WINCLOVE
PROBIOTICS

Improving health through indication-specific probiotics

Company Profile & Probiotic Portfolio

Improving quality of life through indication-specific probiotics

Winclove Probiotics is a family-owned company driven by a fascination with, and passion for, microbial science and its diverse health implications.

Founded in 1991 and located in Amsterdam, The Netherlands, Winclove was an early pioneer in the cultivation and application of specific probiotic strains with tangible health effects. By combining different bacteria with unique and important characteristics, we created a line of multispecies probiotic formulations that help people live healthier, happier lives.

Our probiotic formulations are co-developed and tested by scientists from leading universities, as well as with doctors and medical specialists worldwide. We're setting a new standard by offering probiotics that are developed for a specific medical indication and clinically validated.

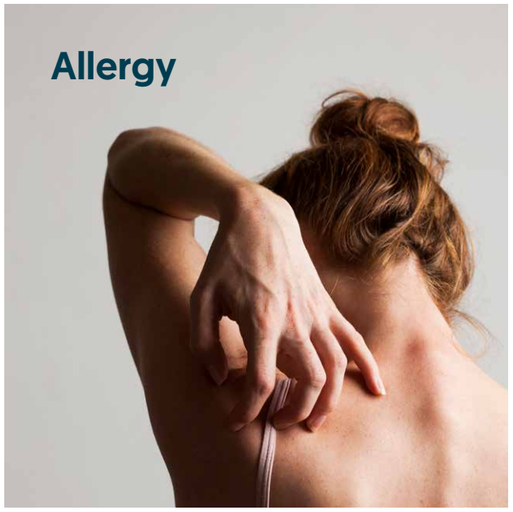
Today, Winclove is a leader in probiotic research and development, employing a diverse group of specialists who share a passion for microbial science and helping customers live life to the fullest.

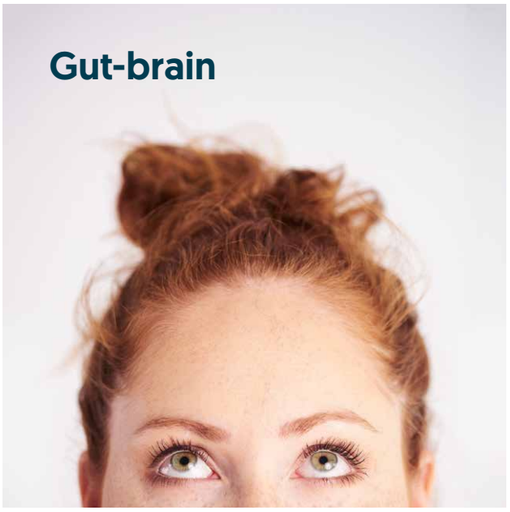
Now, more than ever, we are committed to improve the quality of life for as many people as possible. We are living that commitment by creating premium probiotics, as well as by interfacing directly with our local community in Amsterdam, which we call home.

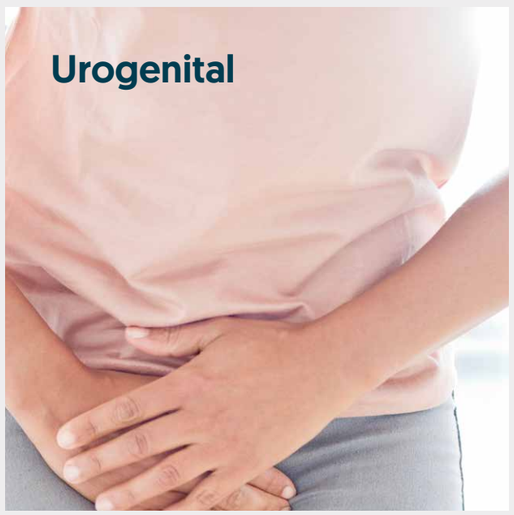
Pioneer in probiotic research

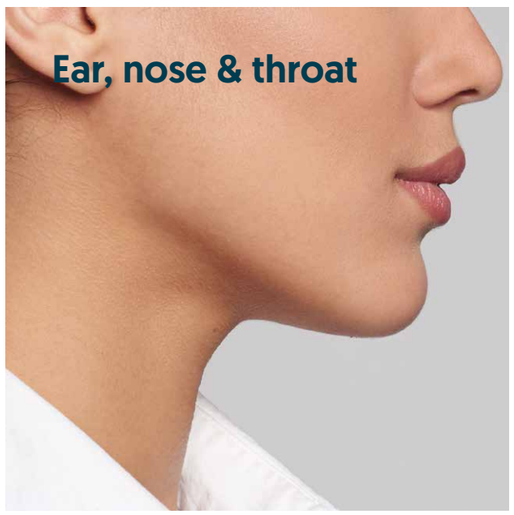
Research is the foundation of our probiotic formulations. We are engaged in international multidisciplinary projects that contribute to the research and development of our probiotic formulations.

Driven by the fascination for the impact of the human microbiome on health and disease, we have over 25 years of experience in research and product development in this thriving field. With this expertise, we continuously invest in extending our database with new bacterial strains and knowledge on their characteristics. This enables us to combine each of their unique functionalities into innovative multispecies formulations for specific health indications.







