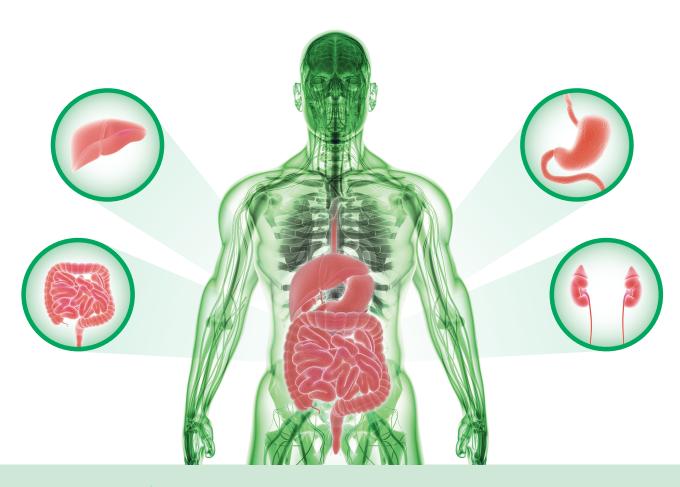


Clinical Detoxification Programs

Strategies for effective and comprehensive detoxification.



- ✔ Programs that can be personalised for your patient's needs.
 - **✔** Professional patient support materials.
 - ✔ High quality 'Practitioner only' supplements.



Toxicity – Cause and Effect

Living in a Chemical World

It has been consistently demonstrated in scientific research that essentially everyone on the planet has detectable levels of environmental chemicals in their body.¹ These chemicals include heavy metals, bisphenol A, phthalates, pesticides and persistent organic pollutants (POPs), such as polychlorinated biphenyls, polybrominated diethyl ethers, and dioxins; many of which are found in everyday products we use or consume. Moreover, these chemicals present in our bodies are no longer considered benign, as a growing body of evidence suggests that 'endocrine disrupting chemicals' (EDCs) play a causal role in conditions, such as obesity and diabetes, male and female reproductive disorders, hormone-sensitive cancers in females, prostate cancer, thyroid dysfunction and neurodevelopmental disorders.²

Toxins From Within

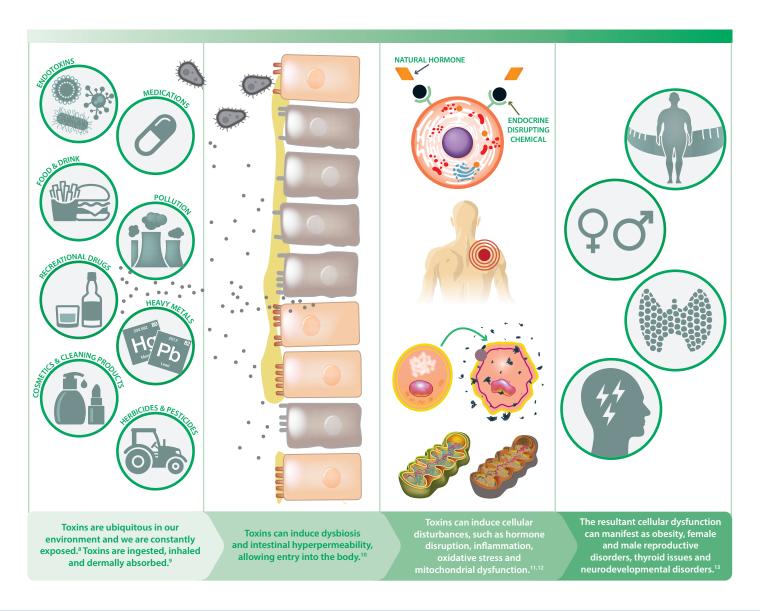
In addition to environmental chemicals, humans can also be exposed to another source of toxins, which have negative effects on our health – toxins generated within our gastrointestinal tract. The gut microbiome contains trillions of microorganisms that can either confer health benefit or detriment, depending on the composition and function of these microbes. An imbalanced, or dysbiotic microbiome is linked to both intestinal diseases (e.g. irritable bowel syndrome and inflammatory bowel disease) and non-intestinal conditions, such as depression, autism, autoimmunity, Alzheimer's disease, obesity and diabetes.³

Pervasive Pathology

The impact of toxins on human physiology are widespread as they affect numerous targets. EDCs themselves can induce dysbiosis, as they are known to shift the composition and function of the microbiome. Further, these toxins cause intestinal permeability, or leaky gut, and gain easy access to the bloodstream and organs. Once inside the body, EDCs can interfere with hormonal signalling, and induce inflammation, oxidative stress and mitochondrial dysfunction. Similarly, fragments from dysbiotic bacteria, known as lipopolysaccharides (LPS) or endotoxins, can also pass through the leaky epithelium and trigger systemic inflammation and/or drive pathology.

Out of the hundreds of thousands of manufactured chemicals, approximately 1000 may have potential endocrine-acting properties. It is estimated that 100% of humans have a chemical body burden which bioaccumulates from life-long exposure.

For more technical information on detoxification, please contact the Clinical Support team on 1800 777 648 (Australia) or 0508 227 744 (New Zealand).



Supporting Toxin Elimination

Winning The War Against Toxicity

Despite the ubiquitous presence of toxins, steps can be taken to eliminate and offset their impact; and health can be restored by using a comprehensive detoxification program. Each program should include two components to ensure clinical efficacy:



Reduce toxin burden – avoiding dietary and environmental toxins, as well as employing Natural Medicines to enhance the clearance of toxins. This includes promoting liver detoxification, along with supporting healthy gastrointestinal and kidney elimination.



Increase toxin resistance – evidence shows that several natural ingredients offer protection to the organism in the presence of toxins. That is, despite exposure to toxins, the damaging effects can be negated with the use of select ingredients.

The Metagenics Clinical Detoxification Programs are designed to address the primary source of toxicity in patients, and encourage elimination of and protection against these toxins. A questionnaire is available for patients to complete, which assists the Practitioner in determining the most appropriate program.

Metagenics Clinical Detoxification Programs



HEALTH RESET

GUT PATHOGEN ELIMINATION



LIVER CHEMICAL CLEARANCE



Indications

If total score is above 35 in the detoxification questionnaire.

If total score is above 35 and section 2 score is above 12 in the detoxification questionnaire.

If total score is above 35 and section 3 score is above 12 in the detoxification questionnaire.



Clinical picture

- · Patient exhibiting non-specific low to moderate signs of toxicity.
- · Unhealthy diet and lifestyle.
- Gut symptoms, (e.g. bloating, pain, constipation, diarrhoea, reflux).
- Dysbiosis, microbiome disruption and/ or upper intestinal bacterial imbalance.
- · History of environmental chemical and/or heavy metal exposure.
- · Hormonal issues.
- · Difficulty losing weight.



Benefit of detox foundations

✓ Enhances detoxification pathways, such as liver and kidney function.



