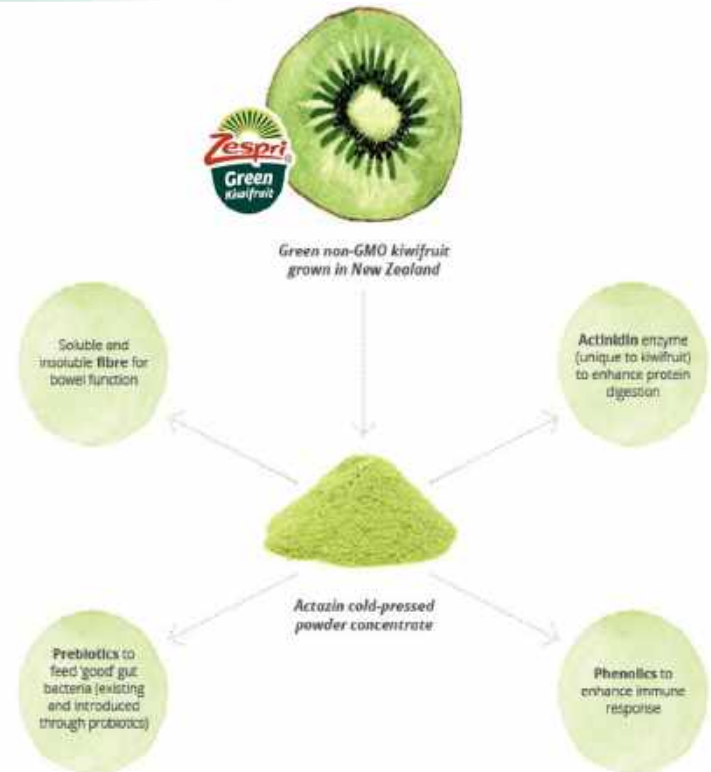


ACTAZIN[®]

Green Kiwifruit Powder for Digestive Regularity

- Food-quality **digestive** health ingredient
- Derived from New Zealand **green kiwifruit**
- Developed using proprietary, **pharmaceutical grade freeze-drying** method
- **Chemical-free** and **solvent-free** production
- **Actinidin enzyme** for protein digestion
- **Soluble + insoluble fiber** for laxation
- **Kiwifruit pectin** for microbiome support
- **Non-GMO, Kosher, Halal, Organic** available



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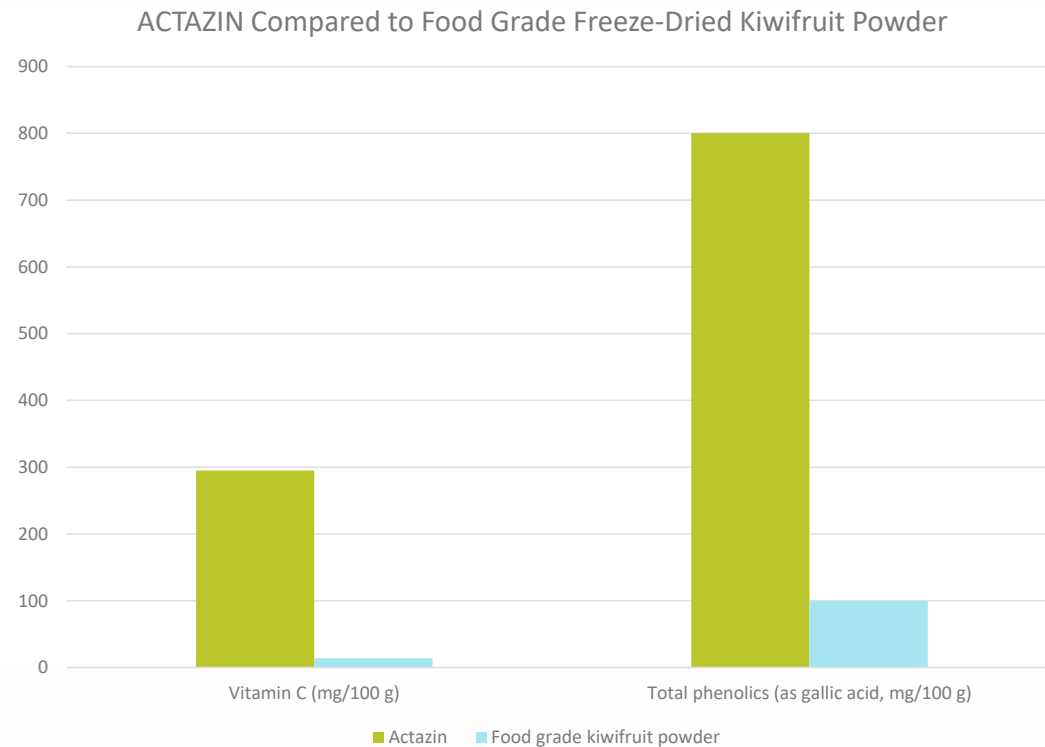