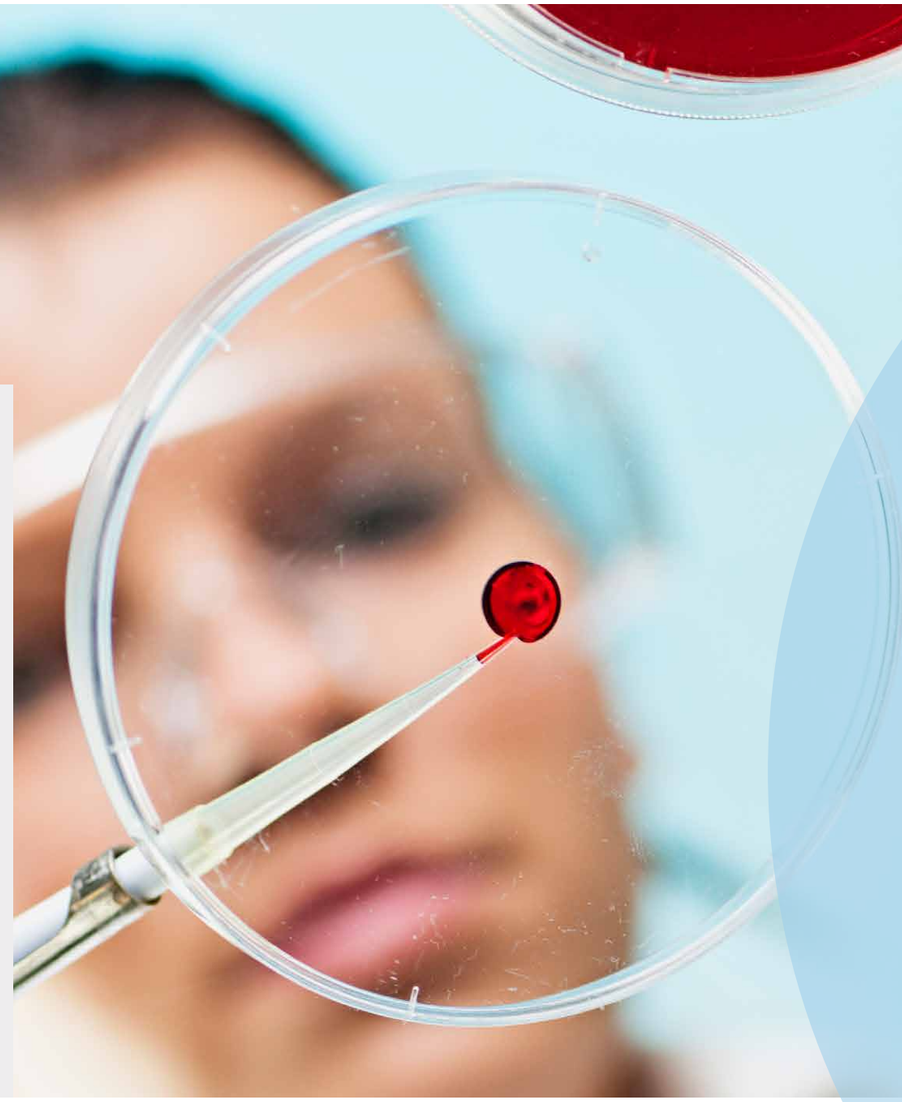


In collaboration with universities and academic hospitals world-wide, we perform clinical studies to establish and demonstrate the effects and safety of our carefully designed formulations.

Probiotic product development

Winclove Probiotics produces premium probiotics for specific indications. The microorganisms in our probiotic formulations are carefully selected based on their individual characteristics.

Because just as every organism, each strain has its own unique characteristics. And because most diseases are multifactorial, it is important to select probiotic strains that can influence the disturbed physiological processes in the disease that you target. We call this indication-specific. This is the basis of our product development. We study the properties of our strains, usually using *in vitro* screening assays and genome-based predictions. This knowledge, in combination with insights from scientific literature, is used to select different strains that all have unique capacities and can exert specific health-promoting effects for our evidence-based formulations.



Everything for the bacteria

Winclove Probiotics does not only select the best probiotic bacteria, also the other ingredients in the formulations are carefully selected. PROBIOACT® stands for PROBIOtic ACTivity. This technology consists of protective and nutritional ingredients that are selected to optimize:

- **Stability - ensuring the cell count until end of shelf life at room temperature**
- **Bacterial survival - ensuring survival during GI passage (acid, bile, digestive enzymes)**
- **Metabolic activity - ensuring that the probiotic bacteria are active**

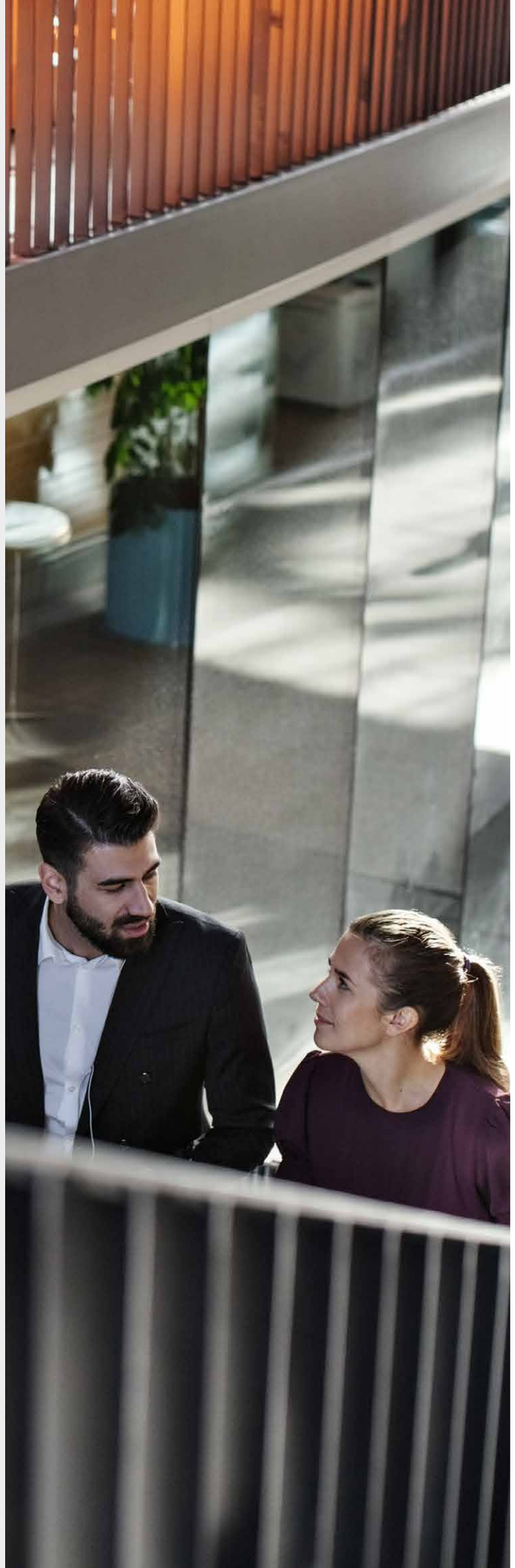
> Every Winclove formulation contains PROBIOACT® technology, the composition can be different for each formulation, depending on the probiotic bacteria present and the target group.

Business opportunities

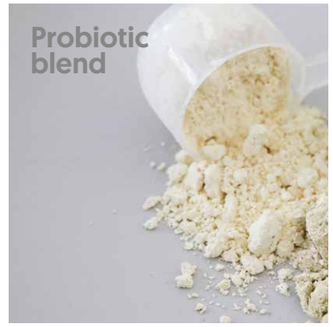
Winclove's mission is to create long-lasting, sustainable and strategic partnerships. To achieve this, we offer innovative, high-quality and competitive probiotic solutions, as well as in-house scientific expertise and sales support.

Our indication-specific formulations are designed for specific microbiota-related indications. The thorough substantiation of our probiotic formulations with scientific and clinical evidence makes them ideal for selling medically endorsed.

We are a committed business partner and are looking forward to starting a fruitful collaboration with you!



We offer



Ecologic® formulations

Our Ecologic® formulations have been developed in collaboration with leading universities and academic hospitals worldwide. For every indication bacterial strains are selected based on characteristics and functionality, and the formulation has been proven effective in clinical trials.

Winclove formulations

Winclove formulations consist of carefully selected probiotic strains and are based on scientific and *in vitro* evidence.

