy inducer acting as an anti-aging vitamin in humans?

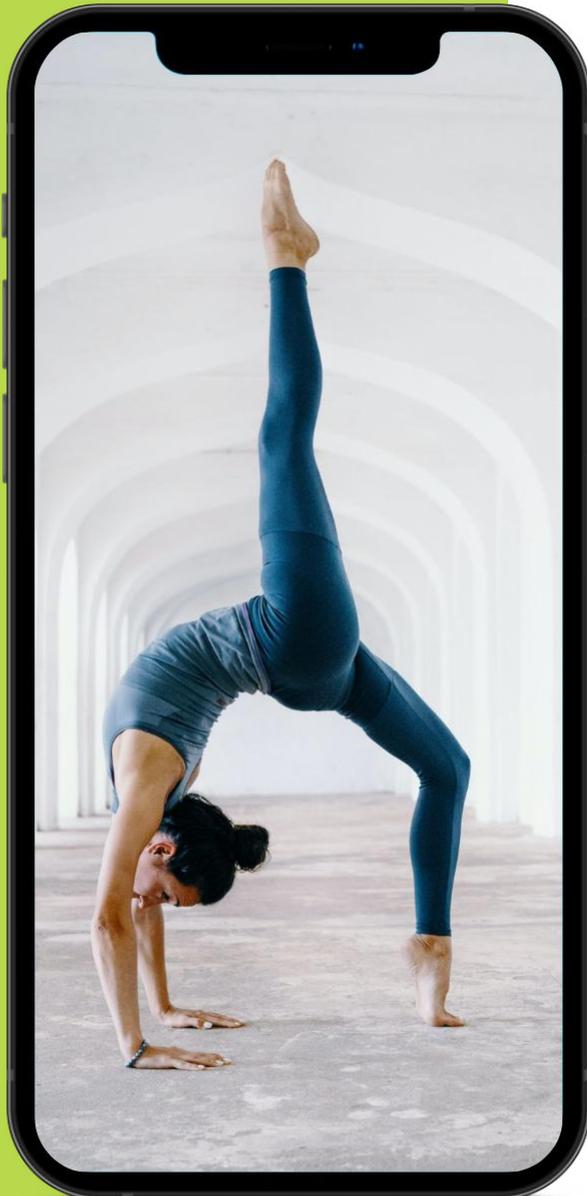
<https://www.ncbi.nlm.nih.gov/pubmed/30306826>

Molecular Basis of the 'Anti-Aging' Effect of Spermidine and Other Natural Polyamines – A Mini-Review

<https://www.karger.com/Article/Pdf/356748>



HEALTH BENEFITS



THE SCIENCE

Skin & Hair Health

Spermidine-induced recovery of human dermal structure and barrier function by skin microbiome

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7895926/>

Systemic and topical administration of spermidine accelerates skin wound healing

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7986284/>

Polyamines and hair: a couple in search of perfection

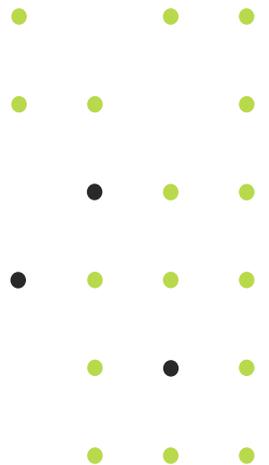
<https://onlinelibrary.wiley.com/doi/full/10.1111/j.1600-0625.2010.01111.x>

Spermidine promotes human hair growth and is a novel modulator of human epithelial stem cell functions