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ACTAZIN[®] vs Food Grade Freeze-Dried Kiwi

Actazin has 21 times more Vitamin C and 8 times more Phenolics than food grade kiwi powder.

Dietary fiber in food grade kiwi powder is hardly present and Actinidin cannot be detected.



Previous Clinical Results

Nearly 20% More Bowel Movements

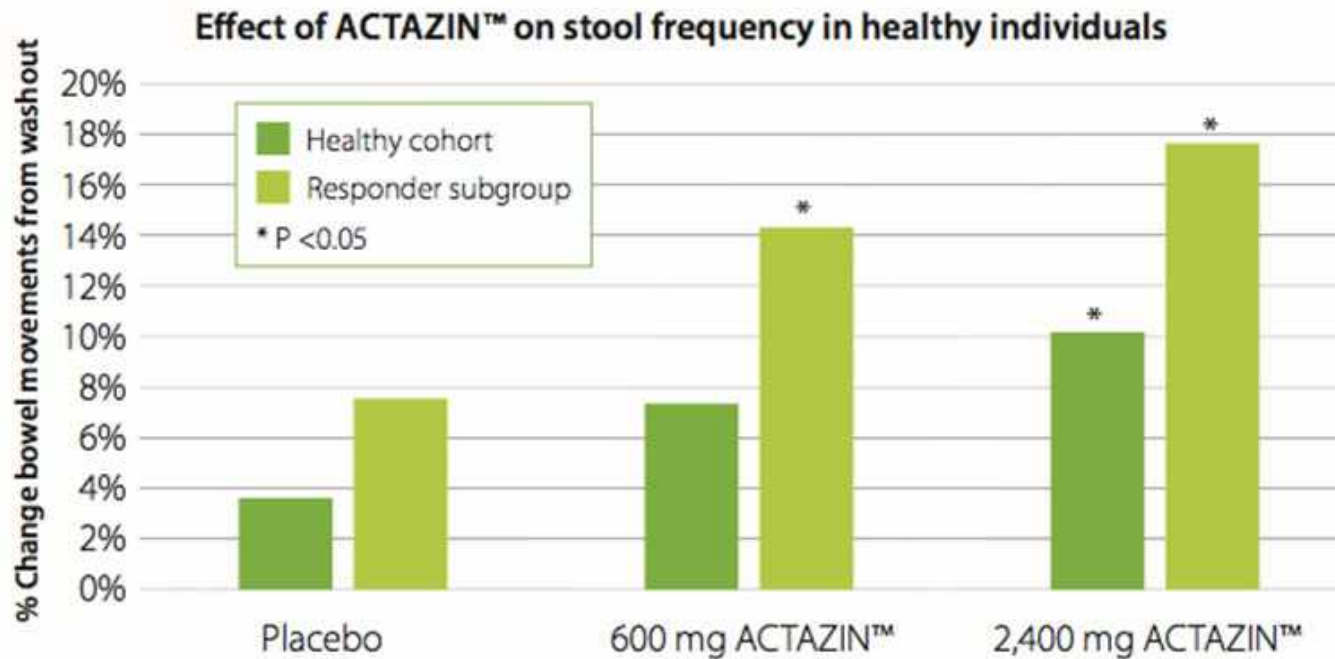


Figure 2: Effect of ACTAZIN™ on stool frequency in healthy individuals, as whole group and the subgroup responders.

