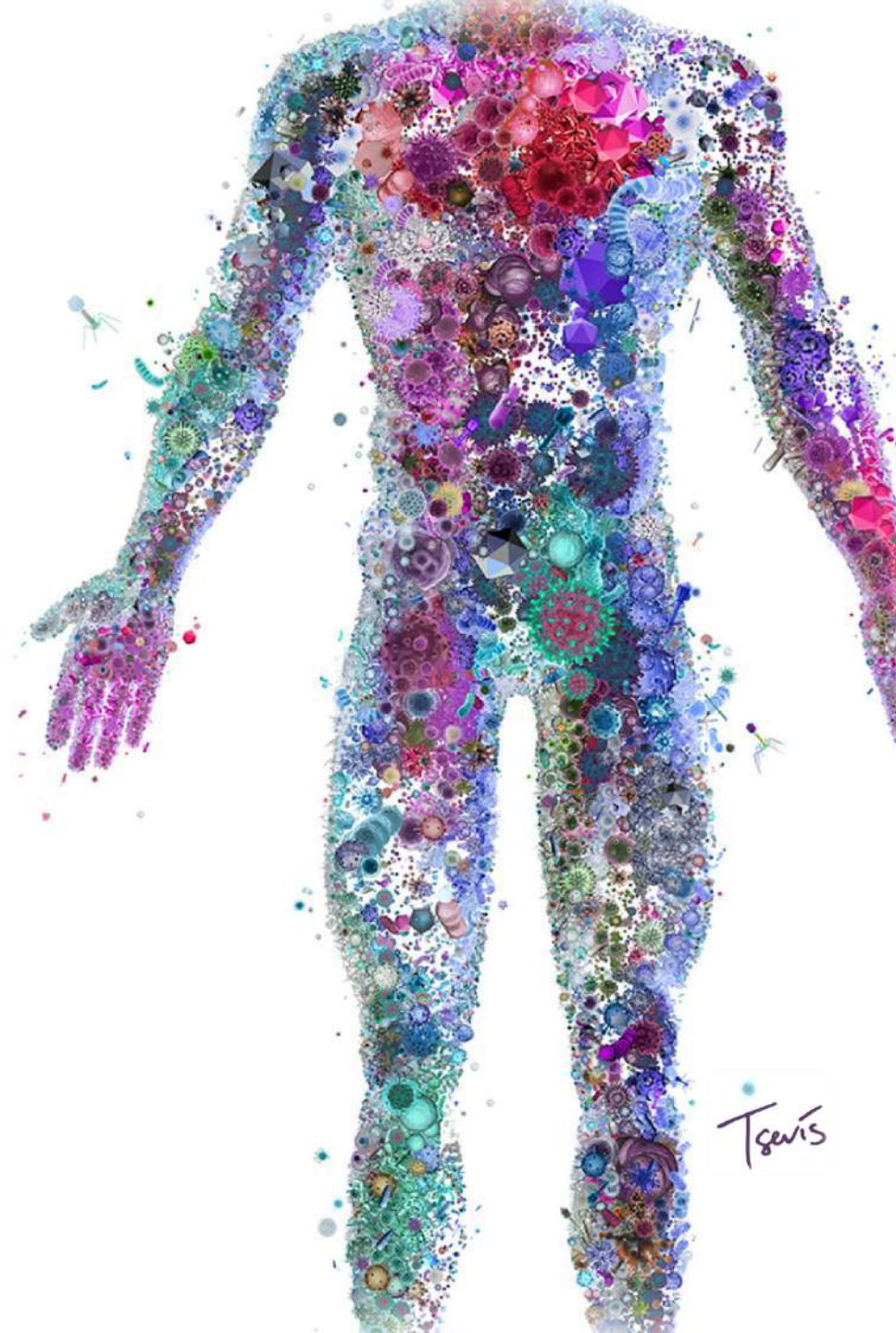




PRODUCT EDUCATION SERIES
PART I



THE HUMAN MICROBIOME,
YOUR BODY AS
A COMPLEX ECOSYSTEM

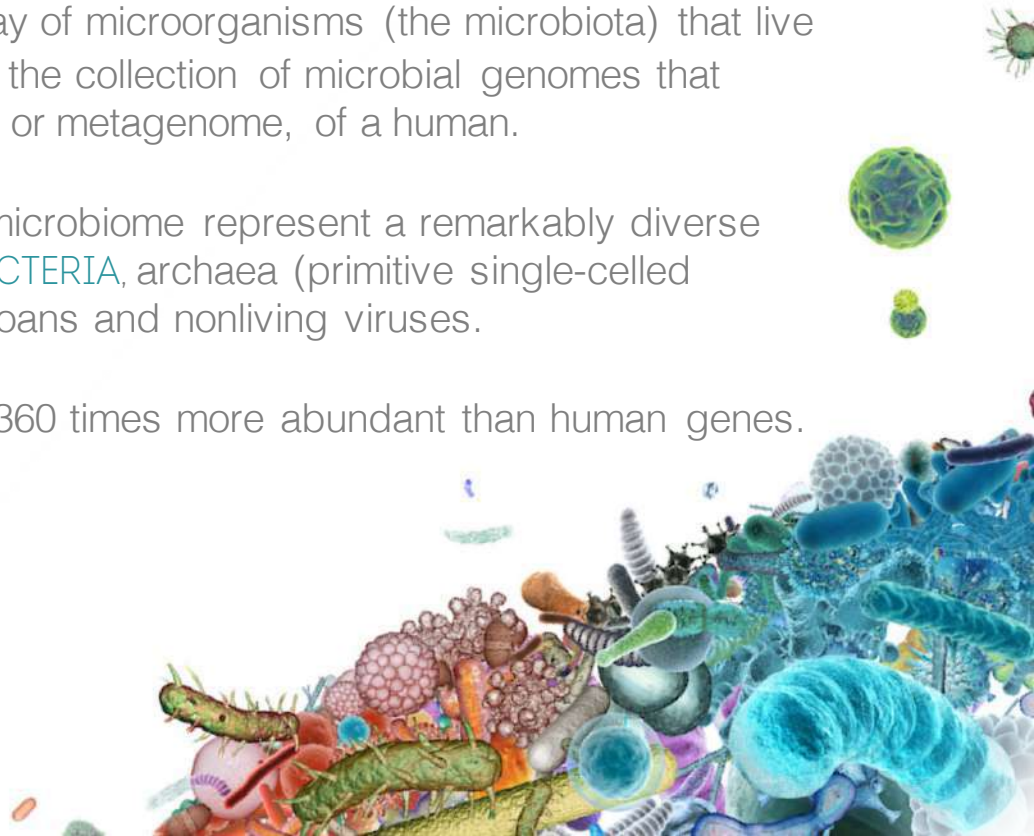


WHAT IS THE HUMAN MICROBIOME?

HUMAN MICROBIOME: The full array of microorganisms (the microbiota) that live on and in humans and, more specifically, the collection of microbial genomes that contribute to the broader genetic portrait, or metagenome, of a human.

The genomes that constitute the human microbiome represent a remarkably diverse array of microorganisms that includes **BACTERIA**, archaea (primitive single-celled organisms), fungi, and even some protozoans and nonliving viruses.

It is estimated that **MICROBIAL GENES** are 360 times more abundant than human genes.





BACTERIA VS. BODY CELLS

THE FAMOUS 10:1 RATIO DEBUNKED

One of the most commonly cited figures in this growing field is the estimate that bacteria residing in the human body outnumber human cells by a factor of 10 or more.

SCIENTISTS SAY THE NEW RATIO IS 1.3:1

BACTERIA remain the most numerous members of the human microbiome. The bacterial population is estimated at between **30 TRILLION AND 50 TRILLION** organisms.

The entire **HUMAN BODY** consists of about **30 TRILLION** body cells.

THE OTHER (SECOND) HUMAN GENOME

The human microbiota includes at least 1,000 DIFFERENT SPECIES of MICROORGANISMS, making for an extraordinarily diverse collection of microbial genomes.

Most members of the human microbiota benefit humans by PROVIDING THEM WITH TRAITS THAT THEY WOULD NOT OTHERWISE POSSESS.