Oregano oil possesses broad-spectrum



✓ Promotes a healthy microbiome



Reduce exposure

- Gardenia jasminoides binds lipopolysaccharide.
- Milk thistle increases phase II detoxification enzymes.
- · Glutamine and zinc reduce gut barrier hyperpermeability.
- Saccharomyces cerevisiae (boulardii) has antipathogenic activity which
- inhibits the growth of bacteria and parasites.

antimicrobial properties.

Glutamine and zinc act upon epithelial tight junctions and improve intestinal integrity.

- Milk thistle and broccoli sprouts increase phase II detoxification enzymes.
- BCM-95™ Turmeric for phase I detoxification modulation.
- Selenium, zinc and green tea neutralise reactive toxins.

Oral glutathione supplementation increases circulating glutathione levels and is shown to protect against environmental toxicity.



Green tea increases antioxidant and anti-inflammatory defences in the presence of toxins.

CHILDREN'S DETOXIFICATION

Children have a higher vulnerability to toxicity than adults as they are biologically sensitive due to growth and development. The following products may be considered and incorporated into a modified detoxification program for children.



Gut Care for Kids

To support healthy gastrointestinal mucosa and liver detoxification in children.

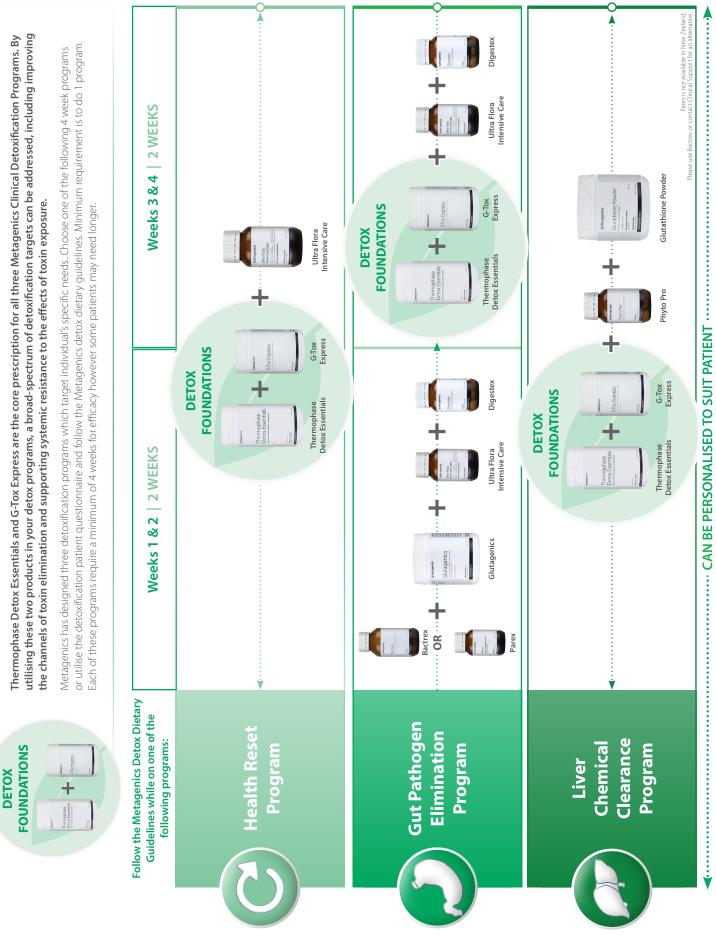


Ultra Flora Kids Care

Probiotic for beneficial gut flora, bowel function and immune health in children.

Metagenics Clinical Detoxification Programs

DETOX



Additional Product Considerations

The Detoxification Programs can be tailored to suit each individual depending on symptom picture and presentation. Below is a guideline for additional products that may be suitable to be used in conjunction with either of the three programs.

C			Patient Picture	Product	Description
	1		Requiring additional prebiotic support.	the Flora Diges Ultra Flora Digest	MetaFibre® and EpiCor® for beneficial gut bacterial growth. Supports digestive function and healthy immunity.
1	1	1	Constipation.	Laxatone	To relieve constipation and promote regular bowel motions.
	•	•	Requiring extra support to digest fats. Sluggish bowels.	Lipogen	A lipotropic digestive tonic to support gallbladder function and enhance bile flow.
		•	Requiring extra support for oestrogen clearance.	O-Clear	Supports phase II liver detoxification pathways for healthy oestrogen biotransformation.
		1	Known heavy metal exposure.	Lipoic Acid 600	Potent antioxidant to protect against free radical damage. Supports heavy metal chelation (cadmium, copper and mercury) and liver detoxification.
	•	1	Skin conditions, requiring extra lymphatic support.	Lymphatox	Depurative containing burdock and nettle to aid elimination of metabolic waste products from the body and support healthy skin.*
•	•	•	Eczema, allergies, medically diagnosed IBS, inflammatory conditions, dysbiosis.	Clinically Effective Probiotic Range	Condition specific probiotic strains for use when addressing particular health conditions is required.
•	•	•	Fatigue.	Bio Q-Absorb 150	Optimum strength, highly bioavailable coenzyme Q10 to support cellular energy production.
•	1	•	Requiring additional key nutrients.	High Strength BioEssentials	Specifically designed to provide key nutrients to maintain health and wellbeing during therapeutic diets.
1	1	•	Antioxidant protection.	SulforaClear	Broccoli seeds and sprouts with vitamin C for detoxification and antioxidant support.

^{*}Traditional use.

Point of Care Screening Tools and Resources

Metagenics have a number of screening tools to assist Practitioners in choosing the right program for their patients, to monitor their progress and to help motivate patients.



Detoxification Questionnaire

A comprehensive, easy to use questionnaire that screens for detoxification requirements. Utilise the questionnaire at the start and upon completion, to demonstrate progress and assist in patient motivation.



Patient History and Health Appraisal Questionnaire results

The Metagenics Health Appraisal Questionnaire (HAQ) is a useful clinical tool for health assessment that provides a wealth of information on specific organ systems, and can help you gain a clear understanding of your patient's state

Metagenics Institute

Both resources can be found on Metagenics Institute, in the 'Questionnaires' section under the 'Clinic Tools' menu.

MetaBiome™ Microbiome Sampling Kit



Contains:

1 x activation card, sample collection tube, sampling instructions, Bristol stool chart, reply paid sleeve and envelope.

A Comprehensive Test for Microbiome Composition and Function.

(Order Code: MBKIT)

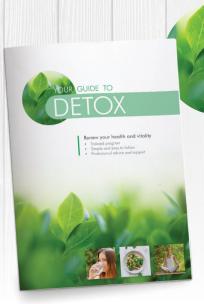
The MetaBiome™ Microbiome Sampling Kit utilises comprehensive and up-to-date microbiome assessment technology, providing a complete picture of the bacteria within the gut and their functional potential. By sequencing the whole genome, the test can identify individual genes in the bacteria that may contribute to the function of that bacteria and the related influence on microbial functional health.

A convenient way to provide your patient with their MetaBiome™ Kit, is by eReferral. Simply send your patient an email link to purchase a kit, and have it shipped directly to them via the MetaBiome™ online portal. For more information, visit www.metabiome.com.au, or contact your Metagenics Sales Representative.

