



Clinical Detoxification Program

Strategies for effective and comprehensive detoxification.



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.² 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.^{3,4,5}

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.⁶

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.^{7,8,9} Further, these toxins can generate intestinal inflammation and induce increased gastrointestinal permeability. This may allow toxins to more easily reach the bloodstream and interfere with hormonal signalling, induce inflammation, oxidative stress and mitochondrial dysfunction.^{10,11,12,13} 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.¹⁴

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.¹⁵

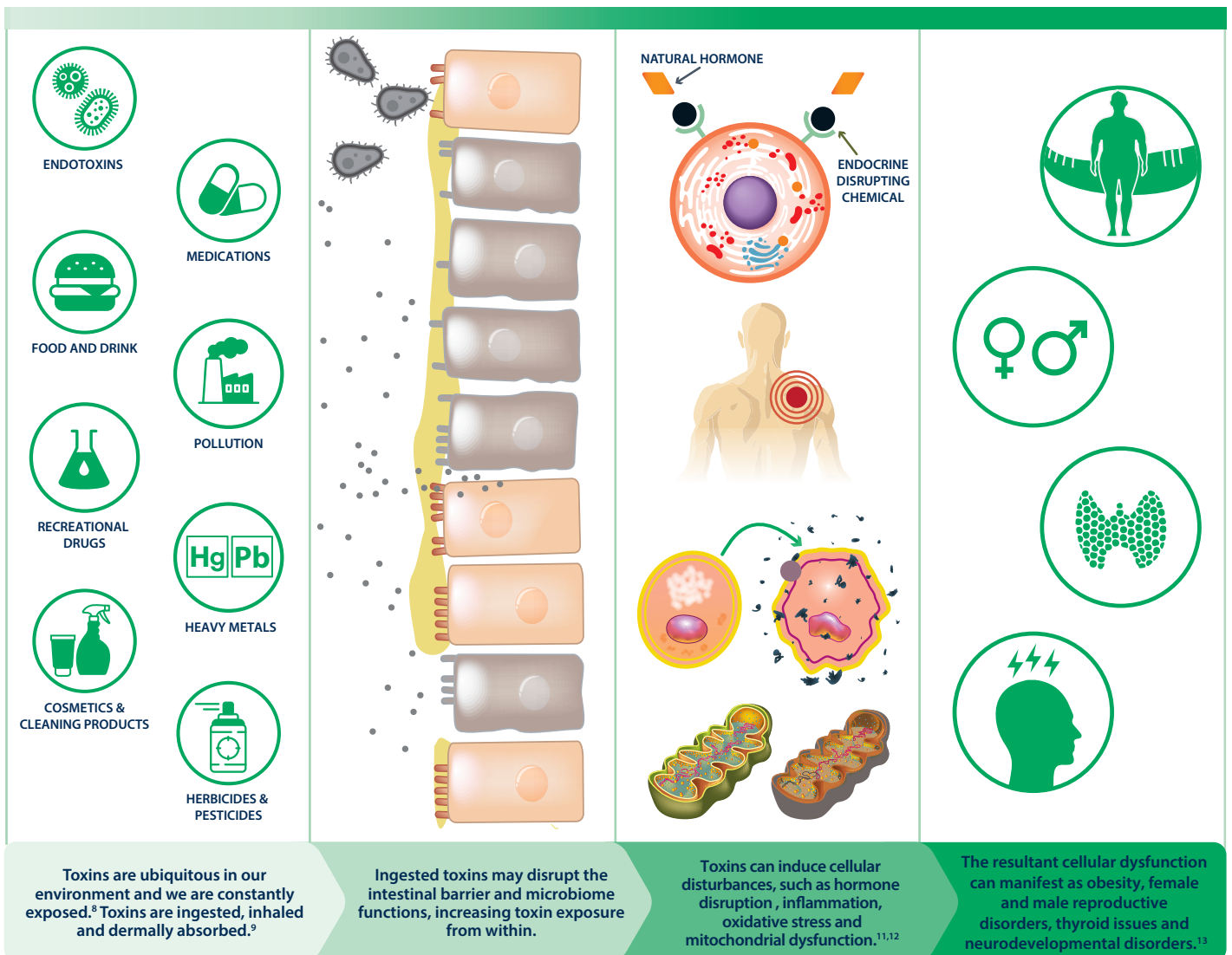




Figure 1: Meta Minerals for Enhanced Absorption.