Ansell et al. 2015. *Nutrition Research*, 35(5): 401–408

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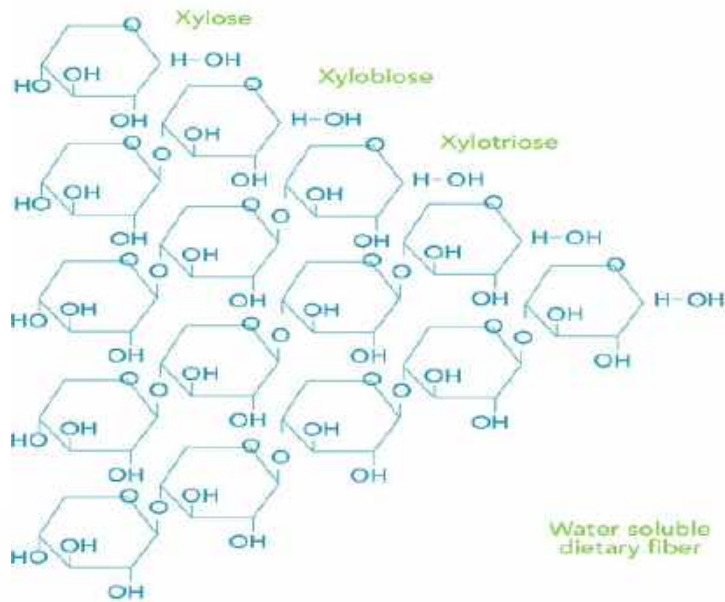
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Mechanism of Action

1. Increase mucus production in the gut
2. Improve gut transit & faecal bulking
3. Reduce excessive nitric oxide (NO) production

Physiological Function	Pathway	Biomarker
1. Mucus Production	mTOR signalling	Mucin 2 ↑
2. Gut Transit	GPR-41 (gastric emptying)	GLP 1 ↑
	GPR-43 (gut transit time)	PYY ↑
	M3R (smooth muscle relaxation via acetylcholine)	PCK-a ↓
3. Nitric Oxide (NO) Production	TNF-α signalling pathway	Nitric Oxide (NO) ↓

Low Dose XOS Prebiotic for Bifidogenic Reconditioning



- **Low-dose** xylooligosaccharide (XOS) **prebiotic**
- Produced by **patented manufacturing process** via enzymatic hydrolysis of non-GMO corn cob
- Selective **bifidogenic** activity at 1 gram per day
- **Optimizes gut flora**
- Supports **metabolic health**
- Backed by more than **12 published clinical trials**
- Low water activity (<0.17)
- **FDA GRAS, EFSA and Health Canada Approved** with qualified health claims
- **Kosher, Halal and Non-GMO Project Verified**
- **Organic** available



Increases Bifidobacterial Dosing as low as 1g/day

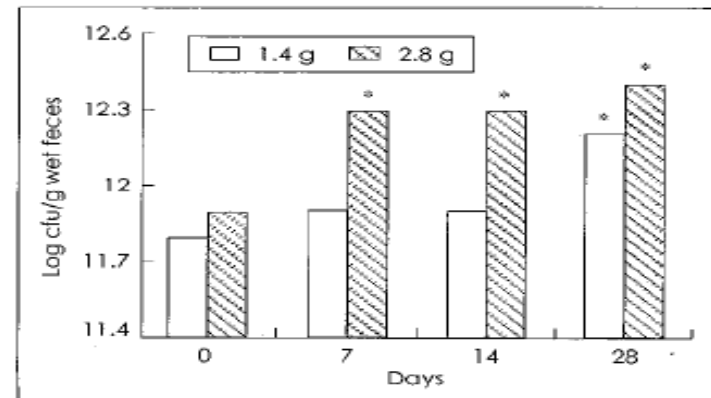
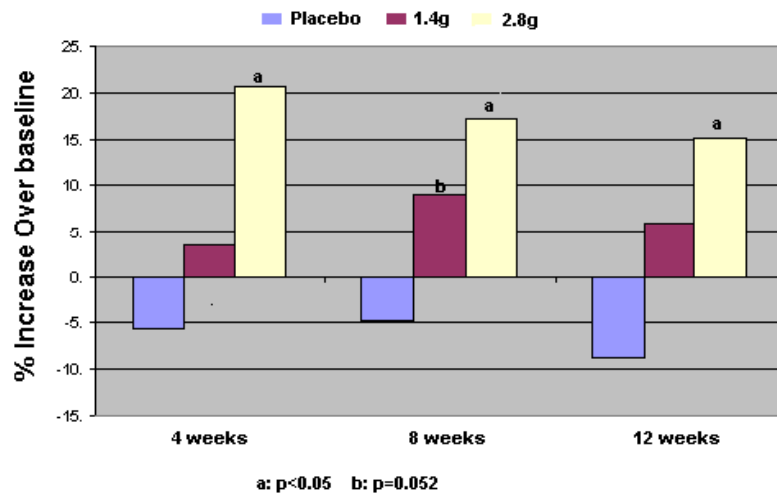