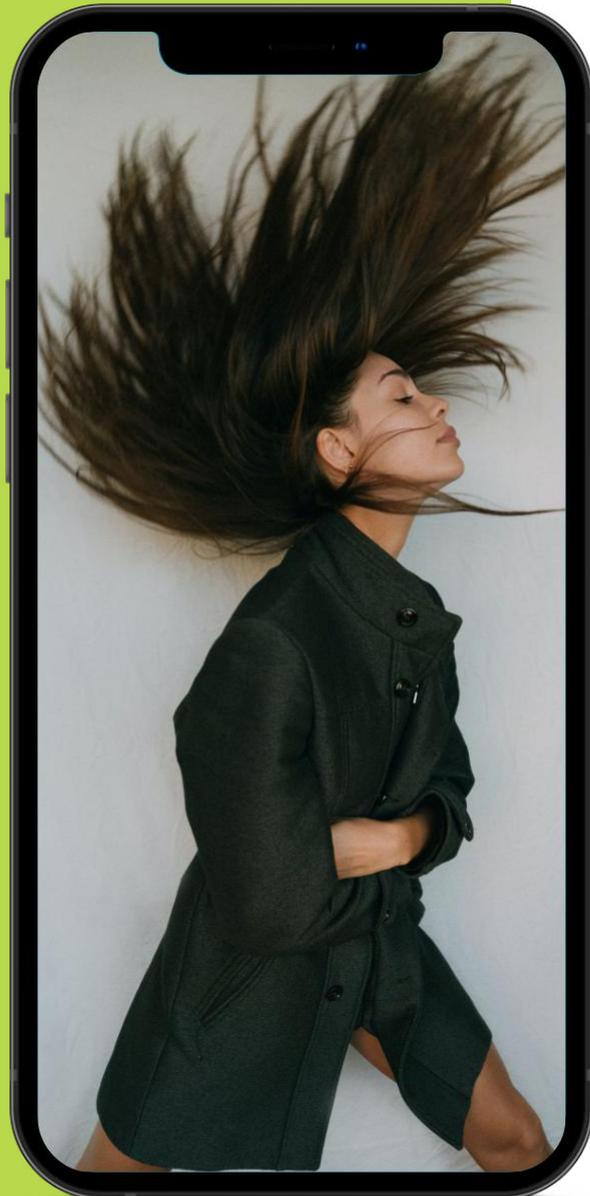
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3144892/>

A spermidine-based nutritional supplement prolongs the anagen phase of hair follicles in humans: a randomized, placebo-controlled, double-blind study

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5718121/>



HEALTH BENEFITS



THE SCIENCE

Immunity Support

Role of Polyamines in Immune Cell Functions

<https://www.ncbi.nlm.nih.gov/pubmed/29517999>

Polyamines reverse immune senescence via the translational control of autophagy

<https://pubmed.ncbi.nlm.nih.gov/31679458/>

Polyamines and Kynurenines at the Intersection of Immune Modulation

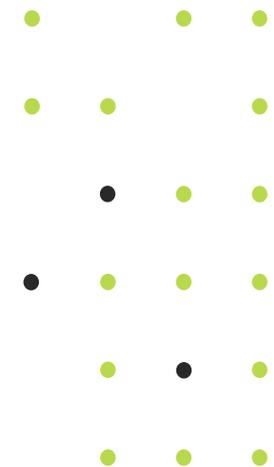
[https://www.cell.com/trends/immunology/fulltext/S1471-4906\(20\)30214-3](https://www.cell.com/trends/immunology/fulltext/S1471-4906(20)30214-3)

Polyamines play a critical role in the control of the innate immune response in the mouse central nervous system

