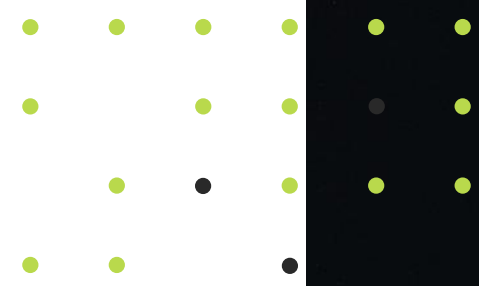


This (these) statement(s) have not been approved by the Food and Drug Administration.
This (these) product(s) are not intended to diagnose, treat, cure or prevent any disease.



miricellTM

RICE GERM POLYAMINES



GRAS GENERALLY
RECOGNIZED
AS SAFE



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.

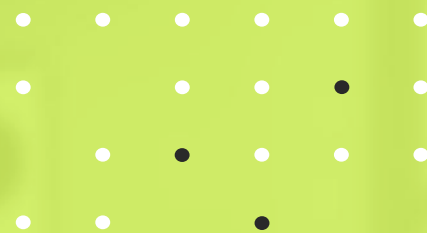
Though it was originally isolated from semen, Spermidine is the main Polyamine found in plants.

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

POLYAMINES & SPERMIDINE IN FOOD



Fruits & Vegetables

Apple, Avocado, Banana, Broccoli, Cauliflower, Orange



Meat

Beef, Chicken



Legumes & Soybean products

Chickpea, Lentil, Soybean, Tofu



Fish & Seafood

Cod, Salmon, Shrimp



Nuts

Almonds, Chestnuts, Pistachios



Dairy products

Milk, Yogurt



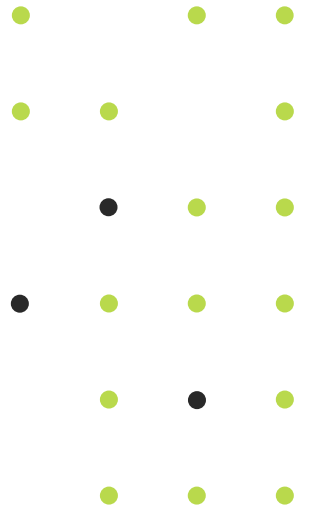
Cereals & Mushrooms

Rice, Wheat, Shitake



Aged Cheese

Cheddar, Brie



THE STORY

HEALTH BENEFITS

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

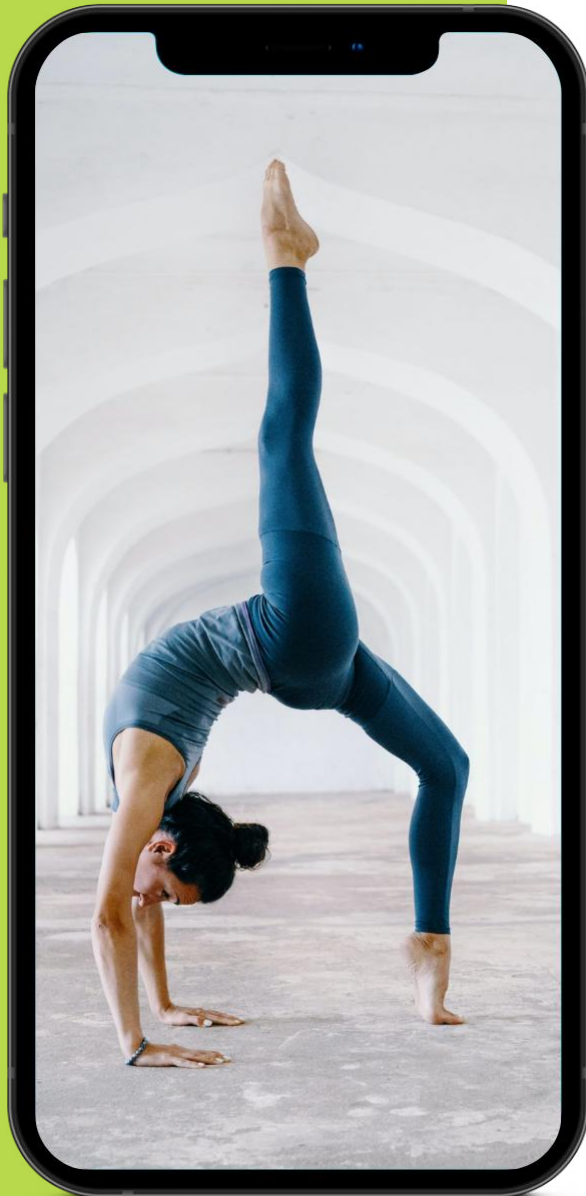
There are extensive studies on the physiological functions of polyamines (Spermidine, Putrescine & Spermine) and their importance for cellular health.