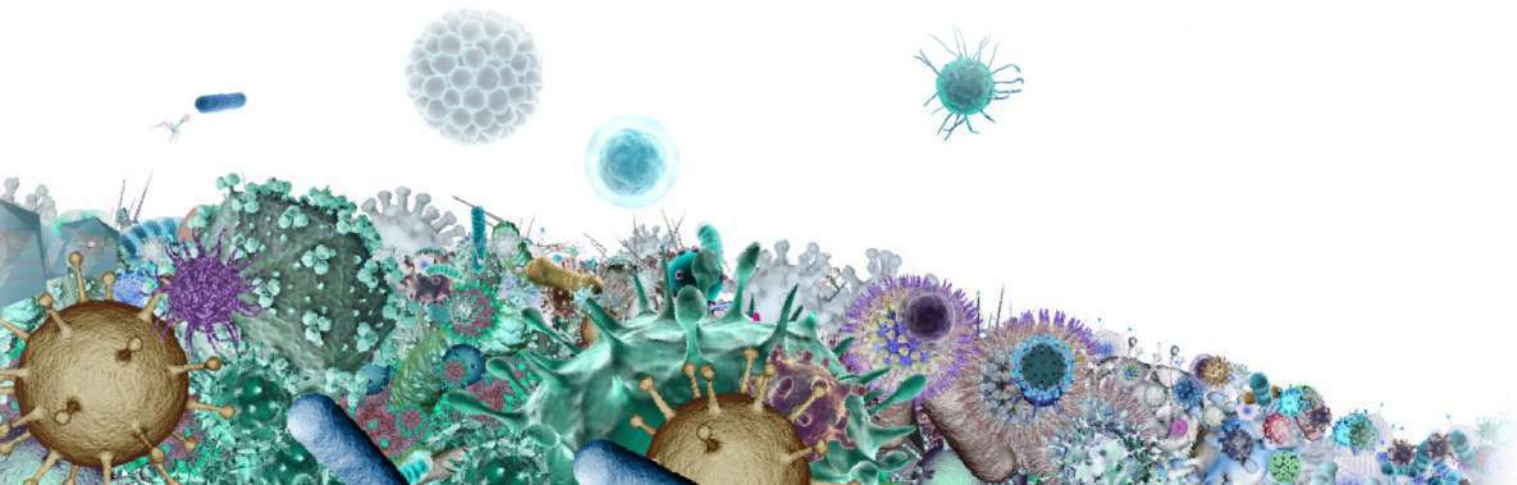
Many traits once assumed to be “human”—such as the DIGESTION OF CERTAIN FOODS or the ability to DEFEND AGAINST DISEASE—result from human-microbe interactions.

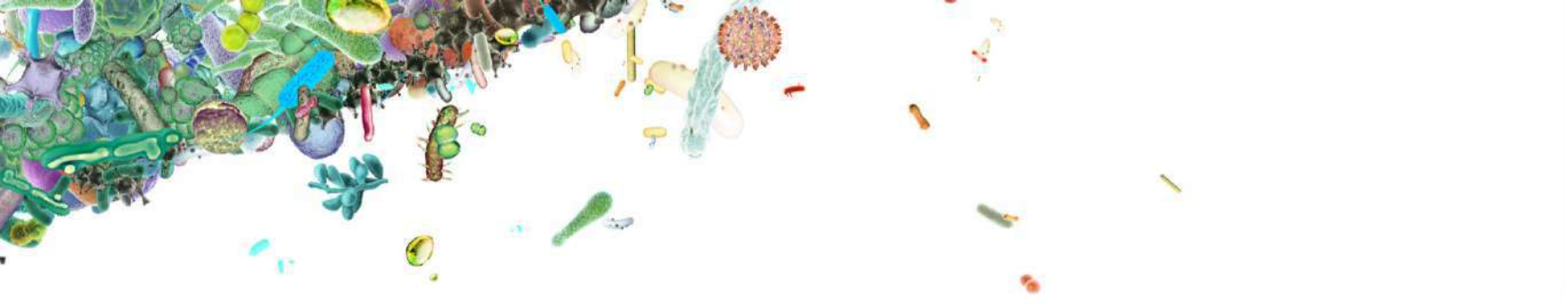


HUMANS AS “SUPERORGANISMS”

Such findings have dispelled the notion that “human beings are physiological islands, entirely capable of regulating their own internal workings” and replaced it with the notion of the human body as [A COMPLEX ECOSYSTEM](#).

Human beings are now perceived as [SUPERORGANISMS](#) made up of thousand biologically diverse species forming clusters in different parts of the body, such as in the surface or deep layers of skin ([SKIN MICROBIOTA](#)), the mouth ([ORAL MICROBIOTA](#)), the vagina ([VAGINAL MICROBIOTA](#)), and so on.





THE GUT MICROBIOTA

The **GASTROINTESTINAL TRACT** is home to an overwhelming majority of these microbes, and, correspondingly, has attracted the most interest from the research community.