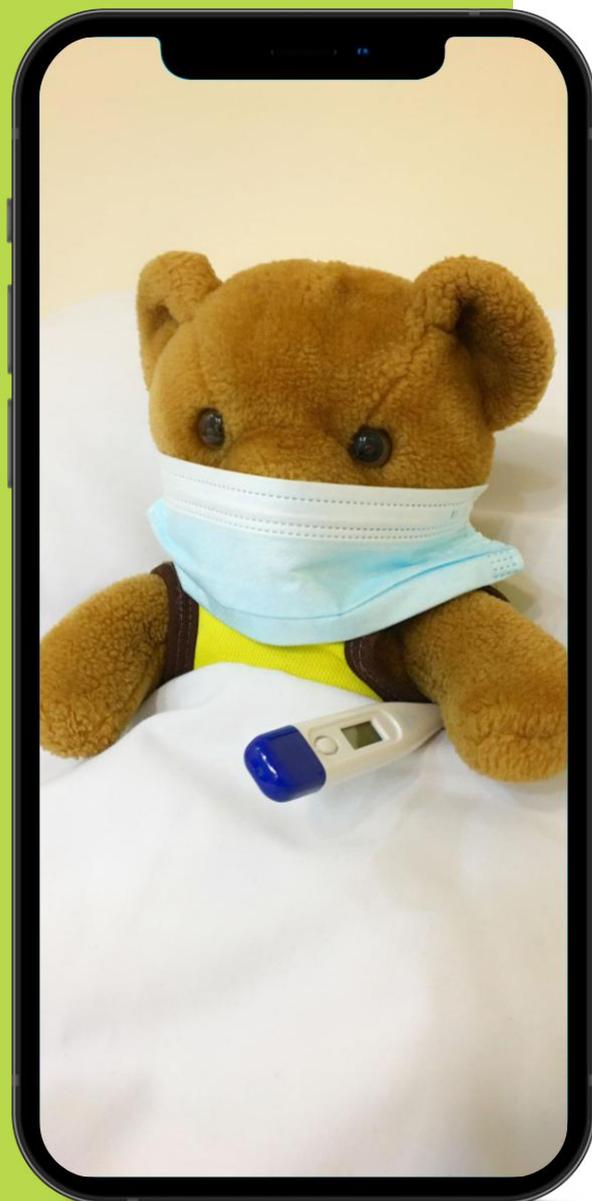
<https://www.ncbi.nlm.nih.gov/pubmed/12860970>

Regulating T-cell differentiation through the polyamine spermidine

<https://pubmed.ncbi.nlm.nih.gov/32407834/>



HEALTH BENEFITS



THE SCIENCE

Neuroprotection

Spermidine protects against α -synuclein neurotoxicity

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4614020/>

Polyamines and central nervous system injury: spermine and spermidine decrease following transient focal cerebral ischemia in spontaneously hypertensive rats

<https://pubmed.ncbi.nlm.nih.gov/12031538/>

Spermidine prevents high glucose-induced senescence in HT-22 cells by upregulation of CBI receptor

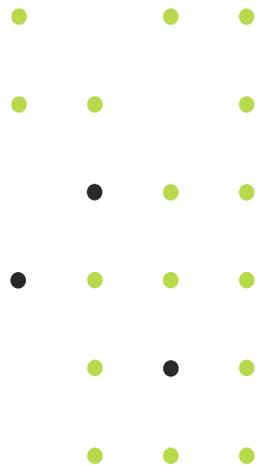
<https://pubmed.ncbi.nlm.nih.gov/29699000/>

Spermidine preconditioning ameliorates laurate-induced brain injury by maintaining mitochondrial stability

<https://pubmed.ncbi.nlm.nih.gov/28112032/>

Polyamines in the brain: distribution, biological interactions, and their potential therapeutic role in brain ischaemia

<https://pubmed.ncbi.nlm.nih.gov/17627518/>



HEALTH BENEFITS



THE SCIENCE

Cardioprotection

Spermidine to the rescue for an aging heart

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5853099/>

Cardioprotection and lifespan extension by the natural polyamine spermidine

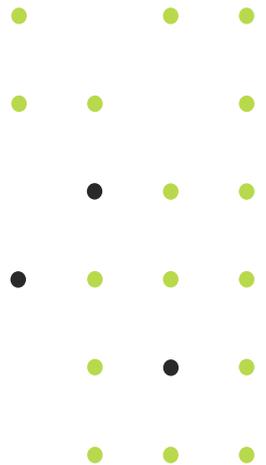
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5806691/>

Spermidine-enhanced autophagic flux improves cardiac dysfunction following myocardial infarction by targeting the AMPK/mTOR signalling pathway