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	<ul style="list-style-type: none"> • Patient exhibiting non-specific low to moderate signs of toxicity. • Unhealthy diet and lifestyle. 	<ul style="list-style-type: none"> • Gut symptoms, (e.g. bloating, pain, constipation, diarrhoea, reflux). • Dysbiosis, microbiome disruption and/or upper intestinal bacterial imbalance. 	<ul style="list-style-type: none"> • Gut symptoms, (e.g. bloating, pain, constipation, diarrhoea, reflux). • Dysbiosis, microbiome disruption and/or upper intestinal bacterial imbalance.
 Detox Foundations	Benefit of detox foundations <ul style="list-style-type: none"> ✓ Enhances detoxification pathways, such as liver and kidney function ✓ Provides cellular protection against toxins ✓ Promotes a healthy microbiome 		
	<ul style="list-style-type: none"> • <i>Gardenia jasminoides</i> binds lipopolysaccharide. • Milk thistle increases phase II detoxification enzymes. • Glutamine and zinc reduce gut barrier hyperpermeability. 	<ul style="list-style-type: none"> • Oregano oil possesses broad-spectrum antimicrobial properties. • <i>Saccharomyces cerevisiae</i> (boulardii) has antipathogenic activity which inhibits the growth of bacteria and parasites. 	<ul style="list-style-type: none"> • 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.
	Green tea increases antioxidant and anti-inflammatory defences in the presence of toxins.	Glutamine and zinc act upon epithelial tight junctions and improve intestinal integrity.	Oral glutathione supplementation increases circulating glutathione levels and is shown to protect against environmental toxicity.

Metagenics Clinical Detoxification Programs



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.

Metagenics has designed three detoxification programs which target individual's specific needs. Choose one of the following 4 week programs or utilise the detoxification patient questionnaire and follow the Metagenics detox dietary guidelines. Minimum requirement is to do 1 program. Each of these programs require a minimum of 4 weeks for efficacy however some patients may need longer.

Weeks 1 & 2 | 2 WEEKS

Weeks 3 & 4 | 2 WEEKS



Health Reset Program



Thermophase Detox Essentials



G-Tox Express



Ultra Flora Intensive Care



Gut Pathogen Elimination Program



Parex

Or



Bactrex



Glutagenics



Ultra Flora Intensive Care



Digestex



Thermophase Detox Essentials



G-Tox Express



Ultra Flora Intensive Care



Digestex



Liver Chemical Clearance Program



Thermophase Detox Essentials



G-Tox Express



Phyto Pro



Glutathione Powder

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

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.

			Patient Picture	Product	Description
✓	✓	✓	Constipation	 Laxatone	To relieve constipation and promote regular bowel motions.
	✓	✓	Requiring extra support to digest fats Sluggish bowels	 Lipogen	To relieve constipation and promote regular bowel motions.
		✓	Requiring extra support for oestrogen clearance	 O-Clear	A lipotropic digestive tonic to support gallbladder function and enhance bile flow.
		✓	Known heavy metal exposure	 Lipoic Acid 600	Supports phase II liver detoxification pathways for healthy oestrogen biotransformation.
✓	✓	✓	Fatigue	 Bio Q-Absorb 150	Optimum strength, highly bioavailable coenzyme Q10 to support cellular energy production.
✓	✓	✓	Requiring additional key nutrients	 High Strength BioEssentials	Specifically designed to provide key nutrients to maintain health and wellbeing during therapeutic diets.
✓	✓	✓	Antioxidant protection	 SulforaClear	Broccoli seeds and sprouts with vitamin C for detoxification and antioxidant support.



G-Tox Express

Gastrointestinal and Kidney Detoxification Support.

Contents: 200 g oral powder (14 days) Tropical flavour

Order Code: GTX

Storage: Store below 30°C

- Supports gastrointestinal and kidney detoxification.^{1,2}
- Supports alkalinity and assists waste elimination.²
- Includes the detoxifying green spirulina, cleavers and coriander.