"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

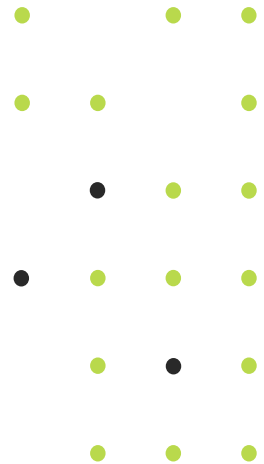
<https://pubmed.ncbi.nlm.nih.gov/19801973/>

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>



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

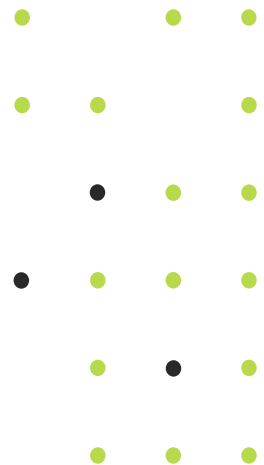
<https://onlinelibrary.wiley.com/doi/full/10.1111/j.1600-0625.2010.01111.x>

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

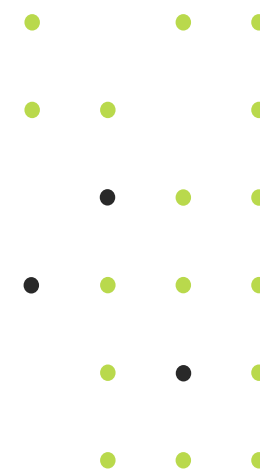
[https://www.cell.com/trends/immunology/fulltext/S1471-4906\(20\)30214-3](https://www.cell.com/trends/immunology/fulltext/S1471-4906(20)30214-3)

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/>



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 CB1 receptor

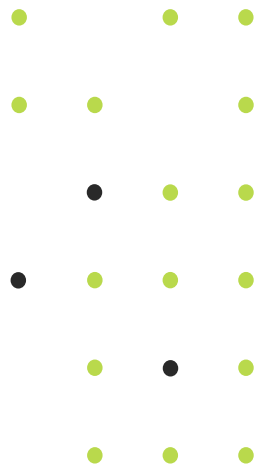
<https://pubmed.ncbi.nlm.nih.gov/29699000/>

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/>

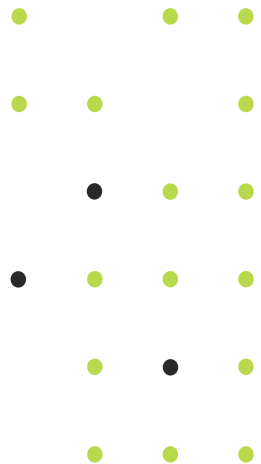
Spermidine Prevents Heart Injury in Neonatal Rats Exposed to Intrauterine Hypoxia by Inhibiting Oxidative Stress and Mitochondrial Fragmentation

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

HEALTH BENEFITS



THE SCIENCE



Women's Health

Dietary polyamine intake and colorectal cancer risk in postmenopausal women

Dietary polyamine intake and colorectal cancer risk in postmenopausal women

The natural polyamines spermidine and spermine prevent bone loss through preferential disruption of osteoclastic activation in ovariectomized mice

<https://pubmed.ncbi.nlm.nih.gov/22250848/>

The Regulatory Effect of Biogenic Polyamines Spermine and Spermidine in Men and Women

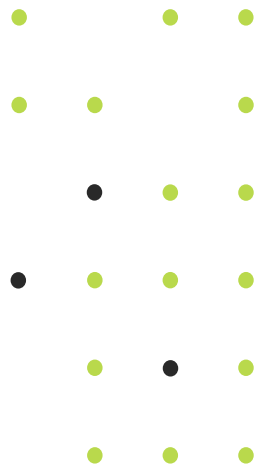
The Regulatory Effect of Biogenic Polyamines Spermine and Spermidine in Men and Women