Figure1: PreticX increases Bifidobacterial as low as 1.4g/day

A: UCLA study (Dr. Li and Dr. Heber, et al Food Funct., 2014, 5, 436)

B: Korean study (韓國營養學會誌 40(2) : 154~161, 2007)

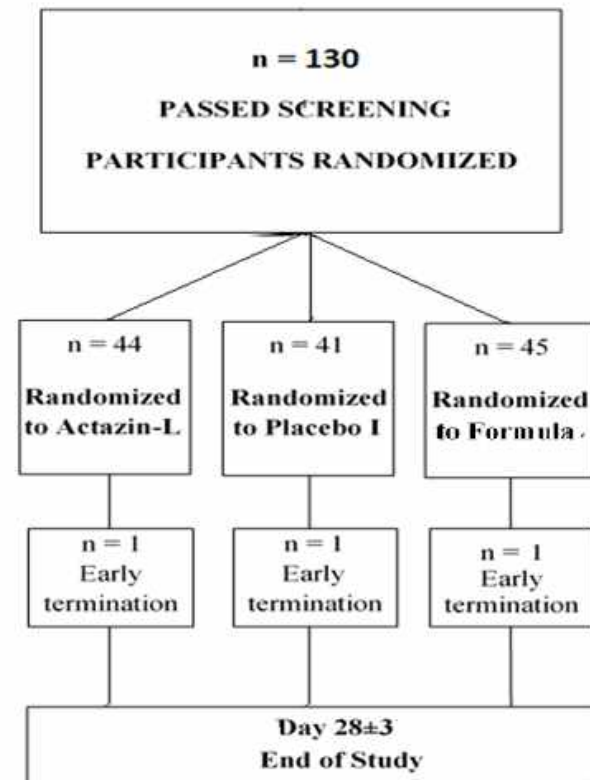


Can we have a synergistic product that benefits both Regularity and Microbiome?

Double-blind, Placebo-Controlled, Multicenter study of 2018-2020

- **Hypothesis** - four weeks of daily consumption of Actazin® and Actazin +PreticX® would relieve constipation in healthy participants who ordinarily had ≤ 3 CSBM per week
- **4 Centers** – London Ontario; Toronto Ontario; Chicago IL; Boca Raton FL.
 - **Actazin®** 600 mg daily
 - **Actazin®** 600mg + **PreticX®** 1g
 - **Placebo** Cellulose

Compliance for all groups was >95%.



Inclusion Criteria

1. Males and females 18 to 60 years of age
2. Body mass index (BMI) between 19 and 29.9 ± 1 kg/m² at screening, inclusive
3. Self-reported ≤ 3 CSBMs per week at screening and confirmed in the BHD during the run-in period for enrolment at baseline
4. People who were not regular consumers of high fiber diets, yoghurt, fermented foods such as kimchi, kombucha, sauerkraut, etc.
5. Fasting blood glucose ≤ 6.0 mmol/L at screening
6. Agreed to refrain from the consumption high-fiber dietary supplements including Metamucil, Benefibre, and Phloe
7. Agreed to refrain from the consumption of fresh kiwifruit 2-weeks prior to and during the study
8. Agreed to maintain their habitual food and beverage intakes and life style
9. Had given voluntary, written, informed consent to participate in the study

Clinical Measurements

BSS – Bristol Stool Scores

A diagnostic scale which classifies stool form into 7 types, from hard to watery.