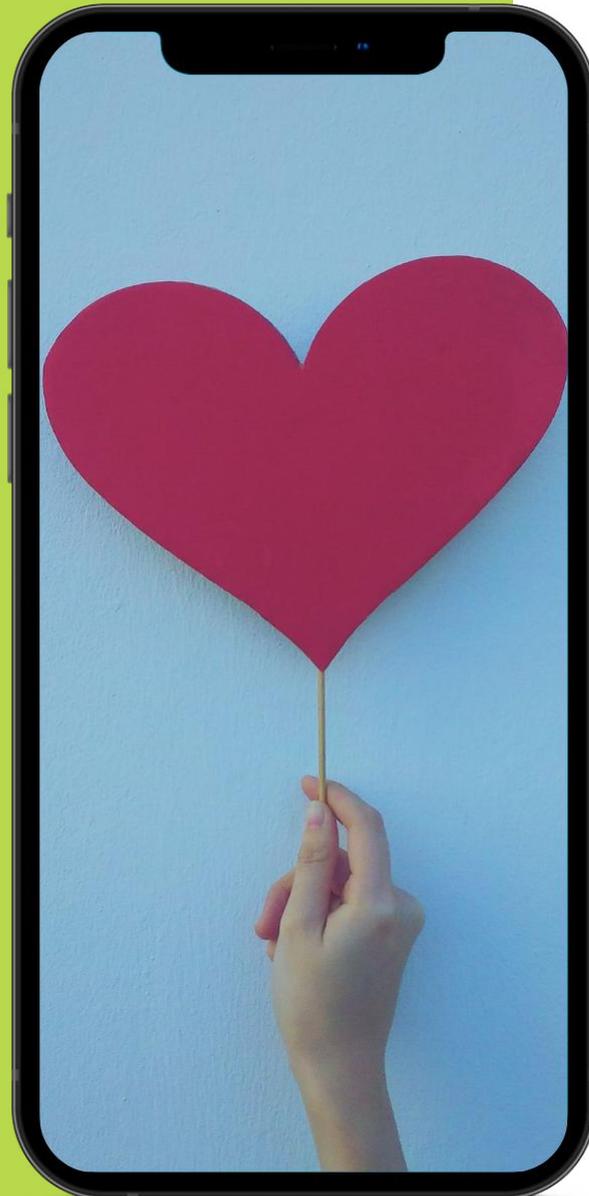
<https://pubmed.ncbi.nlm.nih.gov/31077347/>

Spermidine Prevents Heart Injury in Neonatal Rats Exposed to Intrauterine Hypoxia by Inhibiting Oxidative Stress and Mitochondrial Fragmentation

<https://pubmed.ncbi.nlm.nih.gov/31217839/>



HEALTH BENEFITS



THE SCIENCE

Fertility Health

Polyamines on the reproductive landscape

<https://pubmed.ncbi.nlm.nih.gov/21791568/>

Spermidine induces cytoprotective autophagy of female germline stem cells in vitro and ameliorates aging caused by oxidative stress through upregulated sequestosome-1/p62 expression

<https://pubmed.ncbi.nlm.nih.gov/34099041/>

Spermidine promotes mating and fertilization efficiency in model organisms

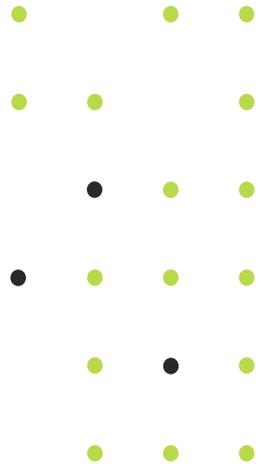
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3575463/>

Spermine synthesis is required for normal viability, growth, and fertility in the mouse

<https://pubmed.ncbi.nlm.nih.gov/15459188/>

The protective role of spermine against male reproductive aberrations induced by exposure to electromagnetic field - An experimental investigation in the rat