Each dose (7 g) contains:

Glutamine	2 g
Magnesium citrate	1.3 g
Equivalent Magnesium	210 mg
<i>Coriandrum sativum</i> (Coriander), herb powder	56 mg
Derived from fresh herb	1 g
Larix arabinogalactan (Larch)	1 g
Pectin	500 mg
<i>Arthrospira platensis</i> (Spirulina), cell powder	500 mg
Zinc sulfate monohydrate	41 mg
Equivalent Zinc	15 mg
Dry herbal extracts:	
<i>Curcuma longa</i> (BCM-95™ Turmeric), rhizome	152 mg
Derived from dry rhizome	3.8 g
<i>Galium aparine</i> (Cleavers), herb	500 mg
Derived from dry herb	3 g
<i>Glycyrrhiza glabra</i> (Deglycyrrhizised liquorice), root	313 mg
Derived from dry root	2.5 g
<i>Fucus vesiculosus</i> (Kelp), whole plant	50 mg
Derived from dry whole plant	250 mg

Directions for use: Adults: Add 1 level scoop (7 g) to 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 permeability 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 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: In order to maintain acid-alkaline balance throughout the various body systems, one system may be required to support another. For example, the bone matrix contains a substantial alkaline reserve such as calcium and magnesium cations that are released from the bone to balance an overly acidic dietary load in the event of inadequate buffering capacity in the blood.¹³ G-Tox Express contains Magnesium citrate. Citrate is metabolised to bicarbonate in the body, thereby adding to the buffering potential.¹⁴

Part of the Metagenics Clinical Detoxification Programs: G-Tox Express is an integral part of all of the Metagenics Clinical Detoxification Programs.

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



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 phase II 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 glycinate dihydrate (Meta Mag® - Magnesium bisglycinate)	1 g
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	26 mg
Thiamine hydrochloride (Vitamin B1)	25 mg
Riboflavin sodium phosphate (Riboflavin 5-phosphate sodium)	14 mg
Equivalent Riboflavin (Vitamin B2)	10 mg
Betacarotene	2.7 mg
Mecobalamin (Co-methylcobalamin) (Vitamin B12)	200 micrograms
Selenomethionine	187 micrograms
Equivalent Selenium	75 micrograms
Dry herbal extracts:	
<i>Silybum marianum</i> (Milk thistle), seed	86 mg
Derived from min. dry seed	6 g
Std. to Flavanolignans calculated as silybin	72 mg
<i>Camellia sinensis</i> (Green tea), leaf	208 mg
Derived from dry leaf	5.2 g
<i>Gardenia jasminoides</i> (Cape jasmine), fruit	150 mg
Derived from dry fruit	1.5 g

Excipients: *Pisum sativum* seed (Pea) (63%), milk and cream flavours (natural and nature identical) (4.84%), xanthan gum, citric acid, maltodextrin (MetaFibre®), steviol glycosides.

Directions for use (Adults only): Add 1 level scoop (19 g) to 200 mL of water twice daily.

Major Phase II

Conjugation Pathways

Conjugation Pathways	Substrates
Amino acid conjugation	Amino acids: glutamine, ³ taurine ⁴
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 B5 ¹³

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 permeability¹⁴ with zinc to reduce mucosal permeability,¹⁵ and gram negative bacterial translocation.¹⁶ 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.¹⁷ 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.^{18,19}

Improves cellular liver detoxification capacity: Milk thistle has been used in Western herbal medicine to assist the detoxification capacity of the liver. Silymarin inhibits β -glucuronidase activity to assist the elimination of metabolites conjugated through phase II detoxification.²⁰ Green tea polyphenols also stimulate the activity of hepatic detoxification enzymes, thereby promoting detoxification of xenobiotic compounds.²¹

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.²² Cysteine and glutamine help synthesise glutathione,²³ a major endogenous antioxidant, to help protect cells against reactive hydroxyl free radicals.²⁴ Glutathione is also a substrate for the major phase II detoxification pathway, glutathionation.²⁵ 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.²⁶ It is hypothesised that green tea catechins, by decreasing the oxidative stress in cells, modulate the expression of antioxidant enzyme (AE) genes.²⁷

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.²⁸ 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.²⁹ Thermophase Detox Essentials with taurine,³⁰ and the TCM herb, gardenia,³¹ assists in promoting the body's elimination of wastes via the liver and bile.

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

Meta Mag® is a registered trademark of Balchem Corp.



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.)