Key strengths

- Indication-specific selection of bacteria
- Evidence-based formulations
- Stability at room temperature, no refrigeration needed
- Excellent survival of the gastro-intestinal tract
- High viability and metabolically active bacteria
- Flexible packaging; from bulk delivery to fully packed

	PROBIOTIC FORMULATION	INDICATION
Metabolic Health	Ecologic BARRIER	Reducing insulin resistance and systemic low-grade inflammation
Brain	Ecologic BARRIER	Reducing vulnerability to depression Improving brain functioning under stress
Allergy	Ecologic ALLERGYCARE	Managing allergic symptoms; hay fever and eczema
	Ecologic PANDA	Preventing early onset eczema
Gut	Ecologic AAD	Reducing antibiotic-associated side effects
	Ecologic RELIEF	Reducing constipation
	Ecologic PERFORMANCE	Reducing exercise-induced stress
	Winclove TRAVEL	Preventing traveler's diarrea
Age	Winclove BABY	Improving intestinal health of newborns
	Winclove JUNIOR	Improving intestinal health of children
	Winclove ADULT	Improving intestinal health of adults
	Winclove SENIOR	Improving intestinal health of elderly

This information is for business professionals only and should not be given to consumers.

Ecologic® BARRIER inside

A probiotic formulation for:

Metabolic Health: Reducing insulin resistance and systemic low-grade inflammation

Medical Need

Today, a record number of patients world-wide suffer from metabolic disorders, including obesity, non-alcoholic liver disease, type 2 diabetes mellitus and cardiovascular disease. As poor diets, lack of exercise, and other stressors continue to negatively impact millions of people around the globe, we must look for new ways to improve metabolic health. Recent research has indicated that the gut microbiota may play an important role in managing metabolic health[1–4].

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *B. lactis* W52
- *L. acidophilus* W37
- *L. brevis* W63
- *L. casei* W56
- *L. salivarius* W24
- *Lc. lactis* W19
- *Lc. lactis* W58

KEY FEATURES

- Recommended dosage; 2-4 grams a day
- Cell count; 2,5 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trials

Clinical outcomes

The formulation Ecologic® BARRIER has been tested in clinical trials and has shown to:

- **Significantly improve insulin resistance (HOMA-IR; Homeostatic Model Assessment for Insulin Resistance)[5–7]**
- **Improve gut barrier function (zonulin) and reduced circulating endotoxin levels (LPS)[5–8]**
- **Significantly reduce serum glucose, insulin, and other metabolic markers such as LDL cholesterol[5–7]**
- **Significantly improve markers of inflammation such as CRP, TNF-α, IL-6 [5,6,9]**
- **Significantly improve functional and biochemical markers of vascular dysfunction such as blood pressure [9]**

Strain selection

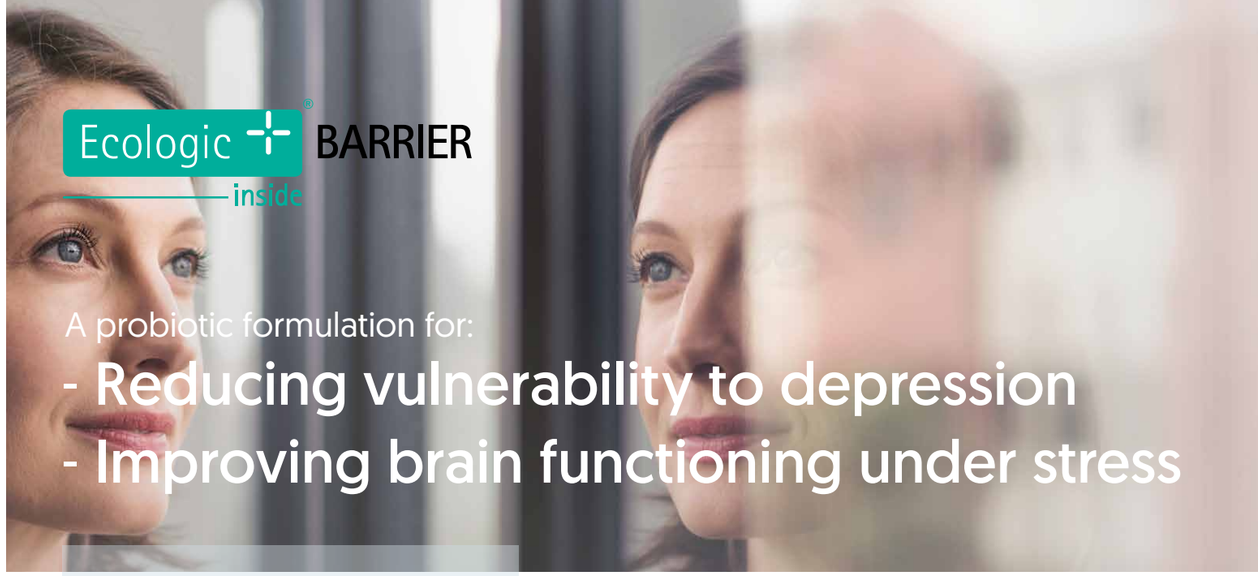
Ecologic® BARRIER is a multispecies probiotic formulation consisting of 9 specifically selected probiotic strains. These strains were selected based on their ability to strengthen the intestinal barrier function and reduce low-grade inflammation[10], making it a suitable choice to target insulin resistance and metabolic health.
These strains have been screened for their capacity to:

- Improve the intestinal barrier function
- Inhibit mast cell activation
- Stimulate IL-10 production
- Break down lipopolysaccharides (LPS)

Ecologic® BARRIER publications

References 1-4 see last page of the brochure

5. Sabico S, Al-Mashharawi A, Al-Daghri NM, et al. J Transl Med 2017; 15: 249.
6. Sabico S, Al-Mashharawi A, Al-Daghri NM, et al. Clin Nutr 2018; published online Aug 17. DOI:10.1016/j.clnu.2018.08.009.
7. Szulińska M, Łoniewski I, van Hemert S, Sobieska M, Bogdański P. Nutrients 2018; 10: 773.
8. Horvath A, Leber B, Feldbacher N, et al. Eur J Nutr 2019; published online Nov 15. DOI:10.1007/s00394-019-02135-w.
9. Szulińska M, Łoniewski I, Skrypnik K, et al. Nutrients 2018; 10: 1672.
10. Hemert SV, Ormel G. Food Nutr Sci 2014; 05: 1739.