GUT MICROBIOTA (formerly called gut flora) is the name given today to the microbe population living in our intestine.

Extensive research on the gut microbiota and its role in both health and disease has established its involvement in **HUMAN METABOLISM**, **NUTRITION**, **PHYSIOLOGY**, and **IMMUNE FUNCTION**.

SOME FUNCTIONS OF THE GUT MICROBIOTA

- Modulate host **NUTRITION** and **ENERGY BALANCE**
- Microbes produce an array of enzymes and provide their host with energy through the fermentation of indigestible dietary components into short-chain fatty acids (SCFAs).
- Carbohydrates that escape digestion by the host enzymes (mainly dietary fibers including resistant starch, nonstarch polysaccharides, and nondigestible polysaccharides) can be fermented by gut bacteria to form SCFAs, which are rich sources of energy for the host.
- SCFAs also lower the intestinal pH; increasing the absorption of ions such as calcium, magnesium and iron; modulating intestinal motility; and suppressing inflammation.

SOME FUNCTIONS OF THE GUT MICROBIOTA

- Provide the host with **FUNDAMENTAL VITAMINS**
- Microbes contribute to the micronutrients available to their host by producing essential B vitamins and vitamin K.
- Gut bacteria can produce **B VITAMINS** (biotin, folate & B12) which are important coenzymes involved in energy metabolism and DNA synthesis and repair.
- Gut bacteria can produce **VITAMIN K** which is essential to building strong bones, preventing heart disease, and crucial part of other bodily processes.

SOME FUNCTIONS OF THE GUT MICROBIOTA

- Enhance host PROTECTION against PATHOGENS
- Commensal bacteria compete for nutrients and epithelial attachment sites, thereby preventing colonization by pathogens. This action is known as the *barrier* or *competitive-exclusion* effect.
- By lowering the pH in the colon, gut bacteria create a microenvironment unfavorable for the growth of pH-sensitive pathogenic bacteria like Enterobacteriaceae and Clostridia. (E. coli, C. difficile, etc.)
- In addition, many intestinal bacteria produce antimicrobial compounds known as bacteriocins in order to inhibit the growth of their pathogen competitors.

SOME FUNCTIONS OF THE GUT MICROBIOTA

- Modulate host IMMUNE FUNCTIONS
- The gut microbiota plays essential roles in immune development, homeostasis and tolerance. The gut microbiota-host immune interactions are extensive and co-operative.
- Homeostasis is maintained through what is likely to be a large number of microbial produced signals that facilitate robust immune surveillance and tolerance.
- The gut microbiota contribute to gut immunomodulation in tandem with both the innate and adaptive immune systems.

SOME FUNCTIONS OF THE GUT MICROBIOTA

- Xenobiotics **METABOLISM & MORE**
- GI microorganisms have a significant capacity to metabolise environmental chemicals (such as pesticides, metals, artificial sweeteners, etc.) and decrease their toxicity for the host.
- Commensal bacteria are required for the production of secondary bile acids and SCFAs, both of which have anti-inflammatory properties in multiple immune cell populations.
- Beneficial microbes also promote tight junction integrity in the colon, increase epithelial cell proliferation rate, fasten epithelial repair in response to injury, and facilitate epithelial cell differentiation with consequent anticancer effects.

A DELICATE BALANCE

The human body is a **COMPLEX ECOSYSTEM** that must be properly **BALANCED** and cared for in order to achieve optimal health and well being.

Even in the healthiest of microbiomes, there are microbes known to **PROMOTE HEALTH** and those known to **CAUSE DISEASE**.

These bad actors live in check until an illness, or perhaps even an antibiotic, starts to deplete their neighbors, thereby unraveling a peaceful coexistence.

An ever-increasing body of evidence implicates the GI microbiota in defining states of health and disease.

GUT DYSBIOSIS & DISEASE

Disruption of the gut microbiome, termed **DYSBIOSIS**, is frequently accompanied by **OVERGROWTH** of pathogenic bacteria or fungi, in conjunction with **SIGNIFICANT LOSS** of microbial diversity or key functional groups and an **INFLAMMATORY** response by the host, which contributes to disease development.

Dysbiosis has been linked to numerous **DISEASES** including inflammatory bowel disease (IBD), irritable bowel syndrome (IBS), coeliac disease, colorectal cancer, allergies, asthma, ADHD, autism, obesity, type 2 diabetes, and atopy.