- Rebuilds native commensal flora populations.^{1,2}
- Improves microbiome composition³, 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:

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

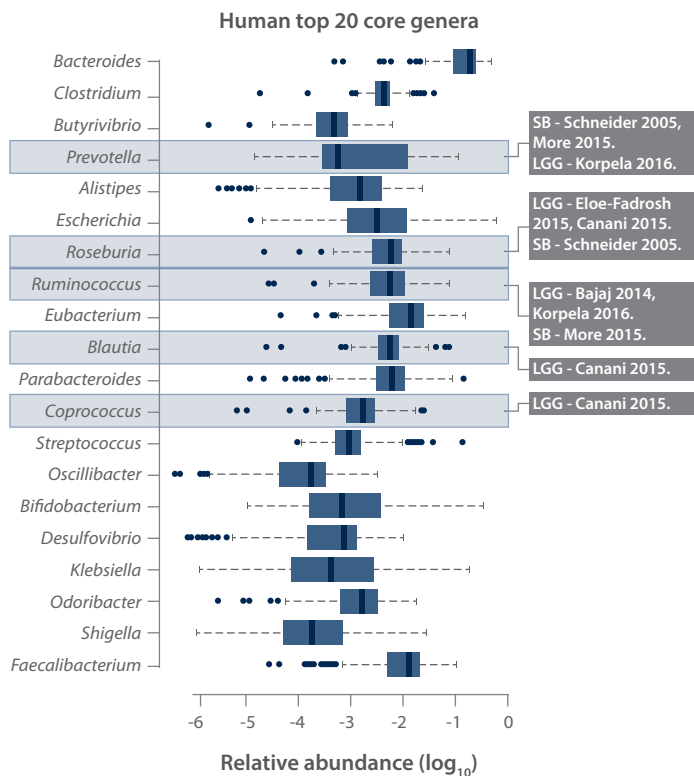
Directions for use: Adults:

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.

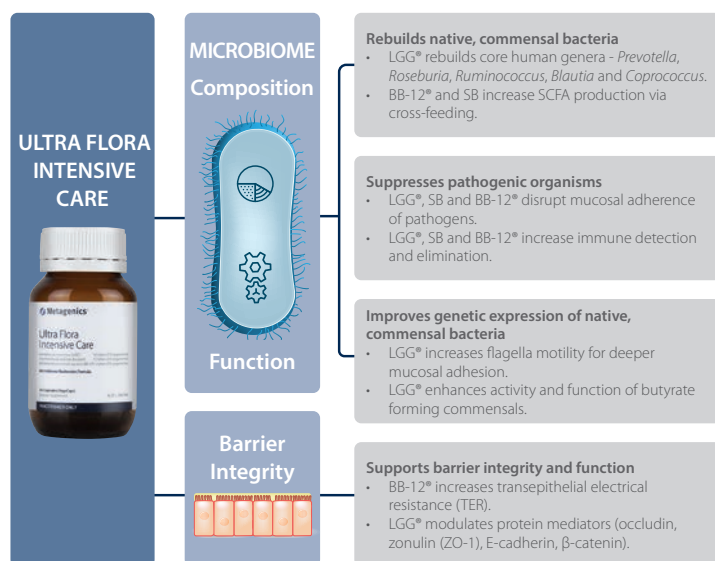


Figure 2: Strain Specific Mechanisms to Rebuild Microbiome Composition and Function.

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 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, soy protein and salt. Free from artificial colours, sweeteners, flavours and preservatives.

LGG® and BB-12® are a registered trademark of Chr. Hansen A/S.



Bactrex

Enteric Coated Herbs for Upper Intestinal Health.

Contents: 60 soft capsules (15 days)

Order Code: BTX

Storage: Store below 30°C

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

Each soft capsule contains:

<i>Origanum vulgare</i> , leaf oil essential (Oregano)	100 mg
<i>Syzygium aromaticum</i> , leaf oil essential (Clove oil)	50 mg
<i>Thymus vulgaris</i> , herb flowering oil essential (Thyme oil)	50 mg
Dry herbal extract:	
<i>Phellodendron amurense</i> (Phellodendron), stem bark	150 mg
Derived from dry stem bark	750 mg

Directions for use:

Adults: Take 2 soft 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.¹ *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.³ 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 and soy protein. Free from artificial flavours. Contains sulfites.



Parex

Antiparasitic and Anthelmintic Herbs for Intestinal Health.