For support in reviewing and interpreting the report, contact our MetaBiome™ experts in Clinical Services.







Your Guide to Detox Booklet

OUR GUIDE TO

Provide your patients with a booklet to take home with them once they are allocated a detox program. This resource is full of practical information, including dietary advice and lifestyle tips.

To order, contact your Metagenics Sales Representative, or find a digital version on Metagenics Institute in the 'Patient Booklets' section under the 'Patient Resources' tab.



Detox Foundations

Thermophase Detox Essentials and G-Tox Express are the core prescription for all three Metagenics Clinical Detoxification Programs.

By utilising these two products in your detox programs, a broad-spectrum of detoxification targets can be addressed, including improving the channels of toxin elimination and supporting systemic resistance to the effects of toxin exposure.

Effective detoxification needs a strong foundation:

- Thermophase Detox Essentials and G-Tox Express can be taken together, twice daily in a smoothie for convenience.
- Contains conjugating amino acids, antioxidants and alkalising greens for improved detoxification capacity.
- Provides glutamine, zinc and arabinogalactans to support gut barrier integrity.
- · Offers a synergistic combination for enhanced clinical efficacy.





G-Tox Express

Gastrointestinal and Kidney Detoxification Support.

Contents: 280 g oral powder (14 days) Tropical flavour

Order Code: GTX **Storage:** Store below 30°C

- Supports gastrointestinal and kidney detoxification.
- Contains potassium citrate as a urinary alkaliser which assists detoxification processes.²
- Includes the detoxifying greens: spirulina, cleavers and coriander.
- Larch arabinogalactans and pectin for healthy gut bacterial balance.

Each dose (10 g) contains:

Extracts equivalent to:	
Curcuma longa, root and rhizome dry (BCM-95™ Turmeric)	3.8 g
Gallium aparine, herb dry (Cleavers)	3 g
Arthrospira platensis, cell powder (Spirulina)	2.5 g
Glycyrrhiza glabra, root dry (Deglycyrrhizinised liquorice)	2.5 g
Aloe vera, leaf inner fresh (Aloe barbadensis)	2.5 g
Coriandrum sativum, herb powder (Coriander)	1 g
Fucus vesiculosus, whole plant dry (Kelp)	250 mg
Glutamine	2 g
Potassium citrate	2 g
Equivalent Potassium	724 mg
Larix arabinogalactan (Larch)	1 g
Pectin	500 mg
Zinc sulfate monohydrate	41.2 mg
Equivalent Zinc	15 mg

Directions: Adults: Take 2 level scoops (10 g) in 200 mL of water or juice twice daily with food.

Clinical Benefits:

G-Tox Express may help to protect the integrity of the gastrointestinal mucosa: Glutamine inhibits the deterioration of gut barrier integrity and preserves the mucosal structure by providing fuel to enterocytes of the small and large intestine, ^{3,4} helping to reduce gram negative bacterial translocation. ⁵ Zinc has been shown to play an important role in the integrity of the apical junction complexes of intestinal cells. ⁶ *Aloe vera* 's protective effects on the gastric mucosa are possibly due to its inhibition of the inflammatory mediators PGE2 and IL-8. ⁷ Larch arabinogalactans and pectin are excellent sources of dietary fibre that help to promote regular bowel movements to assist gastrointestinal detoxification. ^{8,9}

Improved detoxification capacity: Spirulina, coriander and cleavers are traditionally used for tissue cleansing and kidney detoxification in Western herbal medicine. ¹⁰ Coriander, along with zinc and pectin, has also been used to chelate toxins for excretion. ¹¹ Zinc competes with some toxins for binding sites and is involved in the functioning of metallothionein (MT), a chelating protein. ¹² Cleavers is traditionally used in Western herbal medicine to support kidney detoxification by assisting urinary elimination of wastes. ¹³

Alkalinity and toxin elimination: Potassium citrate assists kidney detoxification through alkalisation of urine, enhancing renal clearance of wastes^{2,14} facilitated by a process called ion trapping.¹⁵ A 2007 review study has shown 4 g to 8 g of potassium citrate to assist urinary alkalisation and reduce acidity over two weeks. Potassium citrate was shown to assist in urinary alkalisation by significantly reducing urinary calcium excretion and increasing urinary citrate excretion.² G-Tox provides 4 g of potassium citrate per day.

Free from animal products, dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, soy protein and salt. Free from artificial colours, flavours and preservatives.



Thermophase Detox Essentials

Herbal and Nutritional Support for Liver Detoxification.

Contents: 532 g oral powder (14 days) Vanilla flavour

Order Code: TDXE Storage: Store below 30°C

- Comprehensive formula that assists gut health, liver and cellular detoxification processes.
- Conjugating amino acids, milk thistle¹ and green tea² for liver detoxification and protection against reactive toxins.
- Low reactive, non GMO pea protein for improved patient compliance.
- · Part of the Metagenics Detoxification Programs.

Each dose (19 g) contains:

Larix arabinogalactan (Larch)	1 g
Magnesium amino acid chelate	1 g
(Meta Mag® - Magnesium bisglycinate)	1 9
Equivalent Magnesium	100 mg
Glutamine	1.5 g
Cysteine	50 mg
Taurine	350 mg
Ascorbic acid (Vitamin C)	250 mg
Zinc amino acid chelate (Meta Zn® - Zinc bisglycinate)	75 mg
Equivalent Zinc	15 mg
Calcium pantothenate (Vitamin B5)	55 mg
Nicotinamide (Vitamin B3)	50 mg
Pyridoxal 5-phosphate monohydrate (Vitamin B6)	50 mg
d-alpha Tocopheryl acid succinate	32 mg
Equivalent d-alpha-Tocopherol	25 mg
Thiamine hydrochloride (Vitamin B1)	25 mg
Riboflavin sodium phosphate	
(Riboflavin 5-phosphate sodium)	14 mg
Equivalent Riboflavin (Vitamin B2)	10 mg
Mecobalamin (Co-methylcobalamin) (Vitamin B12)	200 micrograms
Selenomethionine	186 micrograms
Equivalent Selenium	75 micrograms
Dry herbal extracts:	
Silybum marianum (Milk thistle), seed	86 mg
Derived from min. dry seed	6 g
Std. to Flavanolignans calculated as silybin	72 mg
Camellia sinensis (Green tea), leaf	208 mg
Derived from dry leaf	5.2 g
Gardenia jasminoides (Cape jasmine), fruit	150 mg
Derived from dry fruit	1.5 g
Soft extract:	
Dunaliella salina, cell	108 mg
Derived from min. fresh cell	67 mg
Std. to Carotenoids calculated as betacarotene	
(of Dunaliella salina)	2.7 mg

Excipients: *Pisum sativum* seed (Pea) (63.15%), milk and cream flavours (natural and nature identical) (4.84%), maltodextrin (MetaFibre®), xanthan gum, citric acid and steviol glycosides.

Directions for use (Adults only): Add 1 level scoop (19 g) to 200 mL of water twice daily. Product settling occurs. Ensure lid is tightly closed and invert product twice before use.