FACTORS INFLUENCING THE MICROBIOTA

- Pregnancy ([MATERNAL MICROBIOTA](#), Healthy status, Lifestyle)
- Birth ([DELIVERY MODE](#): Vaginal vs. C-section)
- Infancy ([FIRST DIET](#): Human breast milk vs. Formula)
- Genetics

- Environment (Family members, Pets, Geographical location, Exposure to toxins)
- Antibiotic treatments (Responsible vs. Overuse)
- Diet (Whole vs Processed foods)
- Lifestyle (Hygiene practices, Physical activities vs. Risk behaviors)
- Stress
- Medications
- Elderly (Community vs. institutional living)

WAYS TO NOURISH YOUR MICROBIOME

- Food choice / high in plant-based foods
- Low carb, high fiber, fat & nutrient complex diet
- Stress management
- Exercise
- Sleep
- Adding **PROBIOTICS** to your daily routine



PRODUCT EDUCATION SERIES
PART II



THE SCIENCE,
BEHIND
NOVA PROBIOTICS®



ABOUT US

NOVA was founded in 2001 by Dr Andrea Levy, Ph.D of microbiology (MIT) as well as visceral and digestive surgeon (Harvard).

NOVA Probiotics specialises in the development and production of high quality probiotics formulae targeted at human and animal health.

With over fifteen years of experience in the probiotics field, the company has acquired an excellent reputation on the international scale.

NOVA operates from Montreal (QC, Canada), Austin (TX, USA) and Anaheim (CA, USA) with GMP certified production facilities on all sites.

OUR TEAM



RESEARCH & DEVELOPMENT

Our team of passionate scientists has been able to design unique production techniques using strains that are endogenous to the human gut ([HUMAN STRAINS](#)) as well as growth mediums composed of plant extracts (ex: cabbage, papaya, etc...)

This process has enabled the development of the very [FIRST VEGAN](#) and [HYPOALLERGENIC](#) probiotics supplements, certified both [KOSHER](#) and Halal.

NOVA offers a wide array of probiotics suitable for everyone, from children to elders, including people with lactose allergies or even people with chronic inflammatory gut diseases as well as many other ailments.

AWARDS AND INTERNATIONAL RECOGNITION

HERE IS A LIST OF SOME OF THE AWARDS WON BY NOVA THROUGH THE YEARS

- ACQ5 – Company of the year 2020 (LifeSciences)
- ACQ5 – Company of the year 2021 (LifeSciences)
- **ACQ5 – Gamechangers Awards 2021 (Healthcare/Pharmaceuticals) NEW!**
- AI Global – Best Provider of Medical Supplements: 2020 – North America
- **AI Global – Best Provider of Medical Supplements 2021 NEW!**
- Corporate LiveWire Award 2020 – Most Outstanding Probiotic Supplement Canada
- **Corporate LiveWire Award 2021 – Most Outstanding Probiotic Supplement Canada NEW!**
- International Life Sciences Awards 2020 – Best Probiotic Supplement Provider – Canada
- International Life Sciences Awards 2021 - Best Vegan Probiotic Suppl. Provider – Canada
- GHP Excellence in Life Science Awards 2021 - Leading Probiotic Supplement Provider in North America
- GHP Innovation Award For Animal Probiotic Supplements - Canada 2021
- GHP Top 10 Supplement Providers of 2021
- **GHP Innovation Award For Animal Probiotic Supplements - Canada 2022 NEW!**

AC

AWARDS AND INTERNATIONAL RECOGNITION

HERE IS A LIST OF SOME OF THE AWARDS WON BY NOVA THROUGH THE YEARS

- Canada's Top 10 Best Contribution to Healthcare and Pharma Awards 2020
- **USA's Top 10 Best Contribution to Healthcare and Pharma Awards 2022 NEW!**
- Corporate USA Today Annual Awards 2018 – “Rated #1 Probiotic Brand by Physicians in the US”
- **Corporate USA Today Annual Awards 2021 – “Rated #1 Probiotic Brand by Physicians in the US”**
- **Best Manufacturing Company of the Year 2021 – Canada**

GLOBAL VENTURE AWARDS 2019 

AWARDS AND INTERNATIONAL RECOGNITION

• ACQ5 : Company of the year 2016-2017-2019

“NOVA Probiotics has distinguished itself from its peers with strong overall performance as a company, demonstrated leadership and shown significant achievement. Its unwavering commitment to hypoallergenicity, product purity, and rigorous quality control has been the hallmark of the company since its inception.”