Contents: 50 tablets (16 days) and 100 tablets (33 days)

Order Code: PRX50 (50 tablets) and 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:

Peppermint oil	25 mg
Dry herbal extracts:	
<i>Punica granatum</i> (Pomegranate), fruit peel	67 mg
Derived from dry fruit peel	3.3 g
<i>Artemisia annua</i> (Sweet wormwood), herb	100 mg
Derived from dry herb	2 g
<i>Juglans nigra</i> (Black walnut), fruit hull	100 mg
Derived from fresh fruit hull	1 g
<i>Nigella sativa</i> (Nigella), seed	67 mg
Derived from dry seed	1 g
<i>Commiphora myrrha</i> (Myrrh), gum oleoresin	100 mg
Derived from dry gum oleoresin	1 g

Directions for use: 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.⁷ Nigella and myrrh may exert antiparasitic action via immunomodulatory effects.^{8,9} 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.¹⁰ 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.¹⁹ 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.

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

Do not use if pregnant or likely to become pregnant.

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.

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)	1.4 mg
Equivalent Vitamin A	750 micrograms RE
Colecalciferol (Vitamin D3)	12.5 micrograms
Equivalent Vitamin D3	500 IU
<i>Aloe vera</i> (<i>Aloe barbadensis</i>), leaf inner juice dry	25 mg
Derived from fresh leaf inner	5 g
Dry herbal extract:	
<i>Boswellia serrata</i> (BosPure® Boswellia), gum oleoresin	150 mg
Derived from fresh gum oleoresin	1.5 g

Directions for use: 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 and vitamin A protect the integrity of the intestinal tract by increasing secretory IGA (sIGA) secretion and therefore inhibiting the adherence of gram negative bacteria, to help resist dysbiosis.^{5,8} In addition, glutamine and zinc enhance epithelial regeneration, supporting and protecting mucosal barrier integrity.^{9,10}

Gut pain and inflammation: *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 IL8.⁶ *Boswellia* has traditionally been used to relieve digestive spasms and pain¹³ as well as relieving inflammation of the gastrointestinal tract.¹⁴ BosPure® *Boswellia* is a proprietary extract of *Boswellia*.

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



Digestex

Triple Action Digestive Support.

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:

Dry herbal extracts:

<i>Taraxacum officinale</i> (Dandelion), root	600 mg
Derived from dry root	3 g
<i>Filipendula ulmaria</i> (Meadowsweet), herb	200 mg
Derived from dry herb	2 g
<i>Gentiana lutea</i> (Gentian), root	100 mg
Derived from dry root	1 g
<i>Melissa officinalis</i> (Lemon balm), leaf	250 mg
Derived from dry leaf	1 g
<i>Cinnamomum verum</i> (Cinnamon), stem bark	100 mg
Derived from dry stem bark	1 g
<i>Zingiber officinale</i> (Ginger), rhizome	19 mg
Derived from dry rhizome	750 mg

Directions for use:

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.^{2,3} Meadowsweet, traditionally used to soothe and protect the gastrointestinal tract⁴ 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.⁹ Bitter herbs do not need to be tasted to stimulate upper digestive function¹⁰ as they activate taste receptors (TASR2) located throughout the gastrointestinal tract.¹¹ TASR2 hormonal and neuronal signalling may affect the secretion of pancreatic enzymes and bile helping to regulate stomach function and acid production.¹²

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) constituents¹⁵ to support gastric motility¹⁶ and aid digestion.^{17,18}

Part of the Metagenics Clinical Detoxification Program. Digestex contains the traditional liver herb dandelion to assist digestive processes¹⁹, 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, and soy protein. Free from artificial colours, flavours and preservatives. Contains methyl salicylate which is a natural component of *filipendula ulmaria*.



Phyto Pro

Herbal Support for Liver Detoxification.

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.
- Part of the Metagenics Liver Chemical Clearance Detoxification Program.

Each tablet contains:

<i>Brassica oleracea var. italica</i> (Broccoli), sprout powder	375 mg
Dry herbal extracts:	
<i>Silybum marianum</i> (Milk thistle), seed	18 mg
Derived from min. dry seed	1.3 g
Std. to Flavanolignins calculated as silybin	15 mg
<i>Cynara scolymus</i> (Globe artichoke), leaf	50 mg
Derived from fresh leaf	1.3 g
<i>Schisandra chinensis</i> (Schisandra), fruit	100 mg
Derived from dry fruit	1 g
<i>Curcuma longa</i> (BCM-95™ Turmeric), rhizome	30 mg
Derived from dry rhizome	750 mg

Directions for use: Adults: Take 2 tablets twice daily.