Ecologic® BARRIER inside

A probiotic formulation for:

- Reducing vulnerability to depression
- Improving brain functioning under stress

Medical Need

Depression is a global burden, affecting the quality of life of millions of people worldwide.[1] The gut-brain axis plays a crucial role in the communication between the gut and the brain.[2] Specific probiotics could be a promising adjunctive therapy in the management of depressive symptoms.[3-6]

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *B. lactis* W52
- *L. acidophilus* W37
- *L. brevis* W63
- *L. casei* W56
- *L. salivarius* W24
- *Lc. lactis* W19
- *Lc. lactis* W58

KEY FEATURES

- Recommended dosage; 2-4 grams a day
- Cell count; 2,5 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trials

Pre-clinical and clinical outcomes

The formulation Ecologic® BARRIER has been tested in clinical trials and has shown to:

- **Significantly reduce overall cognitive reactivity to sad mood in adults[7]**
- **Signicantly reduce cognitive reactivity in mild/moderate depressed adults[8]**
- **Significantly reduce depressive like behaviour in rats (multiple studies)[9-12]**
- **Significantly increase working memory performance in adults challenged with stress[13]**

Strain selection

The probiotic strains in Ecologic® BARRIER have been specifically selected for their favourable properties to strengthen the intestinal barrier function and reduce low grade inflammation.[14] The strains have been screened *in vitro* for their capacity to:

- Improve the intestinal barrier function
- Inhibit mast cell activation
- Stimulate IL-10 production
- Break down lipopolysaccharides (LPS)

Ecologic® BARRIER publications

References 1-6 see last page of the brochure

7. Steenbergen *et al.* Brain Behav Immun 2015;48:258-64.
8. Chahwan et al. J Affect Disord. 2019;253:317-326.
9. Abildgaard, *et al.* Psychoneuroendocrin 2017;79:40-48.
10. Abildgaard, *et al.* Brain Behav Immunity 2017;65:33–42.
11. Tillmann, *et al.* Behav Brain Res 2019;359:755-762.
12. Abildgaard, *et al.* Eur Neuropsychopharmacol 2019;29(1):98-110.
13. Papalini, *et al.* Neurobiology of Stress 2019;10:100141
14. van Hemert *et al.* Food and Nutrition Sciences 2014.

Ecologic® inside ALLERGYCARE

A probiotic formulation for:

Managing allergic symptoms: hay fever and eczema

Medical Need

Allergic diseases are a global burden and responsible for a substantial proportion of health service use and are accompanied by a severely reduced quality of life.[1,2] Research has shown that alterations in the gut microbial composition are associated with various inflammatory conditions.[3]

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *L. acidophilus* W55
- *L. casei* W56
- *L. salivarius* W57
- *Lc. lactis* W58

vitamin B2 and biotin

KEY FEATURES

- Recommended dosage; 2 grams, twice daily
- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trials

Clinical outcomes

The formulation Ecologic® ALLERGYCARE has been tested in clinical trials and has shown to:

- **Significantly decrease atopic dermatitis symptoms in children[4]**
- **Significantly improve quality of life of hay fever patients[5,6]**
- **Reduce symptoms and medication use of hay fever patients[5,6]**

Strain selection

The probiotic strains in Ecologic® ALLERGYCARE have been specifically selected for their properties to influence the immune system. The bacterial strains are capable to stimulate the production of immunosuppressive cytokines. The strains have been screened *in vitro* for their capacity to modulate:

- Induction of IL-10 and IFN-y
- Reduction of IL-4, IL-5 and IL-13

Ecologic® ALLERGYCARE publications

References 1-3 see last page of the brochure

4. Yesilova Y, Calka O, *et al.* Effect of probiotics on the treatment of children with atopic dermatitis. Ann Dermatol 2012;24:189-93.Watts AM, *et al.*
5. Watts AM *et al.* Probiotics and Allergic Rhinitis: A Simon Two-Stage Design to Determine Effectiveness. J Altern Complement Med. 2016;22(12):1007-1012.
6. Watts AM, Cox AJ, *et al.* A Specifically Designed Multispecies Probiotic Supplement Relieves Seasonal Allergic Rhinitis Symptoms. Altern Complement Med. 2018;24(8):833-840.

Ecologic® inside PANDA

A probiotic formulation for:

Preventing early onset of eczema

Medical Need

Eczema is an inflammatory skin condition, characterized by red, itching areas on the skin. The symptoms can be painful and the itchiness can be severe, often interrupting sleep and substantially affecting family life.[1,2] Eczema most commonly begins at infancy and early childhood, affecting up to 5-30% of the global pediatric population.[3] Children born in families with a history of allergic diseases are at an increased risk for eczema.[4]

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *B. lactis* W52
- *Lc. lactis* W58

KEY FEATURES

- Recommended dosage; 3 grams a day
- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trial

Clinical outcomes

The formulation Ecologic® PANDA has been clinically tested and has shown to:

- **Significantly reduce eczema in babies 3 months after birth[5] This effect was sustained until 2 years after birth[5]**
- **Significantly increase faecal concentrations of short-chain fatty acids in children 3 months of age[6]**
- **Signifcantly reduce 3 months colic in babies[7] (observational study)**

Strain selection

The probiotic strains in Ecologic® PANDA have been specifically selected for their capacity to strengthen the intestinal barrier function and influence the immune system.[8,9,10] The probiotic strains have been screened *in vitro* for their capacity to:

- Improve the intestinal barrier function
- Modulate the production of immunosuppresive cytokines