Exploration of the Antioxidant Effect of Spermidine on the Ovary and Screening and Identification of Differentially Expressed Proteins

<https://pubmed.ncbi.nlm.nih.gov/36982867/>

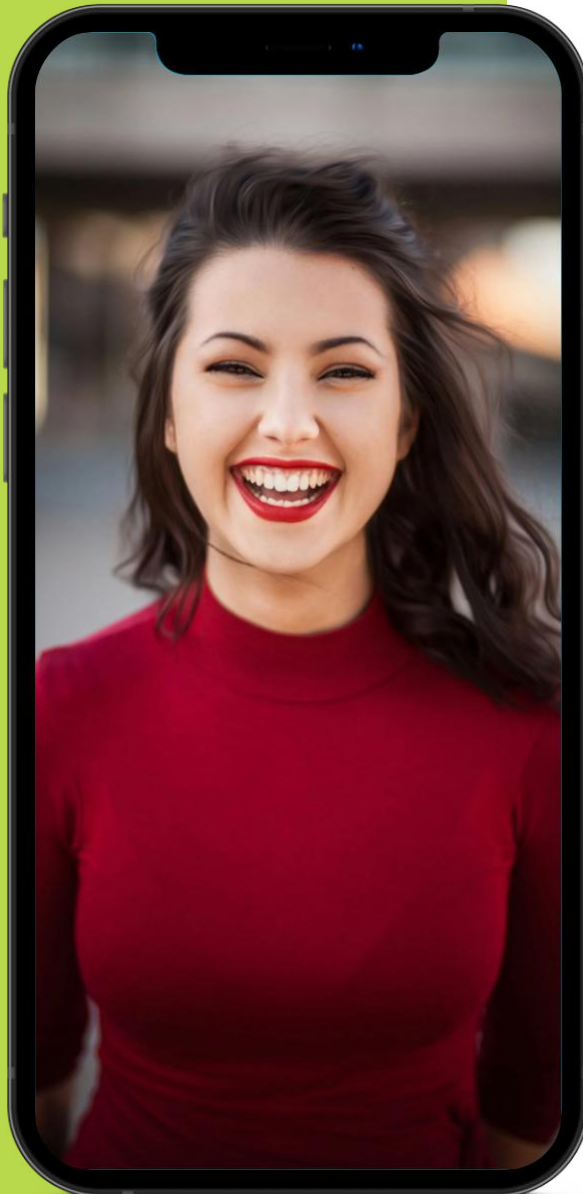
Polyamine Oxidase Expression Is Downregulated by 17 β -Estradiol via Estrogen Receptor 2 in Human MCF-7 Breast Cancer Cells

<https://pubmed.ncbi.nlm.nih.gov/35886868/>



THE SCIENCE

HEALTH BENEFITS



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

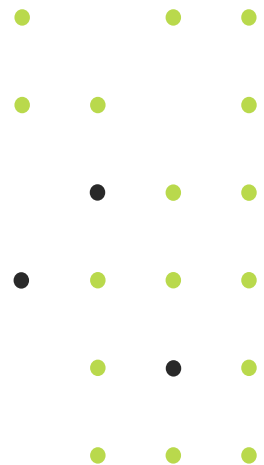
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3575463/>

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/>

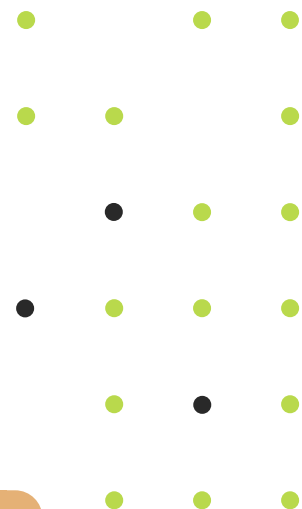


THE SCIENCE

HEALTH BENEFITS



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



synthetic



rice



wheat

SUPPLEMENT OPTIONS

...AND THEY ARE NOT CREATED EQUAL



synthetic

Unnatural trihydrochloride
Made with harsh chemicals
Impurities/Safety unknown



rice

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



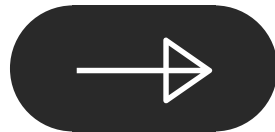
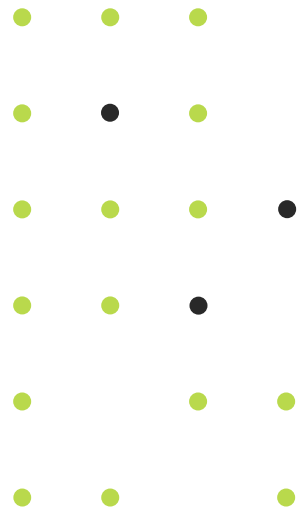
wheat

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



SUPPLEMENT OPTIONS

Why not "pure" Spermidine?