Clinical Benefits:

Induce liver detoxification processes.⁴ Liver detoxification processes 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.³ Milk thistle, turmeric, broccoli and schisandra induce these detoxification pathways (Figure 1).^{4,5}

Protect the liver against toxins.⁶ 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.⁶ Milk thistle also increases the intracellular concentration of glutathione while globe artichoke reduces loss of this major endogenous antioxidant.^{7,8} Broccoli has been shown to increase glutathione-derived biomarkers in just seven days.⁹

Support liver function: Milk thistle and globe artichoke promote bile secretion. Milk thistle supports 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, sweeteners, flavours and preservatives.

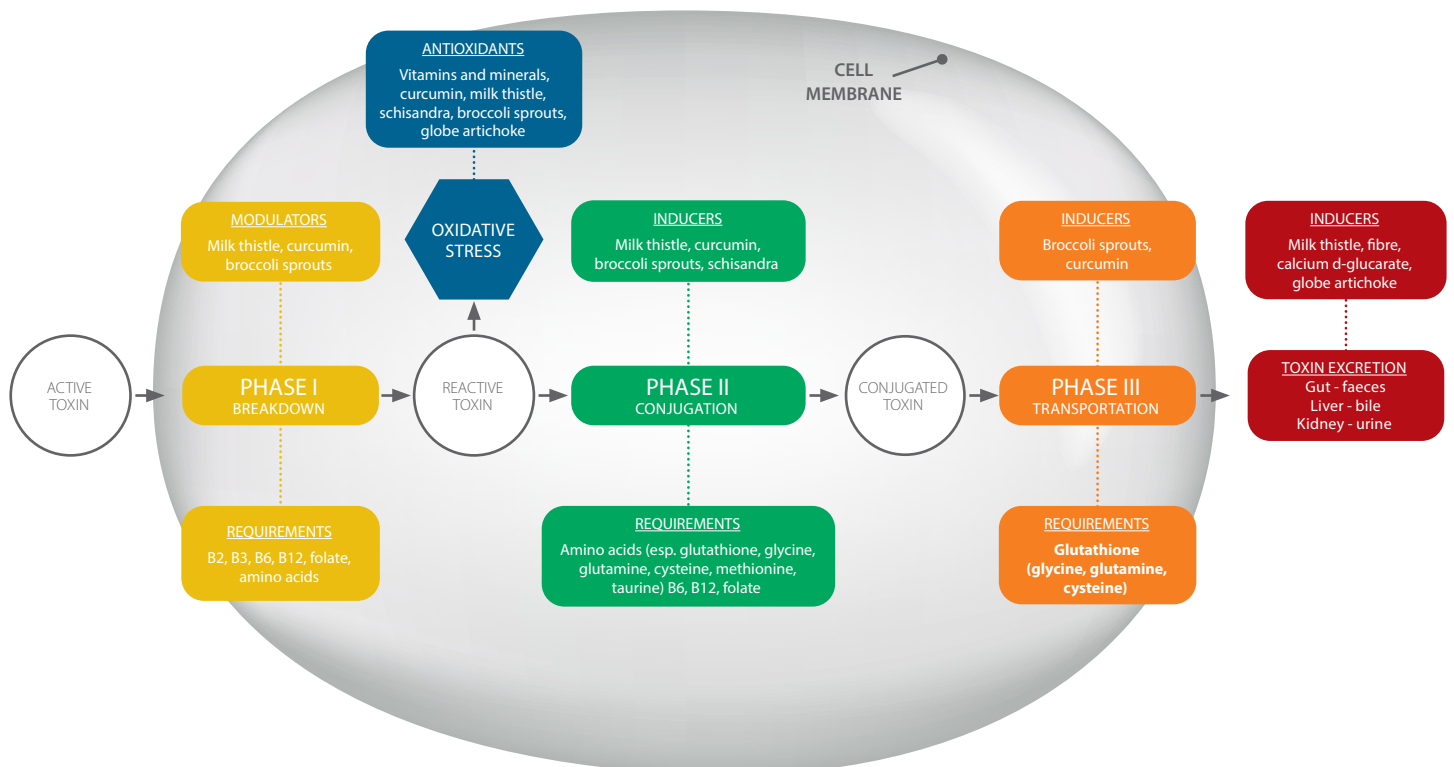


Figure 1: Phyto Pro Supports the Three Phases of Liver Detoxification.