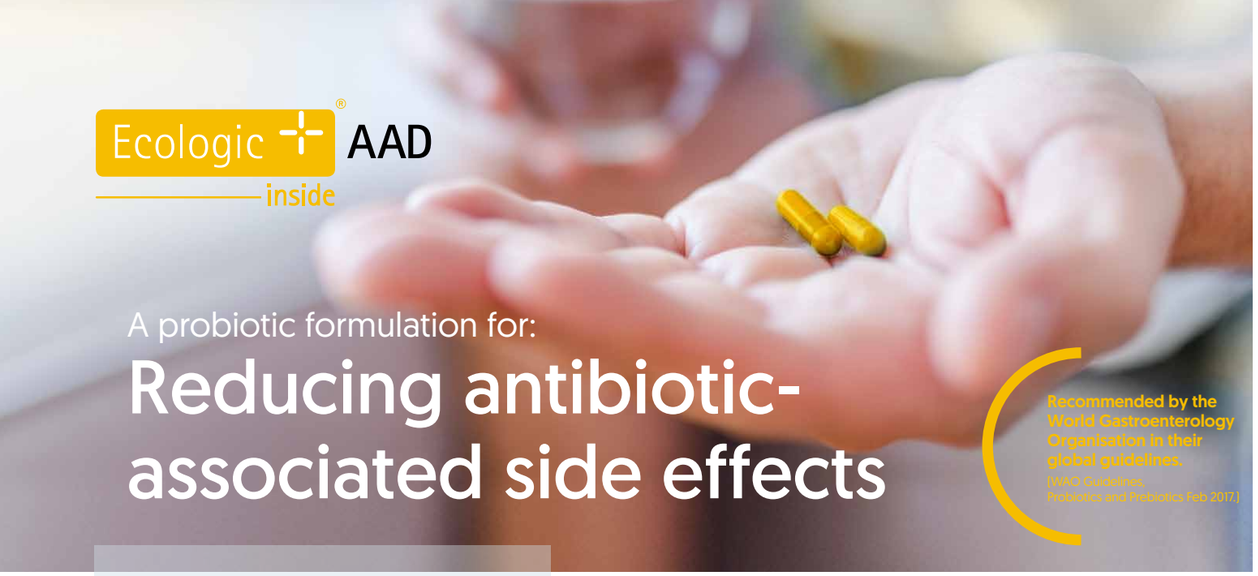
Ecologic® PANDA publications

References 1-4 see last page of the brochure

5. Niers L.E. *et al.* Allergy. 2009;64(9):1349-1358.
6. Kim H.K. *et al.* Benef Microbes. 2015; 6(6): 783-790.
7. Hofmann H. Gyneacology, 26-11-2015.
8. Niers L.E. *et al.* Clin Exp Allergy. 2005;35(11):1481-1489.
9. Niers L.E. *et al.* Clin Exp Immunol. 2007;149(2):344-352.
10. Niers L.E. PhD thesis. November 2009.

Gorissen *et al.* Clin Exp Allergy. 2014;44(11):1431-3.

Rutten N.B.M.M. *et al.* . PLoS ONE. 2015;10(9): e01376812015.



Ecologic® AAD inside

A probiotic formulation for:

Reducing antibiotic-associated side effects

Recommended by the World Gastroenterology Organisation in their global guidelines.
(WAO Guidelines, Probiotics and Prebiotics Feb 2017.)

Medical Need

Antibiotic intake disturbs the microbial populations in the gut[1] which affects patient's health directly through the development of antibiotic-associated diarrhoea[2,3] and in the long term has been associated with a multitude of disorders.[4-6]

Clinical outcomes

The formulation Ecologic® AAD has been tested in clinical trials and has shown to:

- **Significantly reduce antibiotic-associated diarrhoea in adults[7]**
- **Significantly recover the intestinal microbiota after antibiotic intake faster[8]**

Additional evidence pointing in the same direction provided by user trial and retrospective case reports[9,10]

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *E. faecium* W54
- *L. acidophilus* W37
- *L. acidophilus* W55
- *L. paracasei* W20
- *L. plantarum* W62
- *L. rhamnosus* W71
- *L. salivarius* W24

KEY FEATURES

- Recommended dosage; 5 grams, twice daily
- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trials

Strain selection

The probiotic strains in Ecologic® AAD have been specifically selected for their favourable properties to inhibit antibiotic-associated pathogens. The strains have been screened *in vitro* for their capacity to inhibit the growth of the pathogens:

- *Clostridium difficile*
- *Clostridium perfringens*
- *Enterococcus faecalis*
- *Escherichia coli*
- *Bacillus subtilis*

Ecologic® AAD publications
References 1-6 see last page of the brochure

7. Koning C.J.M *et al.* The Effect of a Multispecies Probiotic on the Intestinal Microbiota and Bowel Movements in Healthy Volunteers Taking the Antibiotic Amoxycillin. Am J Gastroenterol 2007;102:1-12.
8. Koning C.J.M. Multispecies probiotics and antibiotics-associated side effects. PhD Thesis. 2010.
9. Lang F.C. Use of a multi-species probiotics for the prevention of antibiotic associated diarrhea. Nutrafoods 2010;9(2); 27-31.
10. Hell M, *et al.* Probiotics in *Clostridium difficile* infection: reviewing the need for a multistrain probiotic. Benef Microbes. 2013;4(1):39-51.

Ecologic® RELIEF inside

A probiotic formulation for:

Reducing constipation

Medical Need

Constipation is one of the most common gastrointestinal problems affecting both children and adults.[1] The condition can be very inconvenient and patients record a significantly impaired health-related quality of life.[2] Research has shown that administration of specific probiotics could ease away constipation complaints.[3-5]

Clinical outcomes

The formulation Ecologic® RELIEF has been tested in clinical trials and has shown to:

- **Significantly increase bowel movements in children suffering from constipation[6]**
- **Significantly decrease abdominal pain and fecal incontinence in children suffering from constipation[6]**
- **Significantly increase stool frequency in pregnant women suffering from constipation[7]**
- **Significantly decrease straining, abdominal pain and sensation of incomplete evacuation and anorectal obstruction in pregnant women suffering from constipation[7]**

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis W51*
- *B. lactis* W52
- *B. longum* W108
- *L. casei* W79
- *L. plantarum* W62
- *L. rhamnosus* W71

KEY FEATURES

- Recommended dosage; 4 grams a day
- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trials

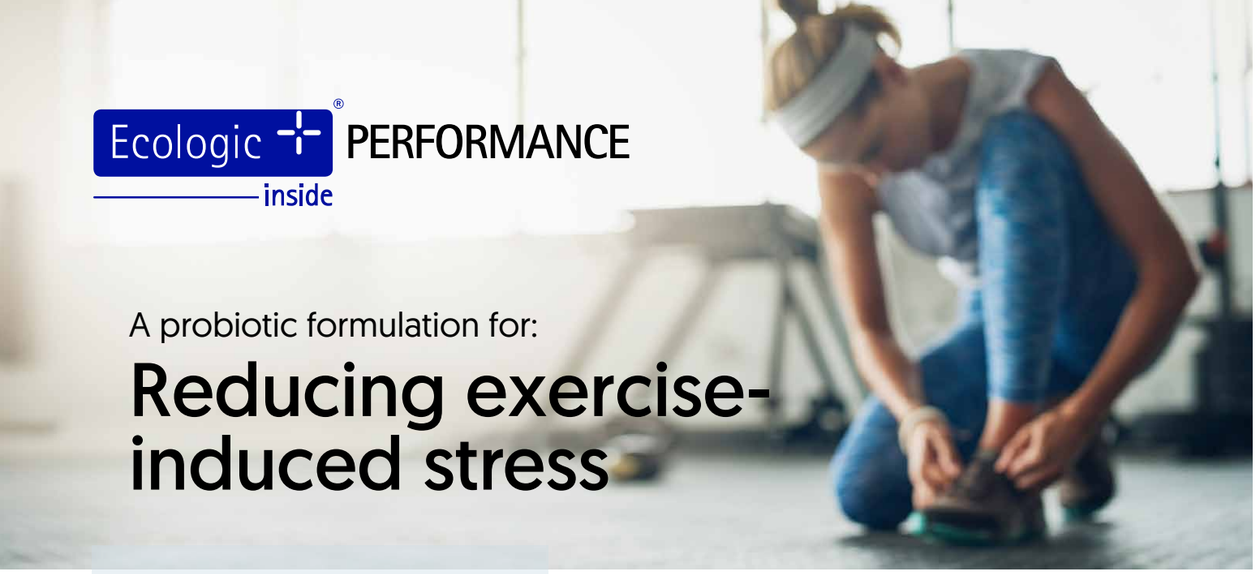
Strain selection

The probiotic strains in Ecologic® RELIEF have been specifically selected for their capacity to inhibit pathogen growth and improve intestinal motility and peristalsis of the intestine. The probiotic strains have been screened *in vitro* for their capacity to:

- Inhibit *Clostridium difficile* and *Staphylococcus aureus*
- Produce lactic acid

Ecologic® RELIEF publications
References 1-5 see last page of the brochure

6. Bekkali N. *et al.* The role of a probiotics mixture in the treatment of childhood constipation: a pilot study. Nutr j 2007;6:17.
7. De Milliano I. *et al.* Is a multispecies probiotic mixture effective in constipation during pregnancy? A pilot study Nutr J 2012, 11:80.