<https://pubmed.ncbi.nlm.nih.gov/30878504/>

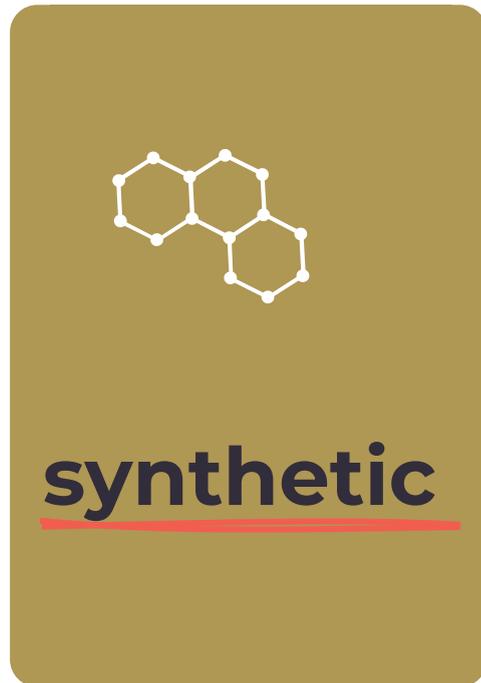
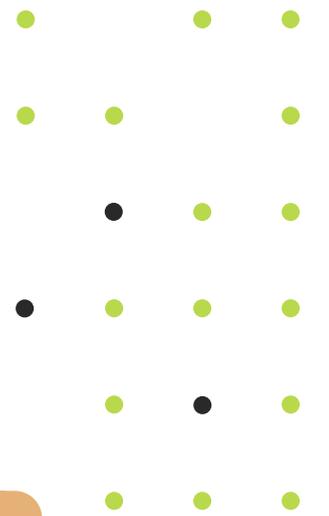


HEALTH BENEFITS



THE SCIENCE

POLYAMINES & SPERMIDINE IN SUPPLEMENTS COME FROM **3 SOURCES**



SUPPLEMENT OPTIONS

...AND THEY ARE NOT CREATED EQUAL



Unnatural trihydrochloride
Made with harsh chemicals
Impurities/Safety unknown



Natural & Hypoallergenic
Non-GMO & Gluten Free
Rich in other natural Polyamines

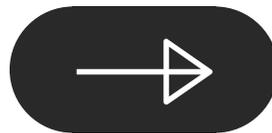
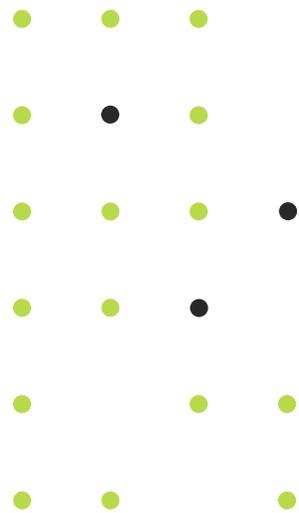


1 of the 9 Major Allergens
May cause Wheat allergy
May contain Gluten



SUPPLEMENT OPITONS

Why not "pure" Spermidine?



1

So-called "Pure" Spermidine is commercially available in the unnatural **Trihydrochloride** form, with impurities and safety unknown.

2

There is no sufficient safety studies and health benefits studies done with "pure" Spermidine.

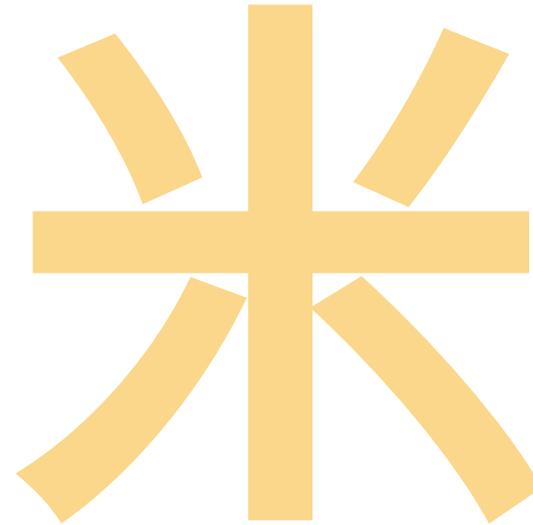
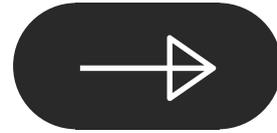
3

Polyamines (Putrescine, Spermidine & Spermine), not just Spermidine, are consumed in food and have shown health benefits in numerous studies.