1

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

2

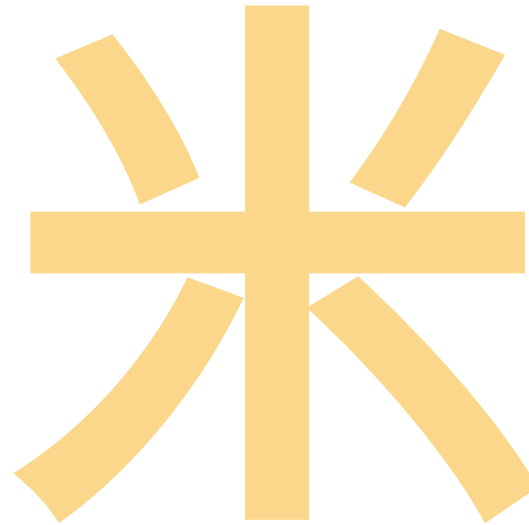
There is no sufficient safety studies and health benefits studies done with "pure" Spermidine.

3

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

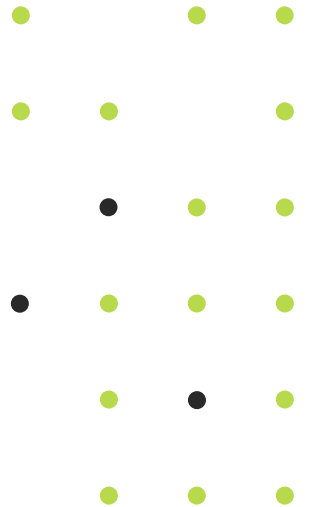
miricellTM

WHY & HOW
WE CREATE IT
FROM RICE



mi

(Chinese character for **rice**)