Major Phase II Conjugation Pathways	Substrates
Amino acid conjugation	Amino acids: glutamine,3 taurine4
Methylation	Active vitamin B12 ⁵
Sulfation	Amino acids: cysteine, ⁶ taurine ⁷
Glutathionation	Glutathione, active vitamin B6,8 activated vitamin B12,9 magnesium ¹⁰
Glucuronidation	Magnesium ¹¹
Acetylation	Vitamin B1,12 vitamin B513

Figure 1: Key Nutrients for Liver Detoxification Pathways

A single dose of Thermophase Detox Essentials typically provides:

A single dose of Thermophase Detox Essentials typically provides.				
Kilojoules (Calories)	303 (72)	Carbohydrate (g)	<1.0	
Protein (g)	13.0	Fat (g)	1.7	
Typical Amino Acid %				
Alanine	4.3	Lysine*	7.1	
Arginine	8.7	Methionine*	1.1	
Aspartate	11.5	Phenylalanine*	5.5	
Cysteine	1.0	Proline	4.3	
Glutamate	16.7	Serine	5.1	
Glycine	4.0	Threonine*	3.8	
Histidine*	2.5	Tryptophan*	1.0	
Isoleucine*	4.7	Tyrosine	3.8	
Leucine*	8.2	Valine*	5.0	

*essential amino acids

The pea protein in Thermophase Detox Essentials is easily digestible, low reactive, non-GMO and naturally low in phytates, lectins and other anti-nutritional factors.

Clinical Benefits:

Reduce toxic load by supporting gut barrier function, microbiome health and lipopolysaccharide (LPS) reactions. Glutamine may help to protect gut integrity and permeability¹ with zinc to reduce mucosal permeability² and gram negative bacterial translocation.³ Taurine and the Traditional Chinese Medicine herb, gardenia, support the liver, with *in vitro* work showing taurine to reduce LPS activation of liver Kupffer cells.⁴ Arabinogalactans from larch provide prebiotic benefits to stimulate short chain fatty acid production, and lactobacilli and bifidobacterium growth as part of a healthy gut microbiome.⁵6

Improves cellular liver detoxification capacity: Milk thistle has been used in Western herbal medicine to assist the detoxification capacity of the liver. Silymarin inhibits ß-glucuronidase activity to assist the elimination of metabolites conjugated through phase II detoxification. Green tea polyphenols also stimulate the activity of hepatic detoxification enzymes, thereby promoting detoxification of xenobiotic compounds.

Neutralises reactive toxins: Antioxidants, such as selenium, zinc and green tea, help protect against potential free radical damage from reactive toxins formed during phase I.⁹ Cysteine and glutamine help synthesise glutathione, ¹⁰ a major endogenous antioxidant, to help protect cells against reactive hydroxyl free radicals.¹¹ Glutathione is also a substrate for the major phase II detoxification pathway, glutathionation.¹² Pea protein is a natural source of glutamine and glycine. Green tea has also demonstrated high antioxidant activity with an ability to scavenge hydroxyl and superoxide radicals.¹³ It is hypothesised that green tea catechins, by decreasing the oxidative stress in cells, modulate the expression of antioxidant enzyme (AE) genes.¹⁴

Eliminates and conjugates toxins: The low reactive, non GMO high quality pea protein in Thermophase Detox Essentials supplies essential amino acids and nutrients to support major phase II conjugation pathways (Figure 1). Phase II detoxification pathways are dependent upon adequate substrates to carry out conjugation reactions.¹⁵ Phase II detoxification pathways transform intermediate metabolites formed from phase I detoxification to be more water-soluble and therefore more easily excreted in the bile and urine.¹⁶ Thermophase Detox Essentials with taurine,¹⁷ and the TCM herb, gardenia,¹⁸ assists in promoting the body's elimination of wastes via the liver and bile.

Free from dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, salt and soy protein. Free from artificial colours and flavours. Sweetened with steviol glycosides.



Ultra Flora Intensive Care

Microbiome Restoration Formula.

Contents: 30 capsules (VegeCaps) (15 to 30 days) and 60 capsules (VegeCaps) (30 to 60 days)

Order Code: UFIC30 (30 capsules), UFIC60 (60 capsules) Storage: Store at 2°C to 8°C (Refrigerate. Do not freeze.)

- Rebuild native commensal flora populations. 1,2
- Improve microbiome composition,³ function of healthy gut flora and gut barrier integrity.
- Well researched strains and strengths⁵ with clinically demonstrated patient health outcomes.^{6,7,8,9,10}

Each capsule contains:

22.5 billion live probiotic organisms:

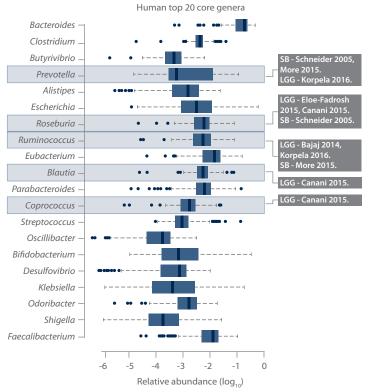
Lactobacillus rhamnosus (LGG®)	10 billion CFU (organisms)
Saccharomyces cerevisiae (boulardii) (SB)	7.5 billion CFU (organisms)
Bifidobacterium animalis ssp lactis (BB-12®)	5 billion CFU (organisms)

Directions: Adults: To rebuild healthy gut flora balance: Take 1 capsule twice daily.

To assist gut health: Take 1 capsule daily.

Clinical Benefits:

Rebuilds native commensal flora of the gut microbiome. Recent probiotic research¹¹ has shown that the key mechanism by which probiotics rebuild a disrupted microbiome is the modulation of native commensal bacterial populations. This is in contrast to the old understanding that probiotics repopulate by directly replacing and recolonising with specific probiotic strains and species.^{12,13} The dominant bacterial families of the microbiome contain over 1,000 species and many thousands of genetically unique strains to total approximately 38 trillion organisms.¹⁴



Xiao L, et al. A catalog of the mouse gut metagenome. Nat Biotechnol. 2015 Oct;33(10):1103-8

Figure 1: LGG® and SB Rebuild Core, Native Commensal Bacteria.

Ultra Flora Intensive Care contains three of the world's most widely researched probiotics (LGG®, SB and BB-12®) with documented outcomes and mechanisms for microbiome replenishment. ^{15,16} These genetically unique probiotics support the growth and function of the dominant bacterial groups of the microbiome ^{17,18} and suppress pathogen growth. ¹⁹ In addition, BB-12®20 and LGG®21 strains specifically support the gut epithelial mucosa where the bacterial populations reside and interact systemically.

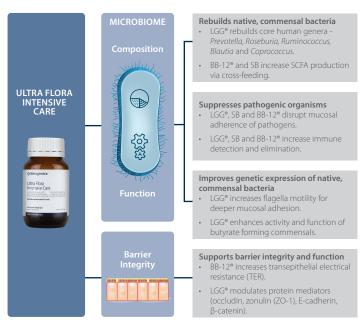


Figure 2: Strain Specific Mechanisms to Rebuild Microbiome Composition and Function.