Important objective measure of constipation

CSBM – Complete Spontaneous Bowel Movements

Bowel movements occurring without medication or intervention and provide feeling of complete evacuation.

Changes in CSBM of only 1 per week are considered clinically significant.

Participant-assessed (subjective) scoring.

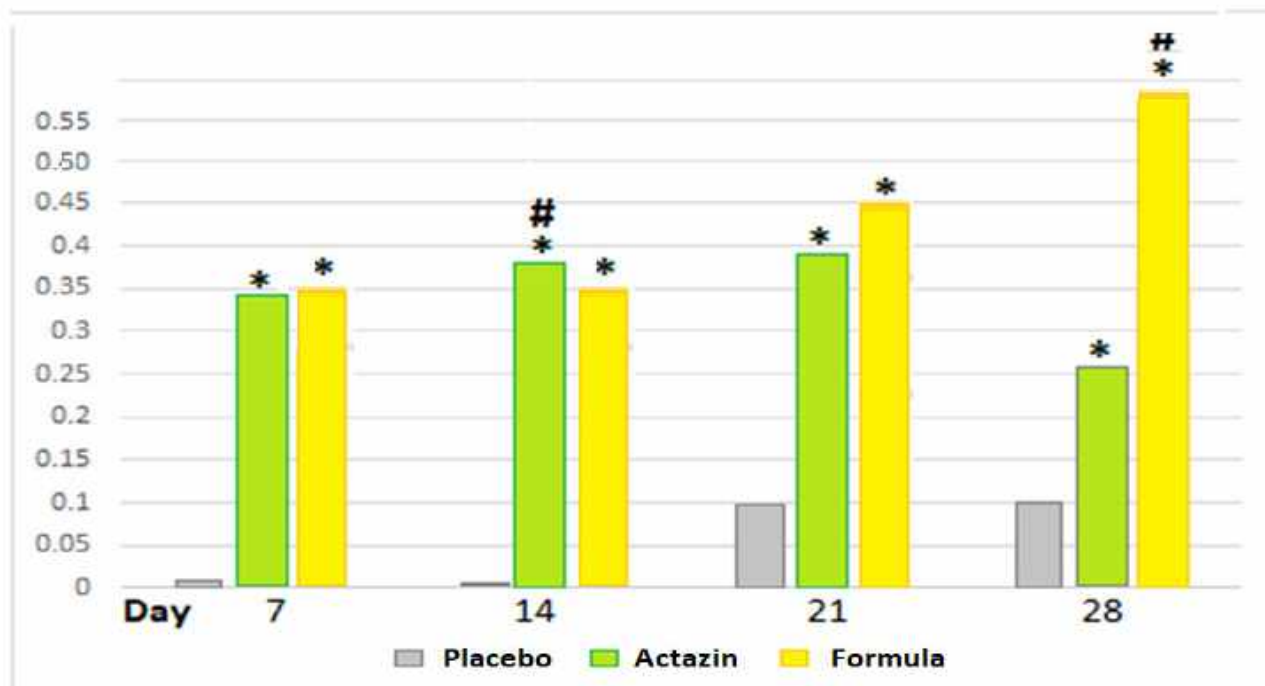
PAC-QoL, PAC-SYM and other Safety Parameters

Alternative Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid

Results: Actazin[®] and PreticX[®] Improve BSS Synergistically

BSS difference from base line



* P<0.05 as compared to the baseline.
p<0.05 as compared to the Placebo

Actazin[®] and **Formula** improved the normality of stool form of the participants through out the study

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Topline Conclusions: Actazin[®] and Actazin[®]+PreticX[®] Formula