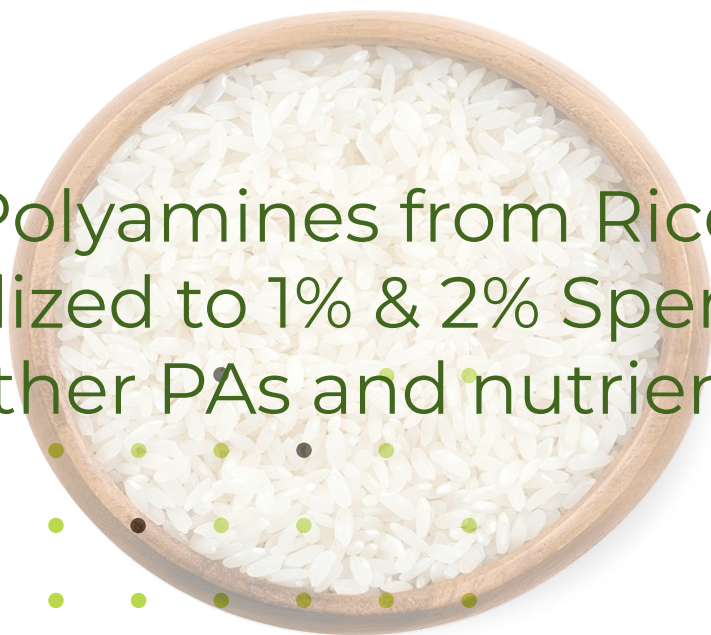
CREATION



miricellTM

WHAT IS IT

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



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

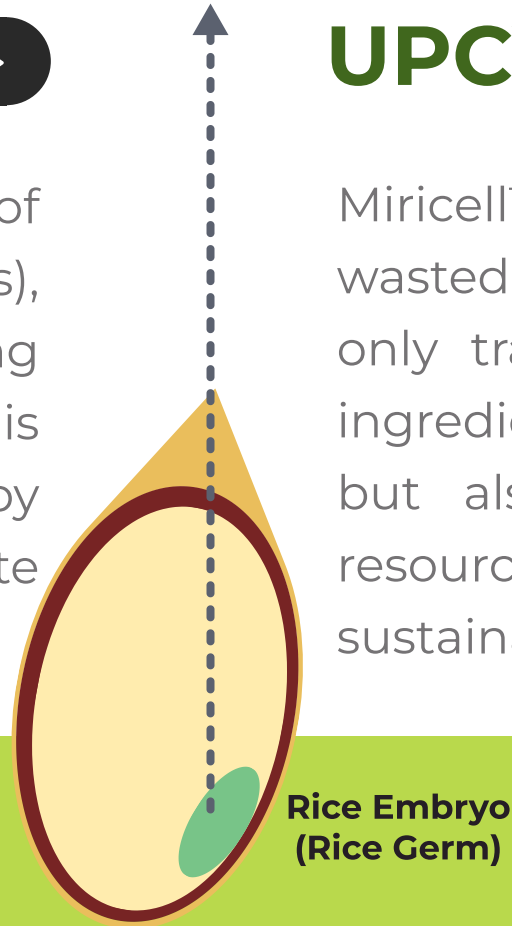
miricellTM



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.

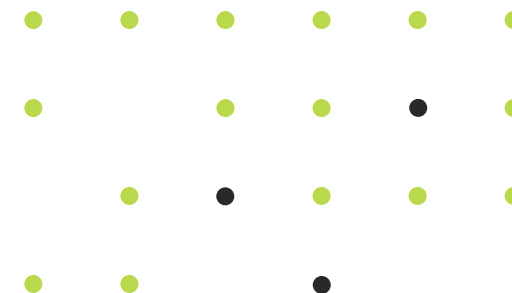
UPCYCLING

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.



CREATION

miricellTM



→ MAKING

1

Nutrient-packed
Non-GMO
Rice Germs

2

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

3

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

4

MiricellTM
Natural Polyamines from rice
A clean-label ingredient

CREATION

miricell™



"THREE MUSKETEERS"

- Main PAs in mammalian cells and plants

Miricell™ is not only standardized to min. 1% (or 2% Spermidine), but also rich in other health-beneficial Polyamines such as Putrescine & Spermine.



Putrescine

PUT



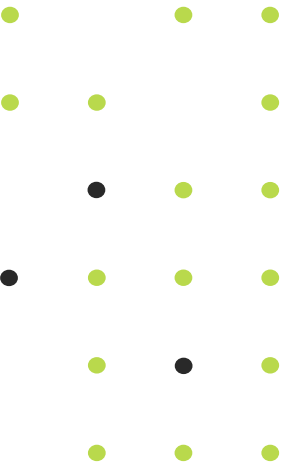
Spermidine

SPD



Spermine

SPM



CREATION

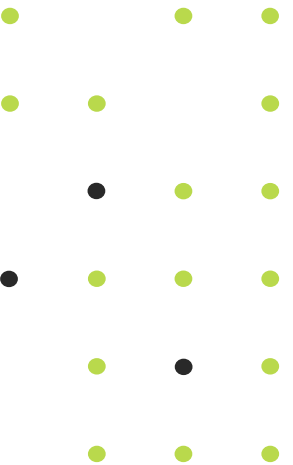
miricellTM

Safety always comes first for every ingredient from Nutraland. The safety of MiricellTM is backed by its SA-GRAS status, which is achieved after rigorous review by a 3rd party expert panel.



SAFETY

- SA-GRAS Affirmed



ADVANTAGE

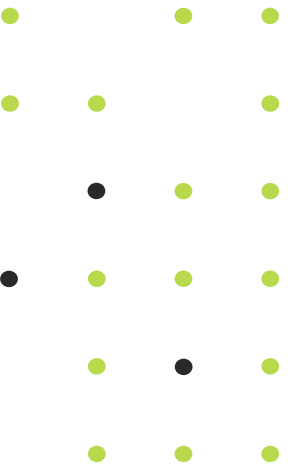
miricellTM



QUALITY

- BRCGS-Certified & US FDA-Inspected

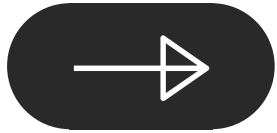
When it comes to quality, there is no compromise. MiricellTM is proudly manufactured at our BRCGS-Certified & US FDA-Inspected facility to ensure the highest quality possible.