Ultra Flora Intensive Care provides LGG®, SB and BB-12® strains at a clinically validated dose for microbiome restoration and to assist gastrointestinal function. ^{22,23,24} In addition, there is a substantial supportive body of evidence showing clinical improvement in patients with symptoms associated with microbiome depletion. ^{25,26,27}

Contains live, original and clinically researched probiotic forms.

LGG®, SB and BB-12® are three of the world's most extensively researched probiotics with a range of clinically demonstrated health benefits. Factors that can influence probiotic activity include its genetic profile, manufacture (from culture to production) and storage. Live SB synthesises and secretes polyamines in order to exert its beneficial effects on the gastrointestinal mucosa, and inhibits pathogens. ²⁸ Ultra Flora Intensive Care guarantees live SB CFU (colony forming units) at the label dose until expiry for clinical efficacy. LGG® is a genetically unique probiotic grown to a specific culturing and manufacturing process in order to provide reproducible and consistent clinical benefits in line with its wide body of research. Probiotics are genetically unique at a strain level and health benefits are not transferrable between strains (even within species).

Free from animal products, dairy protein, lactose, eggs, gluten, wheat, nuts and soy protein. Free from artificial colours, flavours and preservatives.

LGG[®] is a registered trademark of Chr. Hansen A/S.



Bactrex

Enteric Coated Herbs for Upper Intestinal Health.

G Metagenics

Parex

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Parex

Antiparasitic and Anthelmintic Herbs for Intestinal Health.

Contents: 60 enteric coated capsules (15 days)

Order Code: BTX Storage: Store below 30°C

- Help maintain upper intestinal health in Traditional Chinese Medicine.¹
- Enteric coated for targeted release into the small intestine.
- Provide antimicrobial support.²

Each capsule contains:

Extracts equivalent to:

Phellodendron amurense, stem bark dry (Phellodendron)	750 mg
Origanum vulgare, leaf oil essential (Oregano)	100 mg
Syzygium aromaticum, leaf oil essential (Clove oil)	50 mg
Thymus vulgaris, herb flowering oil essential (Thyme oil)	50 mg

Directions: Adults: Take 2 capsules twice daily with food.

Clinical Benefits:

May help maintain upper intestinal health: Bactrex contains *Phellodendron amurense* which is traditionally used in Traditional Chinese Medicine to maintain upper intestinal health. *Phellodendron amurense* contains a number of constituents that have been shown *in vitro*, to display antimicrobial properties on a range of bacteria. Constituents found in *Phellodendron amurense* have been shown to block the adhesion of bacteria to erythrocytes and epithelial cells. Bactrex also contains the essential oils: oregano, clove and thyme, in an enteric coated capsule ensuring targeted release into the small intestine.

Definition of Small Intestinal Bacterial Overgrowth (SIBO): Small Intestinal Bacterial Overgrowth (SIBO) is a condition in which normal bacterial and fungal flora of the large intestine extends proximally into the small intestine.⁴

Free from dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, soy protein and salt. Free from artificial flavours.

Contents: 50 tablets and 100 tablets

Order code: PRX50 (50 tablets), PRX100 (100 tablets)

Storage: Store below 30°C

Traditionally, ingredients in Parex have been used to or may:

- Help rid the body of intestinal worms and parasites, maintaining healthy intestinal microbial balance.^{1, 2, 3}
- Exert antimicrobial, ⁴ antiparasitic⁵ and antifungal⁶ activity.
- Prescribed as part of the Gut Pathogen Elimination Program.

Each tablet contains:

Extracts equivalent to:

Punica granatum, fruit peel dry (Pomegranate)	3.3 g
Artemisia annua, herb dry (Sweet wormwood)	2 g
Juglans nigra, fruit hull fresh (Black walnut)	1 g
Nigella sativa, seed dry (Nigella)	1 g
Commiphora myrrha, gum oleoresin dry (Myrrh)	1 g
Peppermint oil	25 mg

Directions: Adults: Take 1 tablet three times daily with food.

Clinical Benefits:

Parex contains a potent herbal formulation used for its broad spectrum anti-pathogenic properties in traditional Chinese, Western and Ayurvedic herbal medicine.

Antiparasitic and anthelmintic: Pomegranate peel extract may reduce and eliminate parasitic cyst shedding due to the presence of metabolic toxins, which has a direct effect on parasitic intestinal growth and cyst formation. Nigella and myrrh may exert antiparasitic action via immunomodulatory effects. Artemisinin, a constituent from sweet wormwood, has multiple antiparasitic and antiprotozoal actions, including formation of free radicals which can alter biochemical pathways within the parasite and mediate eradication. Parex contains pomegranate, nigella, myrrh and black walnut, which have been used in traditional Western herbal medicine to assist in the expulsion of intestinal worms from the body. 11,12,13,14

Antifungal: Artemisinins possess antifungal activity via multiple mechanisms, including disruption to fungal mitochondrial function.¹⁵ Pomegranate peel extract, specifically the polyphenol component punicalagin, has been shown to inhibit biofilm formation in fungi and bacteria.^{16, 17} Punicalagin may inhibit the growth of microbial co-aggregation, and exhibits antifungal activity by deprivation of substrates and direct action on microbial metabolism.¹⁸

Antimicrobial: The sesquiterpenes in myrrh interact with bacterial cell envelopes which leads to the disruption of cell membranes, and subsequently bacteriolysis. Peppermint oil may also inhibit the formation of microbial biofilms via damaging microbial cytoplasmic membranes. 20

Microbiome health: Dysbiosis is the imbalance of good and bad bacteria, occurring predominantly in both the small and large intestine.²¹ Pomegranate peel not only exerts antimicrobial activity, but also has a prebiotic effect, positively modulating gut microbiota towards bifidobacterium, and possesses significant anti-inflammatory activity in the gastrointestinal tract.²²

Reduces symptoms of dyspepsia and mild digestive discomfort.^{23,24}

A part of the Metagenics Clinical Detoxification Program. Parex has been included in the four week Gut Pathogen Elimination Program, which is designed to manage dysbiosis and maintain a healthy gut microbial balance.

Do not use if pregnant or likely to become pregnant.

Free from animal products, corn, dairy protein, lactose, eggs, gluten, wheat, yeast, soy protein, starches and salt. Free from artificial colours, sweeteners, flavours and preservatives. Contains tree nut products.

Parex is not available in New Zealand. Please use Bactrex or contact Clinical Support for an alternative.



Glutagenics

To Soothe, Repair and Support a Healthy Gastrointestinal Lining.



Digestex Triple Action Digestive Support.

Contents: 230 g oral powder (15 days) Lemon Lime flavour

Order Code: GLU230 Storage: Store below 30°C

Ingredients in Glutagenics have been shown or traditionally used to:

- Relieve mild gastrointestinal discomfort, pain and minor inflammation.^{1,2,3,4}
- Protect gastrointestinal mucosa and gut integrity.^{5,6,7}
- Great tasting powder to aid digestion.