PRODUCT CHARACTERISTICS

UP TO 14 PROBIOTIC STRAINS:

Lactobacillus, Bifidobacterium et Propionibacterium for an action along the entire extension of the GI tract.

Probiotic strains of human origin: naturally present in the GI tract as part of the normal healthy intestinal microflora.

The strains were obtained two decades ago and have been naturally replicating in the laboratory ever since.

Numerous tests are done periodically to assure the bacteria are healthy, non-mutated and maintain their unique characteristics.

PRODUCT CHARACTERISTICS

FREEZE-DRIED AND MICROENCAPSULATED:

A proprietary matrix is applied during the production of the freeze-dried bacteria to form protective microcapsules. This process allows to reach very high levels of stability at room temperature by protecting bacteria against light, oxygen, humidity, and heat.

PREBIOTIC INCLUDED:

All our formulae are combined with inulin - sourced from organic chicory root - to nourish the growth of the probiotic microorganisms and increase their effectiveness.

PRODUCT CHARACTERISTICS

FREE OF GLUTEN, SOY AND OTHER COMMON ALLERGENS :

Every lot is tested and verified free of allergens by an independent, third-party lab.

FREE OF GMO:

Verified Non-GMO

EASY-TO-SWALLOW VEGETARIAN CAPSULES:

We exclusively use vegetarian acid-resistant capsules of smaller size (free of synthetic chemicals). These DRcaps™ are designed to open once in the intestine, main action site of the probiotics.

APPEARANCE OF NOVA CAPSULES



FREE OF TITANIUM DIOXIDE

Titanium dioxide is a pigment often found in probiotic supplements to whiten the appearance of the capsules.

The substance has been classified by the International Agency for Research on Cancer (IARC) as GROUP 2B: The Agent (mixture) is “possibly carcinogenic to humans”.

PRODUCT OVERVIEW

MULTI-STRAIN LINE



MULTI-STRAIN LINE

OUR 14 MEDICINAL STRAINS

- *Lactobacillus rhamnosus* NVA193
- *Lactobacillus plantarum* NVA138
- *Lactobacillus rhamnosus* NVA119
- *Bifidobacterium breve* NVA006
- *Lactobacillus paracasei* NVA172
- *Lactobacillus casei* NVA179
- *Lactobacillus acidophilus* NVA104
- *Bifidobacterium animalis* subsp. *lactis* NVA026
- *Propionibacterium freudenreichii* NVA420
- *Lactobacillus reuteri* NVA113
- *Bifidobacterium longum* subsp. *longum* NVA027
- *Bifidobacterium bifidum* NVA058
- *Bifidobacterium longum* subsp. *infantis* NVA041
- *Lactobacillus delbrueckii* subsp. *bulgaricus* NVA165

ORIGINAL 4 BILLION – 60 caps – CODE 083

14 PROBIOTIC STRAINS + PREBIOTIC

- First ever formulation developed by NOVA.
- Ideal for those who wish to gradually introduce a probiotics supplement to their daily routine.
- Small sized capsules that are easy to swallow.
- Very good pricing (0.42\$/capsule) and also a lot more efficient compared to “probiotic” yogurts.



DAILY IMMUNITY 15 BILLION – 60 caps – CODE 090

14 PROBIOTIC STRAINS + PREBIOTIC

- To be taken on a daily basis for a better digestion, a regular transit as well as to support immune functions.
- Adapted for the whole family as soon as one is able to swallow capsules.
- Ideal for the back to school period.
- Double the dosage at the first symptoms of the flu for an efficient and speedy result.



FEMININE 27 BILLION – 60 caps – CODE 106

14 PROBIOTIC STRAINS + PREBIOTIC

- To restore and maintain the balance of gastro-intestinal and vaginal healthy bacterial populations within women of all ages.
- Helps alleviate diarrhoea or the occasional constipation.
- Supports weight management, and maintains the skin's natural glow.
- To be used especially during pregnancy and lactation period.
- Promotes emotional well-being.