Ecologic® PERFORMANCE inside

A probiotic formulation for:

Reducing exercise-induced stress

Medical Need

Endurance athletes frequently experience gastrointestinal complaints and are more susceptible to infections, resulting in underperformance.[1,2,3] Targeting the gut microbiota with specific probiotics could support athletes' general health and performance.[4]

Clinical outcomes

The formulation Ecologic® PERFORMANCE has been tested in clinical trials and has shown to:

- **Significantly improve intestinal barrier function and low-grade inflammation in trained athletes[5]**
- **Significantly reduce upper respiratory tract infections in trained athletes[6]**

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *E. faecium* W54
- *L. acidophilus* W22
- *L. brevis* W63
- *Lc. lactis* W58

KEY FEATURES

- Recommended dosage; 2 grams, twice daily
- Cell count; 2,5 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier
- Formulation shown effective in clinical trials

Strain selection

The probiotic strains in Ecologic® PERFORMANCE have been specifically selected for their anti-inflammatory and oxidative properties and their ability to improve the intestinal barrier function. The probiotic strains have been screened *in vitro* for their capacity to:

- Strengthen the epithelial barrier
- Reduce oxidative stress
- Induce the production of anti-inflammatory cytokines

Ecologic® PERFORMANCE publications
References 1-4 see last page of the brochure

5. Lamprecht M, *et al.* Probiotic supplementation affects markers of intestinal barrier, oxidation, and inflammation, before and after intense exercise; a randomized, double-blinded, placebo-controlled trial. J Int Soc Sports Nutr. 2012;9:45.
6. Strasser B, *et al.* Probiotic Supplements Beneficially Affect Tryptophan–Kynurenine Metabolism and Reduce the Incidence of Upper Respiratory Tract Infections in Trained Athletes: A Randomized, Double-Blinded, Placebo-Controlled Trial. Nutrients. 2016;8(11)

Winclove BABY

A probiotic formulation for:

Improving intestinal health of newborns

The first years of life of newborns are a critical period for gut colonization and the development of a diverse, balanced, core gut microbiota.[1] More and more diseases are linked to dysbiosis of the microbiota of infants such as allergy, colic and even obesity.[2] Probiotics can provide babies with the necessary beneficial microbes for proper gut microbial development and a healthy immune system.[3]

Premium Probiotic

BACTERIAL STRAINS

- *B animalis* W12
- *B. breve* W25
- *B. lactis* W51
- *B. longum* W108

KEY FEATURES

- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier

Strain selection

The probiotic strains in Winclove BABY have been specifically selected to improve the intestinal health of infants. The probiotic strains have shown *in vitro* to:

- **Inhibit the growth of various pathogens such as *C. difficile* and *E. coli*, a pathogen associated with colic**
- **Improve the intestinal barrier function**
- **Induce the production of anti-inflammatory cytokines**

References 1-3 see last page of the brochure

Winclove JUNIOR

A probiotic formulation for:

Improving intestinal health of children

The establishment of a diverse and stable gut microbiota in early life is important to maintain health later in life.[1,2] Disturbances in the gut microbiota have been associated with a variety of pediatric diseases.[3] The use of probiotics can be used as a therapeutic intervention to manage the gut microbial populations and promote health.[4]

Premium Probiotic

BACTERIAL STRAINS

- *B. lactis* W51
- *B. lactis* W52
- *L. acidophilus* W55
- *L. casei* W56
- *L. salivarius* W57
- *Lc. lactis* W58

KEY FEATURES

- Cell count; 5 x 10^8 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier

Strain selection

The probiotic strains in Winclove JUNIOR have been specifically selected to improve the intestinal health of children. The probiotic strains have shown *in vitro* to:

- **Inhibit various pathogens such as; *C. difficile*, *E. coli*, *Salmonella*, *Shigella* and *P. agglomerans***
- **Improve the intestinal barrier function**
- **Stimulate a less allergic response of the immune system by; inducing T-and B-cell proliferation, increasing IFN-y and IL-10 production and decreasing IL-5 and IgE production**

References 1-4 see last page of the brochure

Winclove ADULT

A probiotic formulation for:

Improving intestinal health of adults

The gut microbiota plays a key role in human health and disease. A total of over 25 diseases, syndromes or other aberrations have now been associated with disruptions of the intestinal microbiota.[1] Research has shown that especially multispecies probiotics, are able to prevent and restore disturbances in the gut microbiota.[2]

Premium Probiotic

BACTERIAL STRAINS

- *B lactis* W51
- *B. lactis* W52
- *E. faecium* W54
- *L. acidophilus* W22
- *L. paracasei* W20
- *L. plantarum* W21
- *L. salivarius* W24
- *Lc. lactis* W19

KEY FEATURES

- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier

Observational study

Winclove ADULT has shown to:

- **Significantly reduce gastro-intestinal complaints in adults[3]**

Strain selection

The probiotic strains in Winclove ADULT have been specifically selected to improve the intestinal health of adults. The probiotic strains have been screened *in vitro* for their capacity to:

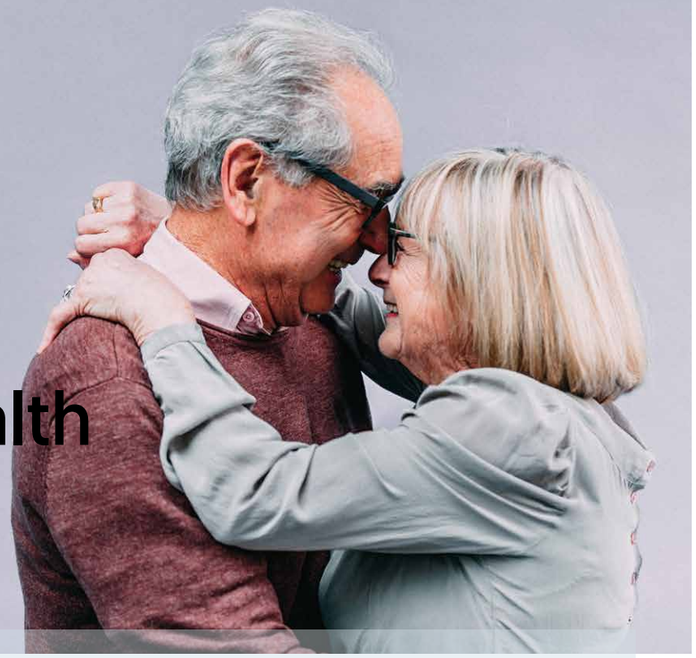
- **Inhibit the growth of various pathogens such as; *C. difficile*, *E. coli*, *E. faecalis* and *B. subtilis***
- **Improve the intestinal barrier function**
- **Stimulate the immune system**