ADVANTAGE

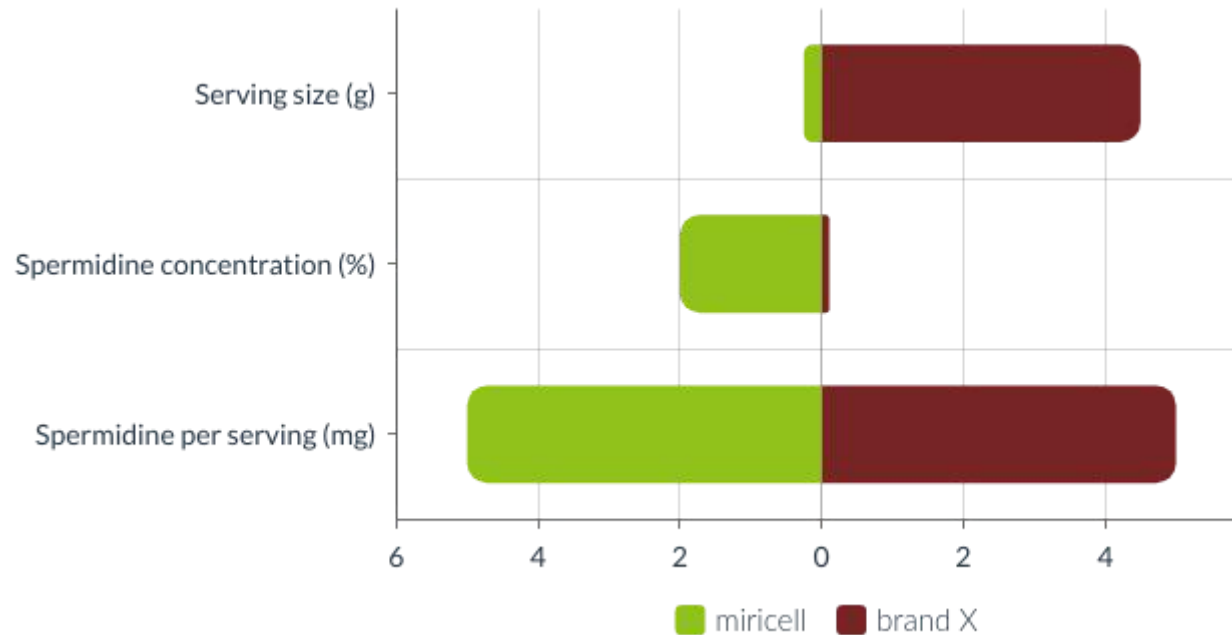
miricellTM

MiricellTM (2%) is about 20 times more concentrated than some other Spermidine ingredients in the market

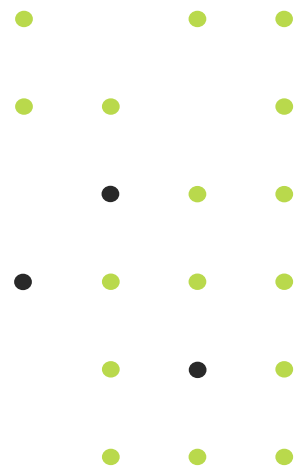


STRENGTH

250mg
MiricellTM (2%)
↓
5mg/Day
Spermidine dose



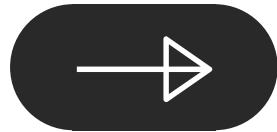
4,500mg
Brand X
↓
5mg/Day
Spermidine dose



ADVANTAGE



Miricell™ has been extensively tested for contaminants to ensure a product at the cleanest level.



VALIDATION

QA0SZ - Pesticides <USP 561>
(LC-MS/MS and GC-MS/MS)