PROGRESSIVE 55+ 42 BILLION – 60 caps – CODE 113

14 PROBIOTIC STRAINS + PREBIOTIC

- Meets the specific needs of adults 45 and up.
- Formulated with higher concentrations of Bifidobacterium to reduce intestinal gas and/or flatulence.
- L. reuteri, L. rhamnosus, and B. longum contribute to healthy cholesterol levels.
- Helps reduce the recurrence of urinary infections.



ULTRA FORCE TRAVEL 73 BILLION – 30 caps – CODE 120

14 PROBIOTIC STRAINS + PREBIOTIC

- Formulated to support the equilibrium of the intestinal microbiota before, during, and after travelling.
- Helps counter the effects of stress and prevent colds.
- Helps reduce the risk of traveller's Diarrhoea (Turista)
- Take 1-2 additional capsules if need presents (indigestion, food poisoning, diarrhoea, etc.)



ULTRA FORCE PLUS 100 BILLION – 30 caps – CODE 111

14 PROBIOTIC STRAINS + PREBIOTIC

- Ultra-concentrated formula, recommended as soon as symptoms of gastrointestinal disorders appear.
- To be taken during periods of intense stress.
- Helps prevent dysbiosis.
- If you are taking antibiotics, take 2 hours before or after intake and continue probiotic treatment for at least 2 months.



XTREME CARE 165 BILLION – 30 caps – CODE 444

14 PROBIOTIC STRAINS + PREBIOTIC

- Most concentrated encapsulated probiotic formulation on the market. If Xtreme care was offered in 4.4g sachet format, it would contain over 1 trillion CFU!
- However, our triple protection system (Freeze drying, microencapsulation, and acid-resistant vegetable capsules) ensures a survival rate without any comparison in today's market.
- Therapeutic dosage able to improve and safeguard the quality of life for people suffering from gut based illnesses and ailments.
- To be taken as long as necessary, since it carries no adverse side effects or contraindications.



KID 2 BILLION – 60 g – CODE 298

9 STRAINS + PREBIOTIC

- Formula in plum-based powder form (Children 1-12 years old)
- Comes with a scoop : 85 servings per jar.
- To sprinkle on top of cold foods like yogurt, cereals. Can also be added to a smoothie (Does not dissolve in water).
- Supports gastro-intestinal health and reduces the risk of minor infections (cold, flu, gastroenteritis).
- Helps prevent diarrhoea associated with antibiotics intake.



PRODUCT OVERVIEW

VEGAN LINE



VEGAN LINE

OUR 4 MEDICINAL PROBIOTIC STRAINS

- Lactobacillus rhamnosus NVA193
- Lactobacillus plantarum NVA139
- Lactobacillus paracasei NVA172
- Lactobacillus acidophilus NVA104

VEGAN KID 6 BILLION – 60 g – CODE 014

4 PROBIOTIC STRAINS + PREBIOTIC

- Formula in plum-based powder form (Children 1-12 years old)
- To sprinkle on top of cold foods like yogurt, cereals. Can also be added to a smoothie (Does not dissolve in water).
- Poses no risk to children suffering from allergies.
- Supports gastro-intestinal health and reduces the risk of minor infections (cold, flu, gastroenteritis).
- Helps prevent diarrhoea associated with antibiotics intake.



VEGAN IMMUNE 8 BILLION – 60 caps – CODE 021

4 PROBIOTIC STRAINS + PREBIOTIC

- To be taken on a daily basis for a better digestion, a regular transit as well as to support immune functions.
- Adapted for the whole family as soon as one is able to swallow capsules.
- Ideal for the back to school period.
- Double the dosage at the first symptoms of the flu for an efficient and speedy result.



VEGAN PRO-DIGEST10B – 60 caps – CODE 403

(Previously : VEGAN Gluten + Lactose Intolerance)

4 PROBIOTIC STRAINS + PREBIOTIC

- To be taken before every meal to improve and ease digestion in people with food sensitivities.
- Helps lessen abdominal discomfort and bloating.
- Helps reduce intestinal permeability and inflammation.
- Normalises intestinal transit.



VEGAN MAN 12 BILLION – 60 caps – CODE 038

4 PROBIOTIC STRAINS + PREBIOTIC

- To be taken on a daily basis for better digestion, regular transit, and to support immune function.
- Helps maintain healthy levels of cholesterol.
- Helps with weight management.
- Improves the absorption of nutriments and essential minerals.