Glutathione Powder

Bioavailable Antioxidant Support.

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:

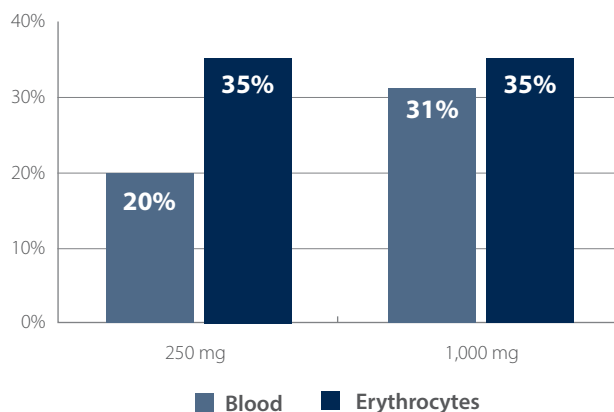
Glutathione 500 mg

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.⁴ 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 1,000 mg of oral glutathione demonstrated increases in both blood and erythrocyte concentrations of GSH at each time point, including six months (Figure 1).¹ Levels of GSH returned to baseline after a one month washout period demonstrating that cessation of GSH supplementation causes levels to decrease.¹ 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.⁴



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 Supplementation Increases Circulating Glutathione Levels.

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

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



Lipoic Acid 600

High Strength, Convenient Dose for Healthy Antioxidant Function.

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

- Promotes healthy carbohydrate metabolism and glucose transport, and maintains healthy capillaries.^{1,2,3}
- Protects mitochondria against free radical damage, supporting cellular energy production.^{1,4}
- Supports glutathione production and liver phase II (conjugation) detoxification.⁵
- High strength, researched 600 mg per tablet; convenient once per day dose.

Each tablet contains:

Alpha lipoic acid 600 mg

Directions for use:

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.^{1,7}

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 (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.
- Assists detoxification processes.
- Provides antioxidant protection against free radical damage.

Each capsule contains:

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

Directions for use:

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.¹ The conversion of glucoraphanin to sulforaphane is dependent on the enzyme myrosinase.² 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.³ 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 ¾ 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, soy protein and starches. Free from artificial colours, flavours and preservatives.

Clinical Tools and Resources

All clinical tools and resources are available on  Metagenics Institute™

See page 15 for an overview of all Metagenics Detox resources.



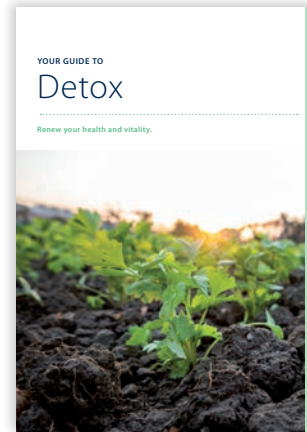
Scan to download

Detoxification Questionnaire

- An easy to use, digital tool to assess and identify core patient symptoms and relevant therapeutic herbal and nutritional prescription/s.
- Incorporate this questionnaire into your initial patient case and when reassessing patient progress during interventions.

Your Guide to Detox Booklet

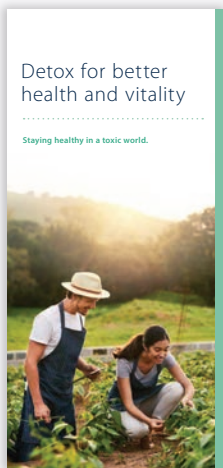
- A simple guide to help you renew your health and vitality.
- Guidance and recommendations on nutritional support, supplements, and lifestyle changes to support your detox journey.



Scan to download



Scan to download



Detox For Better Health and Vitality

- A informative summary to help you live the detox lifestyle.
- Guidance and recommendations for an effective detoxification program that helps improve your health and wellbeing.

Clinical Tools and Resources

All clinical tools and resources are available on  Metagenics Institute™

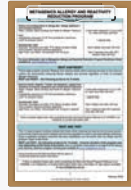
Visit metagenicsinstitute.com.au or metagenicsinstitute.co.nz and you will find a wealth of information readily available, to assist you in your practice.