Reference
USP 561

Parameter	Result
Acephate	<0.1 mg/kg
Alachlor	<0.05 mg/kg
Aldrin and dieldrin (sum of)	<0.05 mg/kg
Azinphos-ethyl	<0.1 mg/kg
Azinphos-methyl	<1 mg/kg
Bromophos-ethyl	<0.05 mg/kg
Bromophos-methyl	<0.05 mg/kg
Bromopropylate	<3 mg/kg
Chlordane (sum)	<0.05 mg/kg
Chlorfenvinphos	<0.5 mg/kg
Chlorpyrifos	<0.2 mg/kg
Chlorpyrifos-methyl	<0.1 mg/kg
Chlorthal-dimethyl	<0.01 mg/kg
Cyfluthrin I-IV	<0.1 mg/kg
Cyhalothrin, lambda-	<1 mg/kg
Cypermethrin I-IV	<1 mg/kg
DDT (sum)	<1.0 mg/kg
Deltamethrin	<0.5 mg/kg
Diazinon	<0.5 mg/kg
Dichlofluanid	<0.1 mg/kg
Dichlorvos	<1 mg/kg
Dicofol, o,p' & p,p'-	<0.5 mg/kg
Dimethoate and omethoate (sum of)	<0.1 mg/kg
Endosulfan (sum)	<3.0 mg/kg
Endrin	<0.05 mg/kg
Ethion	<2 mg/kg

Test Requested:	Test Method Number:	Client Specification:	Results:
Residual Solvents	MQLTM-0243 (<467> USP- NF 2023 Issue 2 Modified) By GC-FID	Meets USP Limits if less than:	
Class I:			Class I:*
1,1 Dichloroethene		8 ppm	Not Detected
1,1,1 Trichloroethane		1500 ppm	Not Detected
Carbon Tetrachloride		4 ppm	Not Detected
Benzene		2 ppm	Not Detected
1,2-Dichloroethane		5 ppm	Not Detected
Class IIA:			Class IIA:
Methanol		3000 ppm	Not Detected
Acetonitrile		410 ppm	Not Detected
Dichloromethane		600 ppm	Not Detected
Trans-1,2-dichloroethene		1870 ppm	Not Detected
Cis-1,2-dichloroethene		900 ppm	Not Detected
Tetrahydrofuran		720 ppm	Not Detected
Cyclohexane		3880 ppm	Not Detected
Methylcyclohexane		1180 ppm	Not Detected
1,4-dioxane		380 ppm	Not Detected
Toluene		890 ppm	Not Detected
Chlorobenzene		360 ppm	Not Detected
M,p-Xylene		1605.8 ppm	Not Detected
Ethylbenzene		368.9 ppm	Not Detected
o-Xylene		195.3 ppm	Not Detected
Cumene		70 ppm	Not Detected
Class IIB:			Class IIB:
Hexane		290 ppm	Not Detected
1,2 Dimethoxyethane		100 ppm	Not Detected
trichloroethylene		80 ppm	Not Detected
Chloroform		60 ppm	Not Detected
2-Hexanone		50 ppm	Not Detected
Nitromethane		50 ppm	Not Detected
Tetralin		200 ppm	Not Detected
Pyridine		100 ppm	Not Detected
Class III:			Class III:
N-Pentane		5000 ppm	Not Detected
Ethanol		5000 ppm	Meets USP limit
Diethyl Ether		5000 ppm	Not Detected

Test Requested:	Test Method:	Specification:	Results:
Arsenic	MQLTM-0278 By ICP-MS	N/A	0.017 ppm
Cadmium	MQLTM-0278 By ICP-MS	N/A	0.004 ppm
Mercury	MQLTM-0278 By ICP-MS	N/A	0.001 ppm
Lead	MQLTM-0278 By ICP-MS	N/A	0.033 ppm

	Results	Unit	LOQ	LOD
SU584	Allergen – Gluten (ELISA)	Method: R-Biopharm RIDASCREEN® Gliadin R7001 2021		
Gluten	Not Detected	mg/kg	5	1

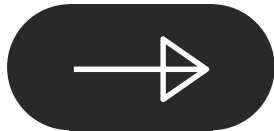
Analyte:	Result:	Method:	Test Date:	Comment:
TPC	<10cfu/gm	TM-01 (USP61)	08/03/23	N/A
Yeast/Mold	<10cfu/gm	TM-01 (USP61)	08/03/23	N/A
E.coli	Absent	TM-01A (USP62)	08/03/23	N/A
S.aureus	Absent	TM-01A (USP62)	08/03/23	N/A
Salmonella/Shigella	Absent	TM-01A (USP62)	08/03/23	N/A



ADVANTAGE

miricellTM

MiricellTM 2% Spermidine grade is probably the most concentrated natural Spermidine ingredient available in the market today!