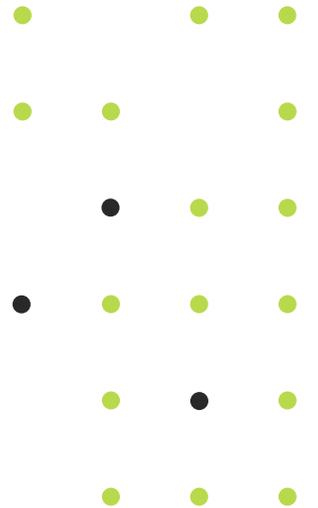
miricell™

WHY & HOW
WE CREATE IT
FROM RICE



mi

(Chinese character for **rice**)



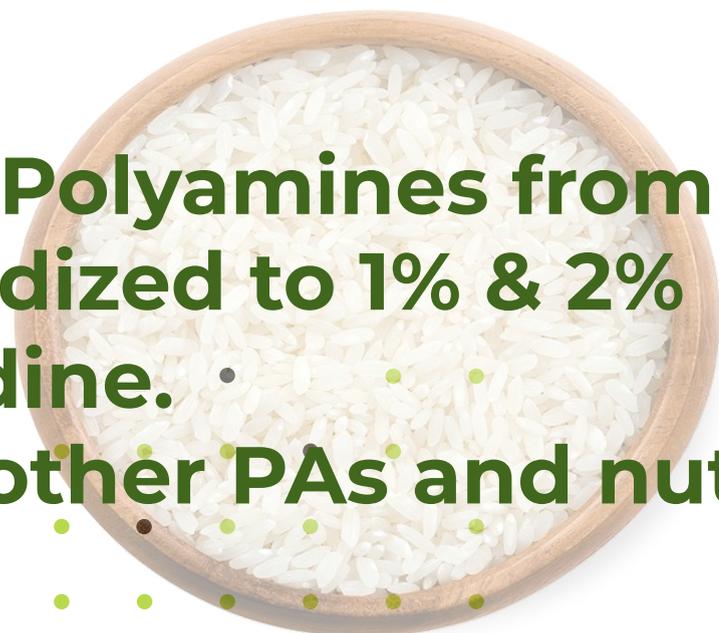
THE CREATION



miricellTM



WHAT IS IT



**Natural Polyamines from Rice.
Standardized to 1% & 2%
Spermidine.
Rich in other PAs and nutrients.**

THE CREATION

Natural

Naturally and gently extracted from Rice

Non-GMO

Made with Non-GMO Rice Germs only

Allergen-Free

Allergen-Free & Gluten-Free

Vegan-Friendly

Vegan & Vegetarian

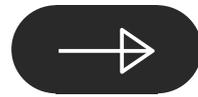
Sustainable

Eco-friendly & sustainably made

Complete

Rich in Spermidine & Polyamines

miricellTM



Rice Embryo (Rice Germ), which is full of nutrients (and rich in Polyamines), is one of the "modern" Rice Milling byproducts when Brown Rice is processed into White Rice. Such byproducts are usually disposed as waste or used for feed purpose.

UPCYCLING

MiricellTM is made from the usually wasted Rice Germ in rice milling, to not only transform it into a nutraceutical ingredient with great health benefits, but also respect and fully use the resources gifted by nature for a sustainable future.

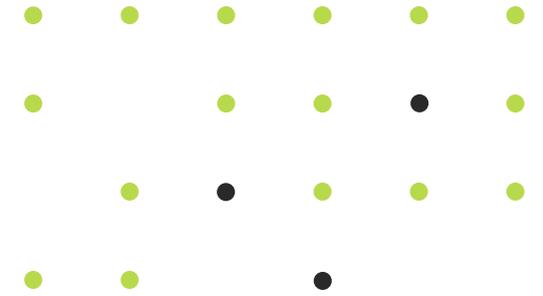


THE CREATION

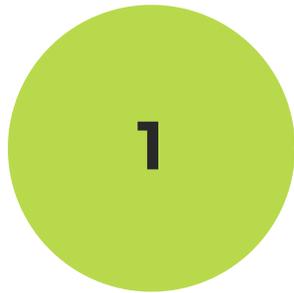




miricell™



→ MAKING



Nutrient-packed
Non-GMO
Rice Germs



Gently extracted
to achieve maximum
Polyamines/Spermidine
while keeping other
nutrients in rice germs