Winclove® ADULT publication

References 1-2 see last page of the brochure

3. Grossenbacher F, Gashi A, Besseling-van der Vaart I. Use of the multispecies probiotic Winclove 500/Bactosan pro FOS leads to less gastrointestinal complaints in adults - an observational *in vivo* pilot study. Advances in Microbiology 2016; 6 (14): 975-985.

Winclove SENIOR



A probiotic formulation for:

Improving intestinal health of seniors

Our gut microbiota changes during our lifetime as well as our immune system gradually decreases in functioning.[1,2,3] These alterations are related to the progression of diseases and frailty in the elderly population, such as dementia, Alzheimer's disease or atherosclerosis.[1] Therefore, balancing intestinal health and maintaining a healthy gut microbiota composition is essential for healthy ageing and maintaining quality of life.

Premium Probiotic

BACTERIAL STRAINS

- *B. animalis* W53
- *B. bifidum* W23
- *B. lactis* W51
- *B. lactis* W52
- *L. acidophilus* W22
- *L. paracasei* W20
- *L. plantarum* W1
- *L. rhamnosus* W71
- *L. salivarius* W24
- *Lc. lactis* W19

and vitamin D3

KEY FEATURES

- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier

Strain selection

The probiotic strains in Winclove SENIOR have been specifically selected to improve the intestinal health of elderly. The probiotic strains have shown in *vitro to*:

- **Inhibit the growth of various pathogens such as; *C. difficile*, *E. coli*, *Salmonella*, *Shigella* and *P. agglomerans***
- **Improve the intestinal barrier function**
- **Boost the immune system by induction of Th1 cells**

References 1-3 see last page of the brochure

Winclove TRAVEL

A probiotic formulation for:

Reducing Traveler's diarrhea

Traveler's diarrhea (TD) is an unpleasant problem often caused by intestinal overgrowth of pathogenic bacteria.[1,2] It has been shown that compliance with dietary precautionary measurement is poor and increased education does not reduce the incidence of TD.[3] Probiotics have shown protective effects against pathogens and could therefore represent a potential alternative in the prevention of TD.[4-7]

Premium Probiotic

BACTERIAL STRAINS

- *B. bifidum* W23
- *B. lactis* W51
- *L. acidophilus* W37
- *L. casei* W56
- *L. plantarum* W21
- *L. rhamnosus* W71
- *L. salivarius* W24
- *Lc. lactis* W58

KEY FEATURES

- Recommended dosage; 5 grams a day
- Cell count; 1 x 10^9 cfu/gram
- Multispecies probiotic formulation for higher efficacy
- PROBIOACT® Technology for bacterial protection and viability
- Stable shelf life at room temperature for 2 years
- *In vitro* dossier

In vitro evidence

Winclove TRAVEL has shown to:

- **Inhibit pathogens well-known to cause traveler's diarrhea[8]**
- **Significantly reduce traveler's diarrhea in adults (data on file)**

Strain selection

The probiotic strains in Winclove TRAVEL have been specifically selected for their capacity to protect against pathogens known to cause TD, such as: *E.coli*, *Shigella* and *Salmonella*. The probiotic strains have been screened *in vitro* for their capacity to:

- **Produce antimicrobial agents**
- **Inhibit pathogen adhesion**
- **Compete with pathogens for nutrients**

Winclove® TRAVEL publication

References 1-7 see last page of the brochure

8. Campana R. *et al.* Strain-specific probiotic properties of lactic acid bacteria and their interference with humanintestinal pathogens invasion. Gut Pathog. 2017;9(12). (data not published)

References

Ecologic® publications, see formulation page

Ecologic® BARRIER

1. Dabke K, Hendrick G, Devkota S. The gut microbiome and metabolic syndrome. J Clin Invest 2019; 129: 4050–7.
2. Parekh PJ, Balart LA, Johnson DA. The Influence of the Gut Microbiome on Obesity, Metabolic Syndrome and Gastrointestinal Disease. Clin Transl Gastroenterol 2015; 6: e91.
3. Janssen AWF, Kersten S. The role of the gut microbiota in metabolic health. FASEB J Off Publ Fed Am Soc Exp Biol 2015; 29: 3111–23.
4. Jayashree B, Bibin YS, Prabhu D, *et al.* Increased circulatory levels of lipopolysaccharide (LPS) and zonulin signify novel biomarkers of proinflammation in patients with type 2 diabetes. Mol Cell Biochem 2014; 388: 203–10.

Ecologic® BARRIER

1. WHO, factsheet N369, October 2012.
2. Collins *et al.* The interplay between the intestinal microbiota and the brain. Nature Reviews Microbiolog 2012;10:735-742.
3. Dinan *et al.* Melancholic microbes; a link between gut microbiota and depression? Neurogastroenterol Motil 2013;25:713-719.
4. Borre *et al.* Microbiota and neurodevelopmental windows: implications for brain disorders. Tr in MolMed 2014;20(9):509-18.
5. Kelly *et al.* Breaking down the barriers: the gut microbiome, intestinal permeability and stress-related psychiatric disorders. Front Cell Neurosci 2015:14(9):392.
6. Collins *et al.* The interplay between the intestinal microbiota and the brain. Nature Reviews Microbiolog 2012;10:735-742.

Ecologic® ALLERGYCARE

1. Asher MI, Montefort S, *et al.* Worldwide time trends in the prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC Phases One and Three repeat multicountry cross-sectional surveys. Lancet 2006;368:733-43.
2. Zuberbier T, Lotvall J, *et al.* Economic burden of inadequate management of allergic diseases in the European Union: a GA(2) LEN review. Allergy. 2014;69(10):1275-9
3. Haahtela T, Holgate S, *et al.* The biodiversity hypothesis and allergic disease: world allergy organization position statement. World Allergy Organization Journal 2013;6:3.