Each dose (7.7 g) contains:

Glutamine	2.2 g
Larix arabinogalactan (Larch)	2 g
Zinc amino acid chelate (Meta Zn® - Zinc bisglycinate)	75 mg
Equivalent Zinc	15 mg
Retinol palmitate (Vitamin A)	1375 micrograms
Equivalent Vitamin A	750 micrograms RE
Colecalciferol (Vitamin D3)	12.5 micrograms
Equivalent Vitamin D3	500 IU
Extracts equivalent to:	
Boswellia serrata, gum oleoresin fresh	1.5 g
Aloe vera, leaf inner fresh (Aloe barbadensis)	5 g

Directions: Adults: Add 2 level scoops (7.7 g) to 200 mL of water twice daily with food.

Clinical Benefits:

Protective effect on gastrointestinal mucosa and gut integrity: Glutamine protects the integrity of the intestinal tract by reducing mucosal permeability and increasing secretory IgA (sIgA) secretion, and therefore inhibiting the adherence and translocation of gram negative bacteria. ^{5,9} In addition, glutamine and zinc exert action on the tight junctions of the intestines, regulating the junction integrity. ^{10,11} Glutamine reduces mucosal permeability and regulates the PI3-Kinase/Akt pathway, while zinc is involved in the organisation of tight junction and adherens junction proteins. ^{9,5,10,11} Aloe vera has been used traditionally for its protective effects on the gastric mucosa. This is possibly due to its inhibition of the inflammatory mediators PGE2 and IL8.⁷

Free from dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, soy protein and salt. Free from artificial colours, flavours and preservatives. Sweetened with steviol glycosides.

Contents: 30 tablets (15 days)

Order Code: DGX Storage: Store below 30°C

Contains traditional herbs for:

- · Relief of digestive discomfort.
- · Stimulation of digestive secretions.
- · Digestive motility.

Each tablet contains:

Extracts equivalent to:

Taraxacum officinale, root dry (Dandelion)	3 g
Filipendula ulmaria, herb dry (Meadowsweet)	2 g
Gentiana lutea, root dry (Gentian)	1 g
Melissa officinalis, leaf dry (Lemon balm)	1 g
Cinnamomum verum, stem bark dry (Cinnamon)	1 g
Zingiber officinale, rhizome dry (Ginger)	750 mg

Directions: Adults: Take 1 tablet twice daily with food.

Clinical Benefits:

Relief of digestive discomfort. Digestex provides digestive support¹ with traditional Western herbs to relieve symptoms, such as bloating and stomach discomfort.²³ Meadowsweet, traditionally used to soothe and protect the gastrointestinal tract,⁴ is combined with carminative and anti-spasmodic herbs⁵ to help relieve intestinal spasm by relaxing intestinal muscles.⁶

Stimulation of digestive secretions with bitter herbs, such as dandelion^{7,8} and gentian. Gentian has traditionally been given orally to increase saliva, gastric and bile secretions. Bitter herbs do not need to be tasted to stimulate upper digestive function, as they activate taste receptors (TASR2) located throughout the gastrointestinal tract. TASR2 hormonal and neuronal signalling may affect the secretion of pancreatic enzymes and bile, helping to regulate stomach function and acid production.

Digestive motility. ¹³ Ginger stimulates antral contractions, reduces postprandial antral area and accelerates gastric emptying. ¹⁴ Animal studies indicate that ginger contains a combination of spasmogenic (cholinergic) and spasmolytic (calcium antagonist) constituents ¹⁵ to support gastric motility ¹⁶ and aid digestion. ^{17,18}

Part of the Metagenics Gut Pathogen Elimination Detoxification

Program. Digestex contains the traditional liver herb dandelion, to assist digestive processes, ¹⁹ and ginger, to assist gastric motility for improved digestive transit time. Activation of gastrointestinal bitter receptors is thought to indirectly improve the elimination of absorbed toxins from the gut epithelium.²⁰

Free from animal products, dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, soy protein and salt. Free from artificial colours, flavours and preservatives.

Contents: 60 tablets (15 days)
Order Code: PHYP
Storage: Store below 30°C

Ingredients in Phyto Pro have been shown or traditionally used:

- To support the detoxifying capacity of the liver and increase bile output to maintain natural body waste elimination.^{1,2}
- For hepatoprotective properties to support liver regeneration and healthy liver function.¹
- Contains milk thistle, standardised to 15 mg flavanolignins, and BCM-95™ Turmeric with enhanced bioavailability.

Each tablet contains:

Brassica oleracea var. italica (Broccoli), sprout powder	375 mg
Dry herbal extracts:	
Silybum marianum, seed dry (Milk thistle), seed	18 mg
Std. to Flavanolignins calculated as silybin	15 mg
Cynara scolymus, leaf fresh (Globe artichoke), leaf	25 mg
Schisandra chinensis, fruit dry (Schisandra), fruit	100 mg
Derived from dry fruit	1 g
Curcuma longa, rhizome dry (BCM-95™ Turmeric), rhizome	30 mg
Derived from dry rhizome	750 mg

Directions: Adults: Take 2 tablets twice daily.

Clinical Benefits:

Induce liver detoxification processes. These include phases I, II and III reactions (Figure 1). Phase I detoxification encompasses the beginning of the toxin biotransformation process via oxidation, reduction or hydrolysis reactions. The resultant intermediate metabolites must then be further detoxified through phase II reactions in order to be excreted in the bile or urine. Phase I detoxification is modulated by turmeric. The major phase II detoxification pathways include glutathionation, glycination, acetylation, methylation, glucuronidation and sulphation. Milk thistle, turmeric, broccoli and schisandra induce these detoxification pathways (Figure 1). 4.5

Protect the liver against toxins. Silybins, from milk thistle, protect the liver against toxins in two ways. First, they are incorporated into the cell membrane and protect the cell from toxic insult. Second, they increase cyclic adenosine monophosphate (cAMP), an intracellular signalling molecule that has a hepatoprotective effect. Milk thistle also increases the intracellular concentration of glutathione, while globe artichoke reduces loss of this major endogenous antioxidant. Broccoli has been shown to increase glutathione-derived biomarkers in just seven days.

Support liver function. Milk thistle and globe artichoke promote bile secretion. Milk thistle supports the synthesis of bile and cholestatic compounds while, globe artichoke supports bile flow and gastrointestinal motility, and has been shown to protect cell membrane lipids against oxidative damage.^{6,10}

Free from animal products, dairy protein, lactose, eggs, gluten, wheat, nuts, yeast and soy protein. Free from artificial colours, flavours and preservatives.