VEGAN FEMININE 27 BILLION – 60 caps – CODE 045

4 PROBIOTIC STRAINS + PREBIOTIC

- To restore and maintain the balance of gastro-intestinal and vaginal healthy bacterial populations within women of all ages.
- Helps alleviate diarrhoea or the occasional constipation.
- Supports weight management, and maintains the skin's natural glow.
- Promotes emotional well-being.
- Natural preventive treatment against the proliferation of Candida albicans.



VEGAN SPORT 42 BILLION – 60 caps – CODE 052

4 PROBIOTIC STRAINS + PREBIOTIC

- While sport has mostly beneficial effects, a moderate to intense practice of physical activity might cause digestive troubles (constipation, cramps, diarrhoea, acid reflux, etc...) and/or weaken the immune system.
- Formulated with athletes, amateur or professional, in mind.
- Improves the absorption of nutriments and essential minerals.
- Accelerates the muscle recovery process.
- Reduces inflammation and reinforces the immune system.



V. ULTRA FORCE TRAVEL 73 B. – 30 caps – CODE 069

4 PROBIOTIC STRAINS + PREBIOTIC

- Formulated to support the equilibrium of the intestinal microbiota before, during, and after travelling.
- Helps counter the effects of stress and prevent colds.
- Helps reduce the risk of traveller's Diarrhoea (Turista)
- Take 1-2 additional capsules if need presents (indigestion, food poisoning, diarrhoea, etc.)



V. ULTRA FORCE PLUS 100 B. – 30 caps – CODE 222

4 PROBIOTIC STRAINS + PREBIOTIC

- Ultra-concentrated formula, recommended as soon as symptoms of gastrointestinal disorders appear.
- To be taken during periods of intense stress.
- Helps prevent dysbiosis.
- If you are taking antibiotics, take 2 hours before or after intake and continue probiotic treatment for at least 2 months.



VEGAN XTREME CARE 165 B. – 30 caps – CODE 555

4 PROBIOTIC STRAINS + PREBIOTIC

- Most concentrated encapsulated probiotic formulation on the market. If Xtreme care was offered in 4.4g sachet format, it would contain over 1 trillion UFC!
- However, our triple protection system (Freeze drying, microencapsulation, and acid-resistant vegetable capsules) ensures a survival rate without any comparison in today's market.
- Therapeutic dosage able to improve and safeguard the quality of life for people suffering from gut based illnesses and ailments.
- To be taken as long as necessary, since it carries no adverse side effects or contraindications.



FAQ

DIFFERENCES BETWEEN PRODUCTS OF THE SAME LINE

- Even though all products in one line (for example, the “Multi-strain line” or “Vegan line”) seem similar looking at their ingredients, there are notable differences between each product notably in the concentration of certain strains which enables each product to target specific ailments in their target groups.
- The concentration of CFU in the chosen capsule and the addition or diminution of certain particular strains are based on the most recent research data available as well as internal tests and experiments.
- As such, the Feminine formulation for example, is more strongly concentrated than the Daily Immunity formulation and is better suited to target women’s particular needs (maternity, vaginal microbiota, hormonal balance, etc.)

FAQ

DIFFERENCES BETWEEN THE MULTI-STRAIN LINE AND THE VEGAN LINE

- Over a decade of research and development has been invested in our products' formulations. The 4 strains found in the "Vegan Line" are those that have proven to be the most beneficial to people suffering from a diverse array of allergies, to those with a very active lifestyle (athletes or fitness enthusiasts), and to those who have chosen to eliminate animal products and by-products entirely from their diet.
- The absence of Bifidobacteria in the Vegan formulas is not a handicap in itself since the chosen Lactobacillus strains produce compounds which nourish and enhance the growth of other groups of beneficial bacteria already present in the gut.
- In the case of dysbiosis (without allergies), we recommend to pick a formula from the Multi-Strain Line.

FAQ

ARE ALL NOVA PRODUCTS VEGAN?

- For upwards of 2 years now, all our products have been certified hypoallergenic, meaning they pose absolutely no risk of allergic reaction.
- However, among the 14 strains found in the Multi-Strain range of products, there remained one strain which we cultivated using a dairy substrate. Thanks to the advanced washing process it went through, this strain contained no traces of dairy and the final product remained guaranteed “Allergen-Free”.
- Products of the Multi-Strain Line all contain this strain, *Propionibacterium freudenreichii* NV420, and cannot be fully considered Vegan in the true sense of the term for this reason.
- As of now, all NOVA strains are cultivated on plant and fruit based growth mediums entirely devoid of milk.