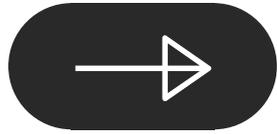
3rd Party verified
Assay(s)
Heavy Metals
Allergens
Contaminants



Miricell™
Natural Polyamines from rice
a clean-label ingredient

THE CREATION

miricell™



"THREE MUSKETEERS"

- Main PAs in mammalian cells and plants

Miricell™ is not only standardized to min. 1% Spermidine, but also rich in other health-beneficial Polyamines such as Putrescine & Spermine



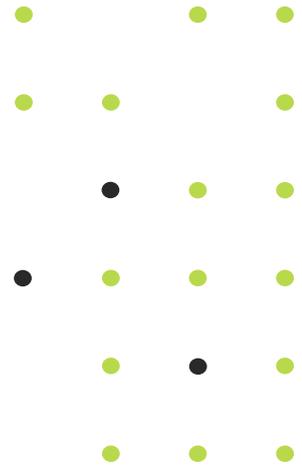
Putrescine
PUT



Spermidine
SPD

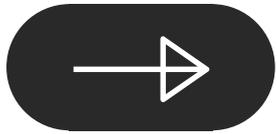


Spermine
SPM



THE CREATION

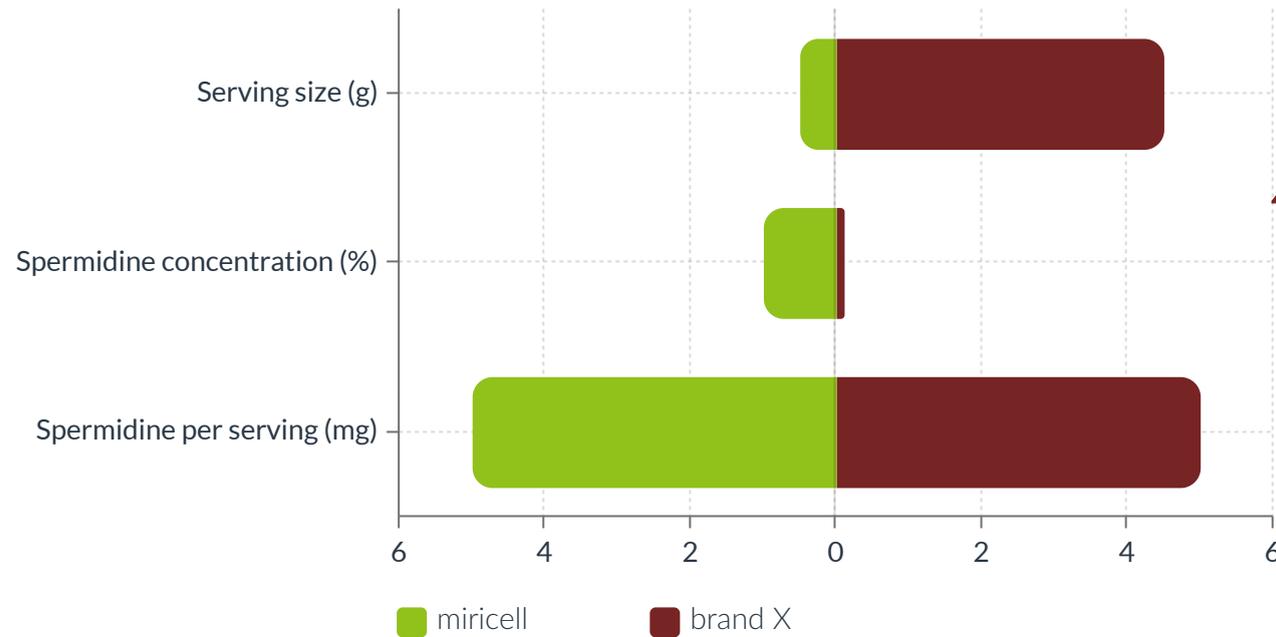
miricell™



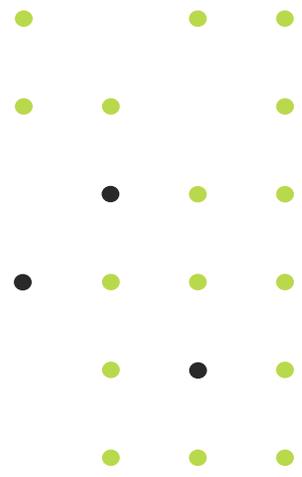
STRENGTH

Miricell™ is about 20 times more concentrated than some other Spermidine ingredients in the market

250mg Miricell™
=
5mg/Day
Spermidine dose



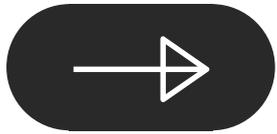
4,500mg Brand X
=
5mg/Day
Spermidine dose



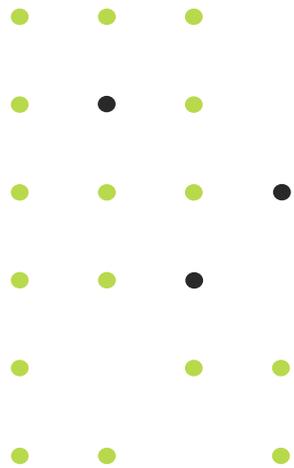
THE CREATION

miricellTM

MiricellTM has been extensively tested for validation of assay & non-Allergen claims