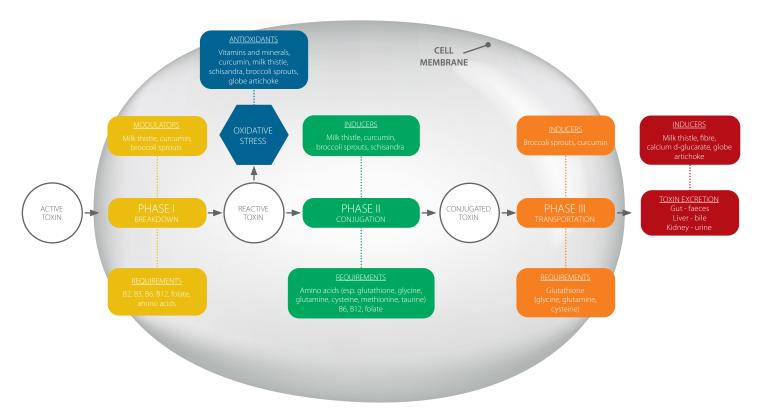


Figure 1: Phyto Pro Supports the Three Phases of Liver Detoxification.



Glutathione Powder

Bioavailable Antioxidant Support.



Lipoic Acid 600

High Strength, Convenient Dose Antioxidant Protection.

Contents: 75 g oral powder (30 days) Pineapple flavour

Order Code: GLUP **Storage:** Store below 30°C

- A major intracellular antioxidant to protect body cell components from oxidative damage.¹
- Metagenics glutathione is bioavailable; supplementation with oral glutathione increases circulating levels.¹
- Great tasting powder and one-a-day dose for improved compliance.

Each dose (2.5 g) contains:

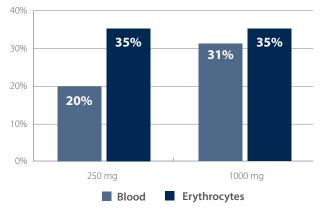
Glutathione 500 mg

Directions for use (Adults only): Add 1 metric teaspoon (2.5 g) to 200 mL of water daily with food.

Clinical Benefits:

Glutathione (GSH) is a major intracellular antioxidant.² It has been shown to protect the cells and their components from oxidative damage via the glutathione oxidation cycles. These cycles include the oxidation and reduction of glutathione which enables glutathione to react with free radicals before they cause damage^{2,3}

Studies have shown oral glutathione supplementation to be bioavailable and to increase circulating glutathione levels. A randomised, double blind placebo controlled trial on 54 healthy adults assessed glutathione levels at one, three and six months. Doses of 250 mg or 1000 mg of oral glutathione demonstrated increases in both blood and erythrocyte concentrations of GSH at each time point, including six months (Figure 1). Levels of GSH returned to baseline after a one month washout period demonstrating that cessation of GSH supplementation causes levels to decrease A separate clinical trial showed an oral dose of 15 mg/kg body weight of GSH to increase plasma levels by 1.5 to 10 times compared to baseline.



Richie JP Jr, Nichenametla S, Neidig W, Calcagnotto A, Haley JS, Schell TD and Muscat JE. Randomised controlled trial of oral glutathione supplementation on body stores of glutathione. European Journal of Nutrition; May 5; [Epub ahead of print]. 2014.

Figure 1: Oral Glutathione Supplementation Increases Circulating Levels.

Stores of glutathione are dependent upon nutrient concentrations, exercise, oxidative stress and ageing.²

Free from animal products, dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, soy protein and salt. Free from artificial colours and flavours. Contains steviol glycosides.

Contents: 60 tablets (60 days)

Order Code: LIPA

Storage: Store below 30°C

- Promote healthy carbohydrate metabolism and glucose transport, and maintain healthy capillaries. 12,3
- Protect mitochondria against free radical damage, supporting cellular energy production.^{1,4}
- Support glutathione production and liver phase II (conjugation) detoxification.⁵
- Highest strength, researched 600 mg per tablet; convenient once per day dose.

Each tablet contains:

Alpha lipoic acid

600 ma

Directions: Adults: Take 1 tablet daily with food.

Clinical Benefits:

Lipoic acid is an essential component in the conversion of pyruvate to acetyl CoA. It is vital to the correct functioning of the Krebs Cycle and for normal, healthy carbohydrate metabolism.⁶

Glucose maintenance: Lipoic acid is required for the regulation of glucose transport and cellular glucose uptake.^{2,1} It also regulates the impact glucose has upon blood vessels and maintains healthy capillaries by supporting nitric oxide-mediated vasodilation.^{2,1,3}

Potent antioxidant: A hydrophilic and lipophilic antioxidant, lipoic acid is also able to regenerate other antioxidants.¹ It provides potent intracellular antioxidant protection to key tissues, including liver cells, as well as protecting the mitochondria against free radical damage.¹.²

Heavy metal chelation and liver detoxification: Lipoic acid supports healthy liver detoxification by supporting glutathione production through transcription factor Nrf2, and via its antioxidant activity in chelating heavy metals.^{8,3} Lipoic acid contributes its thiol group to detoxify metals, including cadmium, copper and mercury, which subsequently improves the cell membrane integrity.³ In addition, lipoic acid induces several phase II detoxification enzymes.³

Real time stability studies have been conducted to ensure labelled potency through to expiry.

Free from animal products, corn, dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, soy protein, starches and salt. Free from artificial colours, flavours and preservatives.



SulforaClear

Broccoli Seeds and Sprouts with Vitamin C for Detoxification and Antioxidant Support.



Contents: 60 capsules (VegeCaps) (60 days)

Order Code: SC60 Storage: Store below 30°C

 Optimise sulforaphane yield through the combination of glucoraphanin-rich broccoli seeds, and broccoli sprouts with high myrosinase activity.

- · Assist detoxification processes.
- Provide antioxidant protection against free radical damage.

Each capsule contains:

Calcium ascorbate dihydrate	96 mg
Equivalent Ascorbic acid (Vitamin C)	80 mg
Brassica oleracea var. italica, (Broccoli), sprout powder	200 mg
Dry herbal extract:	
Brassica oleracea var. italica, (Broccoli), seed	200 mg
Derived from dry seed	2 g
Equivalent Glucoraphanin	26 mg

Directions: Adults: Take 1 capsule daily with food.

Clinical Benefits:

SulforaClear is formulated to provide detoxification and antioxidant support, containing both the seed and sprout from broccoli. Broccoli seeds are a potent source of the phytochemical glucoraphanin, which is converted into sulforaphane within the body. The conversion of glucoraphanin to sulforaphane is dependent on the enzyme myrosinase. SulforaClear is formulated with broccoli sprouts which contain the active form of myrosinase, as well as ascorbic acid (vitamin C), a cofactor required for effective myrosinase activity. The combination of glucoraphanin-rich seed alongside sprout and vitamin C optimises total sulforaphane yield, supporting consistent therapeutic health outcomes for patients.

Sulforaphane has demonstrated far reaching and significant benefits with regard to detoxification, antioxidant support and anti-inflammatory effects in *in vitro*, animal and human models.^{4,5} Through activating the nuclear transcription factor Nrf2 and subsequently increasing the expression of cytoprotective genes, sulforaphane is the most potent, known, naturally occurring inducer of phase II enzymes.⁶ These enzymes are known to play a key role in cellular defence mechanisms, protecting cells against inflammation, oxidative stress and free radical damage,^{7,8,9} in addition to supporting detoxification processes.^{10,11,12,13}

Supplementing with one capsule of SulforaClear is equivalent to consuming approximately 1 ³/4 cups of fresh broccoli in regards to glucoraphanin intake. This is an important aspect when it comes to ensuring patients experience consistent therapeutic benefits of sulforaphane. Although dietary broccoli is an excellent source of nutrition and yields the highest amount of sulforaphane compared to other cruciferous vegetables, the cooking process reduces myrosinase levels affecting conversion into sulforaphane.