Clinical Tools



Technical Data



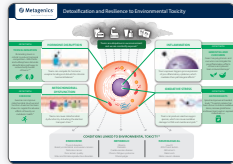
Treatment Protocols



CIRS and Biotoxins Questionnaire



Detoxification Questionnaire



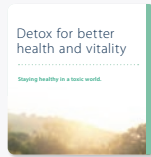
Resilience to Environmental Toxicity Infographic



Selecting Effective Antimicrobials to Address Intestinal Dysbiosis Infographic



Patient Resources



Detox Brochure
(Pack of 15)



Your Guide to Detox Booklet
(Pack of 15)



Public Facebook Page
facebook.com/metagenics

Available to order through your Territory Manager.



Education



Managing Complex Cases: Insights and Inspiration from Fellow Practitioners Webinar



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



Metagenics Institute Podcast



Join our Practitioner only Facebook Group:
Metagenics AU



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Metagenics Clinical Support

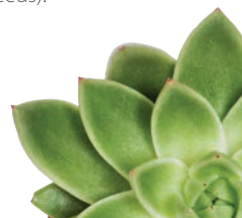
Delivering Practitioner to Practitioner support and access to an industry leading Clinical team with 202 years of combined clinical experience. Available to help save you time and support your business and patient needs.

- 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:

AUSTRALIA
1800 777 648
8:00 am – 5:00 pm AEST

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



Detox Range Summary

	Product Highlights	Page		Product Highlights	Page
	G-Tox Express <i>Gastrointestinal and Kidney Detoxification Support.</i> <ul style="list-style-type: none"> • 3.8 g BCM-95™ Turmeric • 2 g Glutamine • 2.5 g Spirulina 	7		Digestex <i>Triple Action Digestive Support.</i> <ul style="list-style-type: none"> • 3 g Dandelion • 2 g Meadowsweet • 750 mg Ginger 	11
	Thermophase Detox Essentials <i>Herbal and Nutritional Support for Liver Detoxification.</i> <ul style="list-style-type: none"> • Non GMO pea protein • 6 g standardised Milk thistle • 5.2 g Green tea 	8		Phyto Pro <i>Herbal Support for Liver Detoxification</i> <ul style="list-style-type: none"> • 1.25 g standardised Milk thistle • 1.25 g Globe artichoke 	12
	Ultra Flora Intensive Care <i>Microbiome Restoration Formula.</i> <ul style="list-style-type: none"> • 10 billion CFU Lactobacillus rhamnosus (LGG®) • 7.5 billion CFU Saccharomyces cerevisiae (boulardii) (SB) • 5 billion CFU Bifidobacterium animalis ssp lactis (BB-12®) 	9		Glutathione Powder <i>Bioavailable Antioxidant Support.</i> <ul style="list-style-type: none"> • 500 mg Glutathione 	13
	Bactrex <i>Enteric Coated Herbs for Upper Intestinal Health</i> <ul style="list-style-type: none"> • 750 mg Phellodendron • 100 mg Oregano oil 	10		Lipoic Acid 600 <i>High Strength, Convenient Dose Antioxidant Protection.</i> <ul style="list-style-type: none"> • 600 mg Alpha lipoic acid 	13
	Parex <i>Antiparasitic and Anthelmintic Herbs for Intestinal Health.</i> <ul style="list-style-type: none"> • 3.3 g Pomegranate • 1 g Nigella • 1 g Myrrh 	10		SulforaClear <i>Broccoli Seeds and Sprouts with Vitamin C for Detoxification and Antioxidant Support.</i> <ul style="list-style-type: none"> • 2 g Broccoli seed • 26 mg equivalent Glucoraphanin • 200 mg Broccoli sprout • 80 mg Vitamin C 	14
	Glutagenics <i>To Soothe, Repair and Support a Healthy Gastrointestinal Lining.</i> <ul style="list-style-type: none"> • 2.2 g Glutamine • 1.5 g BosPure® Boswellia 	11			

LGG® and BB-12® are a registered trademark of Chr. Hansen A/S. Meta Mag® is a registered trademark of Balchem Corp.

View This Practitioner Guide Online:

 **Metagenics Institute**



References available on request.