KEEP RAISING THE BAR

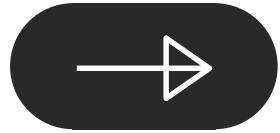
Parameter	Result
2-Phenylethylamine	<0.0001 %
Cadaverine	<0.0001 %
Histamine	0.00264 %
Putrescine	0.0751 %
Spermidine	2.66 %
Spermine	0.0923 %
Tryptamine	0.0215 %
Tyramine	<0.0001 %

ADVANTAGE



miricellTM

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



AWARD-WINNING



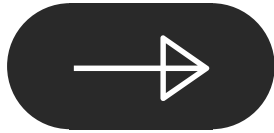
ADVANTAGE

miricellTM

California Gold Nutrition

USA

iherb.com



Country/Region
USA

Product launch
October 2023

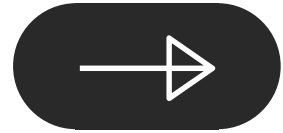
Delivery form
Capsules

Dose
**Spermidine 1mg
(from 100mg MiricellTM)**



MIRICELL INSIDE

miricellTM



GC Wellbeing (Earnestree)
KOREA

<https://smartstore.naver.com/>



PNT Lab

스페르미딘

1mg	Spermidine	하루한알
-----	------------	------

1정당 스페르미딘 1mg 함유
30g (500mg × 60정 / 110kcal)

GC 녹십자웰빙

[섭취방법] 1일 1회, 1회 1정을 물과 함께 섭취하십시오. [보관방법] 신선도가 유지되도록 고온다습하거나 직사광선을 피한 실온에 보관하여 주십시오. 어린이 손에 닿지 않는 곳에 보관 하십시오.

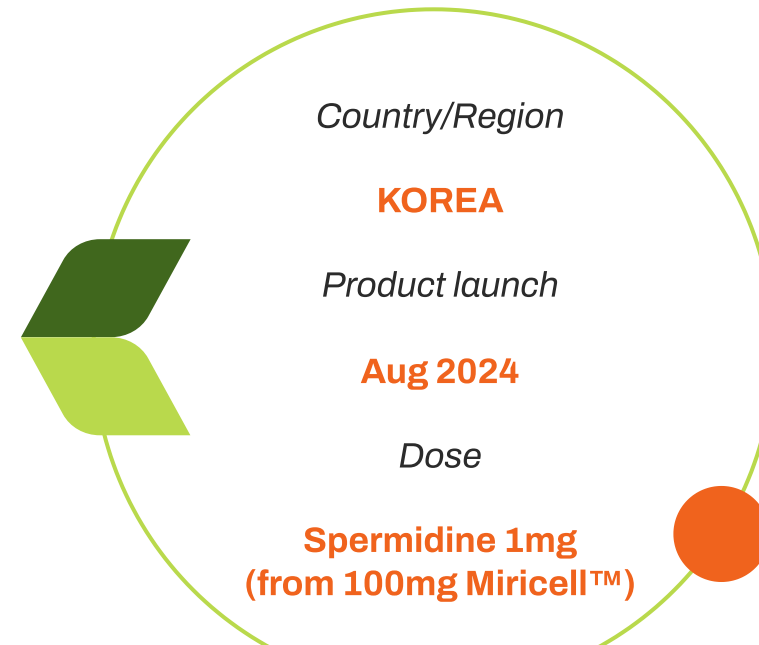
[유통전문판매원] 어니스트리 | 서울특별시 영등포구 여의대로 108, 33층(파크원타워2) [제조원]코스맥스바이오(주) | 충청북도 제천시 바이오밸리3로 30 [교환 및 반품] 구입처 [소비자 상담실] 1577-5560

MiricellTM MiricellTM is a trademark of Nutraland USA, Inc.

Earnestree GC 녹십자웰빙

제조번호 :
소비기한 : 까지

HDPE
뚜껑 : PP

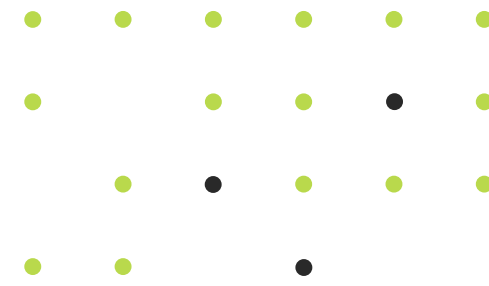


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