Metagenics SulforaClear uses broccoli material that is grown without the use of herbicides, pesticides or other potentially harmful chemicals. In addition, the seed is tested and cleared for over 400 pesticides.

Free from animal products, corn, dairy protein, lactose, eggs, gluten, wheat, nuts, yeast, and soy protein. Free from artificial colours and flavours.

Contents: Each kit contains: 1 x activation card, sample collection tube, sampling instructions, Bristol stool chart, reply paid sleeve and envelope.

Order code: MBKIT Storage: Store below 30°C

- Simple, non-invasive sampling performed at home and conveniently posted in the supplied reply paid envelope for assessment.
- Practitioner-centric report, emailed, with information sorted into body systems for easy interpretation.
- Report provides complete picture of gut microorganisms and their function.

Directions for use:

- 1. Provide patient with kit. Retain activation card with unique identifier.
- Access activation portal at www.metabiome.com.au and follow prompts to activate the kit using the unique identifier and your patient's details.
 Samples received that have not been activated cannot be processed.
- 3. Have your patient take the kit home and follow the step by step Sampling Instructions
- 4. Receive your patient's comprehensive MetaBiome™ Practitioner Report direct to your email address.

You may also provide your patient with their MetaBiome™ Kit, via eReferral. This is a convenient way to send your patient an email link to purchase a kit, and have it shipped directly to them via the MetaBiome™ online portal. For more information, visit www.metabiome.com.au, or contact your Metagenics Sales Representative..

Clinical Benefits:

Metagenomic (or whole genome) sequencing of the gut microbiome.

The MetaBiome $^{\text{TM}}$ utilises a comprehensive and up to date microbiome assessment technology, providing a complete picture of the bacteria within the gut and their functional potential. By sequencing the whole genome, the test can identify individual genes in the bacteria that may contribute to the function of that bacteria and the related influence on microbial and functional health.

From providing the kit to your patient, to receiving the comprehensive report, the MetaBiome $^{\mathbb{M}}$ test offers accuracy, simplicity and clinical application.

The MetaBiome™ Microbiome Sampling Kit samples an individual's gut microbiome in a non-invasive manner and for non-diagnostic purposes. For support in reviewing and interpreting the report, contact our MetaBiome™ experts in Clinical Services.

Clinical Tools and Resources

All clinical tools and resources are available on Metagenics Institute

Visit metagenicsinstitute.com.au and you will find a wealth of information readily available, to assist you in your practice for free.



Clinical Tools



Technical Data



Environmental Exposure Decision Tree



Protocols



Resilience to Environmental Toxicity Infographic



CIRS and Biotoxins Questionnaire



Selecting Effective Antimicrobials to Address Intestinal Dysbiosis Infographic



Detoxification Questionnaire





Detox Brochure



Your Guide to Detox Booklet (Pack of 10)

Brochures and booklets are available to order from your Sales Representative.



Detox Friendly Recipes



Public Facebook Page facebook.com/metagenics





Mastering the Microbiome: Translating Cutting-Edge Science into Clinical Practice



Metagenics Institute
Podcast



Your Health Guide Patient Podcast



Testing Tools



Join our Practitioner only Facebook Group: Metagenics AU



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Metagenics Clinical Support

Delivering Practitioner to Practitioner support and access to an industry leading Clinical team with 202 years of combined clinical experience. Available to help save you time and support your business and patient needs.

- · Clinical support (i.e. treatment plans/product prescriptions/test results and interpretation/contraindications);
- Writing resources (technical/patient/digital tools);
- · Education;
- Researching cases (providing information and evidence to support your research/patient treatment needs).

Our Clinical Support team can be reached on:



NEW ZEALAND 0508 227 744 8:00 am – 5:00 pm





Detox Range Summary

Page

G-Tox Express

Gastrointestinal and Kidney Detoxification Support.

- · 3.8 g BCM-95™Turmeric
- 2 g Glutamine

Product Highlights

· 2.5 g Spirulina



Digestex

Triple Action Digestive Support. • 3 g Dandelion

· 750 mg Ginger

Product Highlights

· 2 g Meadowsweet

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Thermophase Detox **Essentials**

Herbal and Nutritional Support for Liver Detoxification.

- Non GMO pea protein
- 6 g standardised Milk thistle
- 5.2 g Green tea



Phyto Pro

Herbal Support for Liver Detoxification

- 1.25 g standardised Milk thistle
- · 1.25 g Globe artichoke



Ultra Flora **Intensive Care**

Microbiome Restoration Formula

- 10 billion CFU Lactobacillus rhamnosus (LGG®)
- 7.5 billion CFU Saccharomyces cerevisiae (boulardii) (SB)
- 5 billion CFU Bifidobacterium animalis ssp lactis (BB-12®)



Glutathione Powder

Bioavailable Antioxidant Support.

· 500 mg Glutathione



Bactrex

Enteric Coated Herbs for Upper Intestinal Health.

- 750 mg Phellodendron
- · 100 mg Oregano oil



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Lipoic Acid 600

High Strength, Convenient Dose Antioxidant Protection.

· 600 mg Alpha lipoic acid



Parex

Antiparasitic and Anthelmintic Herbs for Intestinal Health.

- · 3.3 g Pomegranate
- 1 g Nigella
- 1 g Myrrh



SulforaClear

Broccoli Seeds and Sprouts with Vitamin C for Detoxification and Antioxidant Support.

- · 2 g Broccoli seed
- · 26 mg equivalent Glucoraphanin
- · 200 mg Broccoli sprout
- 80 mg Vitamin C



Glutagenics

To Soothe, Repair and Support a Healthy Gastrointestinal Lining.

- · 2.2 g Glutamine
- 1.5 g BosPure® Boswellia

MetaBiome™ Microbiome Sampling Kit

· A Comprehensive Test for Microbiome Composition and Function.



References available upon request. Parex is not available in New Zealand. Please use Bactrex or call Clinical Support for an alternative.

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Metagenics Australia 741 Nudgee Road, Northgate, Queensland 4013. Virginia BC, Queensland 4014.

Ph: (07) 3117 3300 Ph: Country and Interstate 1800 777 648 Metagenics NZ 22B William Pickering Drive, Rosedale, Auckland 0632. PO Box 35383, Browns Bay, Auckland 0753.

Ph: (09) 478 2540 or 0508 227 744 Fax: (09) 478 2740

metagenics.com.au metagenicsinstitute.com.au info@metagenics.com.au

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metagenics.co.nzmetagenicsinstitute.co.nz info@metagenics.co.nz orders@metagenics.co.nz

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Metagenics acknowledges and pays respects to the past, present and future Traditional Custodians and Elders of this nation. We acknowledge the Yuggera, Turrbal and Jagera people, the Traditional Custodians of the land on which this resource was created