Ecologic® PANDA

1. Lloyd-lavery a. *et al.* What's new in atopic eczema? An analysis of systematic reviews published in 2016. Part 3: nomenclature and outcome assessment. Clin Exp Dermatol. 2019 Jun;44(4):376-380.
2. Hale G. *et al.* What's new in atopic eczema? An analysis of systematic reviews published in 2017. Part 2: epidemiology, aetiology and risk factors. Clin Exp Dermatol. 2019 Sep. 10. Epub ahead of print.
3. World Allergy Organization. WAO Atopic Dermatitis Infographic 2018.
4 Gao X. *et al.* Influence of prenatal and early-life exposures on food allergy and eczema in infancy: a birth cohort study. BMC Pediatr. 2019;19(1):239.

Ecologic® AAD

1. Pillai A, Nelson R. Cochrane Database Syst. Rev. 2008; 1:CD004611
2. McFarland L.V.. Epidemiology, risk factors and treatments for antibiotic-associated diarrhea. Dig. Dis.1998;16(5):292-307.
3. Videlock *et al.* Meta-analysis: probiotics in antibiotic associated diarrhoea. Aliment. Pharmacol Ther. 2012; 35(12):1355-69.
4. Jernberg C. *et al.* Long-term impacts of antibiotic exposure on the human intestinal microbiota. Microbiology. 2010; 156:3216–3223.
5. Koning C.J.M *et al.* The Effect of a Multispecies Probiotic on the Intestinal Microbiota and Bowel Movements in Healthy Volunteers Taking the Antibiotic Amoxycillin. Am J Gastroenterol 2007;102:1–12.
6. Koning C.J.M. Multispecies probiotics and antibiotics associated side effects. PhD Thesis. 2010.

Ecologic® RELIEF

1. Mugie S. *et al.* Epidemiology of constipation in children and adults: a systematic review. Best Pract Res Clin Gastroenterol. 2011;25(1):3-18
2. Dennison C, *et al.* The health-related quality of life and economic burden of constipation. Pharmacoeconomics 2005; 23: 461–76.
3. Picard *et al.* Review article: Bifidobacteria as probiotic agent-physiological effects and clinical benefits. Aliment Pharmacol Ther. 2005;22:495-512.
4. Zoppi *et al.* the intestinal ecosystem in chronic functional constipation. Acta Paediatr. 1998;87(8):836-841.
5. Dimidi E. *et al.* The effect of probiotics on functional constipation in adults: a systematic review and meta-analysis of randomized controlled trials. Am J Clin Nutr 2014;100:1075-84

Ecologic® PERFORMANCE

1. Rehres NJ, *et al.* Physiological changes and gastrointestinal symptoms as a result of ultra-endurance running. Eur J Appl Physiol Occup Physiol. 1992;64:1-8.
2. West NP, *et al.* Probiotics, immunity and exercise; a review. Exerc Immunol Rev. 2009;15:107-126.
3. Clark A, *et al.* Exercise-induced stress behavior, gut-microbiota-brain axis and diet: a systematic review for athletes. J Int Soc Sports Nutr. 2016;13:43.
4. Mach N, *et al.* Endurance exercise and gut microbiota: a review. J Sports and Health Sc. 2017;6:179-197.

Winclove BABY

1. Chassard *et al.* Probiotics tailored to the infant: a window of opportunity. Cur Opin Biotechnol. 2014, 26:141–147.
2. Lu *et al.* Gut microbiota and the development of pediatric disease. J Gastroenterol. 2015; 50:720-6.
3. Matamoros *et al.* Development of intestinal microbiota in infants and its impact on health. Trends in microbiology. 2013;944: 1-7

Winclove JUNIOR

1. Walker, *et al.* Initial intestinal colonization in the human infant and immune homeostasis. Annals of Nutrition and Metabolism.2013;63(2):8-15.
2. Wopereis, *et al.* The first thousand days – intestinal microbiology of early life: establishing a symbiosis. Pediatric Allergy and Immunology. 2014;25:428-438.
3. Browne, *et al.* Microbiota in health and disease: from pregnancy to childhood. Wageningen Academic Publishers 2017.
4. Food and Agriculture Organisation/World Health Organisation (FAO/WHO). Guidelines for the evaluation of probiotics in food. 2002.

Winclove ADULT

1. De Vos *et al.* Role of the intestinal microbiome in health and disease: from correlation to causation. Nutrition Rev. 2012; 70:S45-56.
2. Timmerman H.M. *et al.* Monostrain, multistrain and multispecies probiotics - A comparison of functionality and efficacy. Int J Food Microbiol. 2004;96(3):219-33.

Winclove SENIOR

1. Perez M, *et al.* Understanding gut microbiota in elderly's health will enable intervention through probiotics. Benef Microbes 2014;5:235-46.
2. Peterson CT, *et al.* Immune homeostasis, dysbiosis and therapeutic modulation of the gut microbiota. Clin Exp Immunol. 2015;179(3):363-77.
3. Ostan R, *et al.* Immunosenescence and immunogenetics of human longevity. Neuroimmunomodulation. 2008;15(4-6):224-40.

Winclove TRAVEL

1. DuPont H.L. Systematic review: the epidemiology and clinical features of travellers' diarrhoea. Aliment Pharmacol Ther. 2009;30(3):187-196.
2. Mulder L. Probiotics in the prevention of traveller's diarrhoea. Agrofood. 2004;March/April:43-44.
3. Cavalcanti A *et al.* Traveler's diarrhea: epidemiology and impact on visitors to Fortaleze, Brazil. Rev Panam Salud Publica. 2002;11(4);245-252.
4. Black FT, *et al.* Prophylactic efficacy of lactobacilli on traveler's diarrhea. Travel Medicine 1989;7:333-335.
5. Hilton E, *et al.* Efficacy of Lactobacillus GG as a Diarrheal Preventive in Travelers. Journal of travel medicine 1997;4:41-3.
6. Kollaritsch H, *et al.* [Prevention of traveler's diarrhea with Saccharomyces boulardii. Results of a placebo controlled double-blind study]. Fortschritte der Medizin 1993;111:152-6.
7. Oksanen PJ, *et al.* Prevention of travellers' diarrhoea by Lactobacillus GG. Annals of medicine 1990;22:53-6.

Photo credits

Shutterstock / Getty images

Page 2. Photo by Michael Schiffer on Unsplash

Page 9. Photos by Gesina Kunkel / Pawel Czerwinski / Paul Volkmer Adam Birkett on Unsplash

Page 16. Photo by Hu Chen on Unsplash

Interested?

Don't hesitate to contact us, we look forward to hearing from you!

Winclove Probiotics
Hulstweg 11
1032 LB Amsterdam, The Netherlands
+31 (0)20-435 02 35
sales@winclove.com
www.wincloveprobiotics.com

All probiotic strains have the Qualified Presumption of Safety Status (QPS). Winclove is a NSF International Certified GMP facility for manufacturing dietary supplements. Winclove's food safety management system is ISO 22000:2005 certified for the development and production of prebiotics and probiotics. Both our formulations and manufacturing processes are controlled by certified, external laboratories.

The information in this brochure is intended for business professionals only and should not be given to consumers.