VALIDATION



Analysis:	Method:	Result:	Spec:
Spermidine (HPLC)	SOP3.1.2	1.17 % (d.b.)	≥ 1 %
Loss on Drying (LOD)	USP<731>	3.98 %	N/A

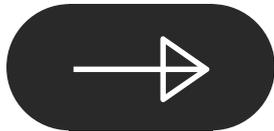
Parameter	Result
Gluten Allergen (ELISA) - Wheat, Rye, & Barley	<3.0 ppm



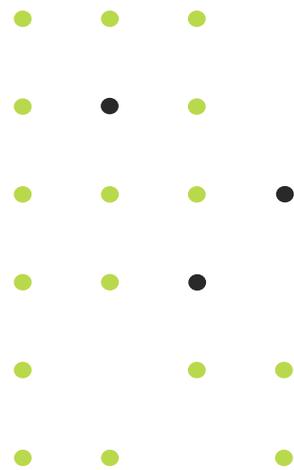
THE CREATION

miricellTM

We've raised the bar
by launching a new
MiricellTM grade which
doubles the potency!



KEEP RAISING THE BAR



Parameter	Result
2-Phenylethylamine	<0.0001 %
Cadaverine	<0.0001 %
Histamine	0.00264 %
Putrescine	0.0751 %
Spermidine	2.66 %
Spermine	0.0923 %
Tryptamine	0.0215 %
Tyramine	<0.0001 %



THE CREATION

miricellTM

AWARD-WINNING

FIRST PLACE WINNER
NIE's New Ingredient Awards
(Personal Care category)

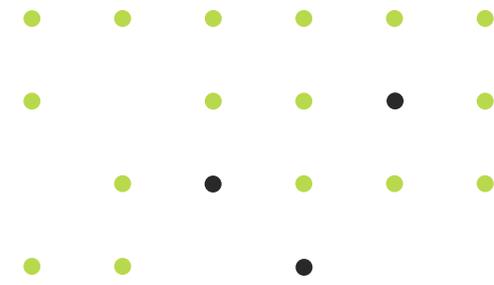


THE CREATION

THE CHOICE IS CLEAR

miricellTM

RICE GERM POLYAMINES



THANK

YOU



sales@nutrallandusa.com

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This (these) product(s) are not intended to diagnose, treat, cure or prevent any disease.