- **Actazin**[®] showed statistically significantly improved BSS over baseline and Placebo
- **Actazin**[®]+**PreticX**[®] Formula showed statistically significantly improved BSS over baseline and Placebo
- **Actazin**[®]+**PreticX**[®] Formula demonstrated synergistic effects



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New Publication: Patients With COVID-19 During Hospitalization Indicate Alterations in Gut Microbiota

Gastroenterology 2020;159:944–955

Table 1. Subject Characteristics

Variables	COVID-19 cases	Pneumonia controls	Healthy controls
Number	15	6	15
Male	7 (47)	4 (67)	9 (60)
Median age, y (IQR)	55 (44, 67.5)	50 (44, 65)	48 (45, 48)

Method:

- Shotgun metagenomic sequencing analyses of fecal samples
- Compare gut microbiome profiles in association with disease severity and changes in fecal shedding of SARS-CoV-2.

Study Results

- Patients with COVID-19 had significant alterations in fecal microbiomes compared with controls,
- There was an inverse correlation between abundance of *Faecalibacterium prausnitzii* (an anti-inflammatory bacterium) and disease severity

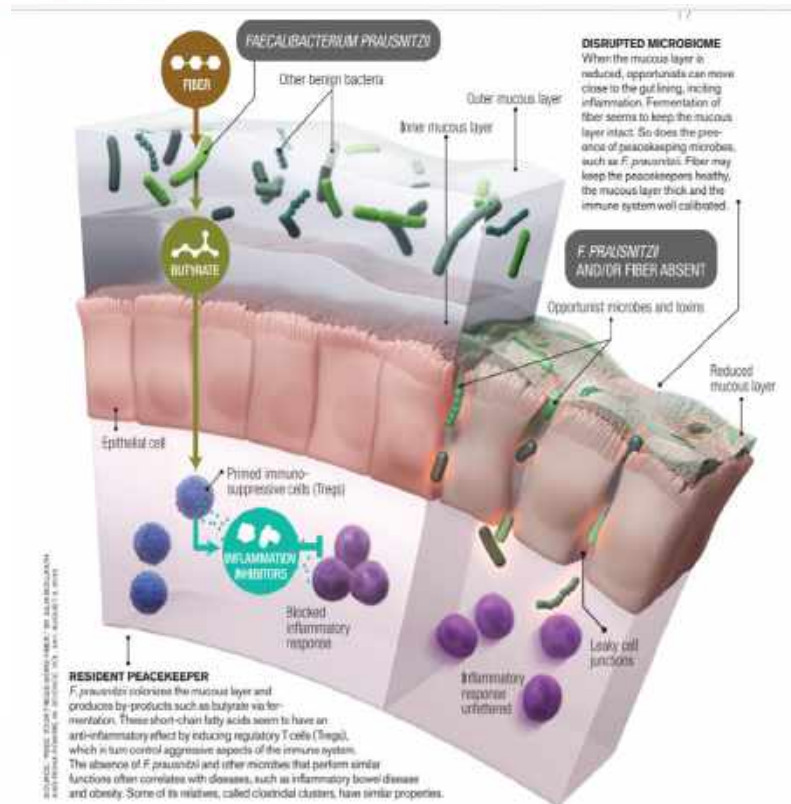
Bacteria taxa	Correlation coefficient Rho	P value
p Firmicutesjc Clostridiajo Clostridialesjf Ruminococcaceaejg Faecalibacteriumjs Faecalibacterium_prausnitzii	0.87	.011
p Bacteroidetesjc Bacteroidiajo Bacteroidalesjf Rikenellaceaejg Alistipesjs Alistipes_onderdonkii	0.90	.005

Faecalibacterium prausnitzii (F. prau)

F. prau is a special bacterial species that resides in the gut, accounting for approx. 5% - 15% of the total gut microbiome.

F. prau has digestive health and wellness benefits:

- ✓ Readily ferments soluble fiber and polyphenolic compounds
- ✓ Increases butyrate production
- ✓ Reduced F. prau has been associated with a range of gastrointestinal disorders, such as IBS, IBD and chronic constipation.



Gold Kiwifruit – Immune Enhancing Benefits

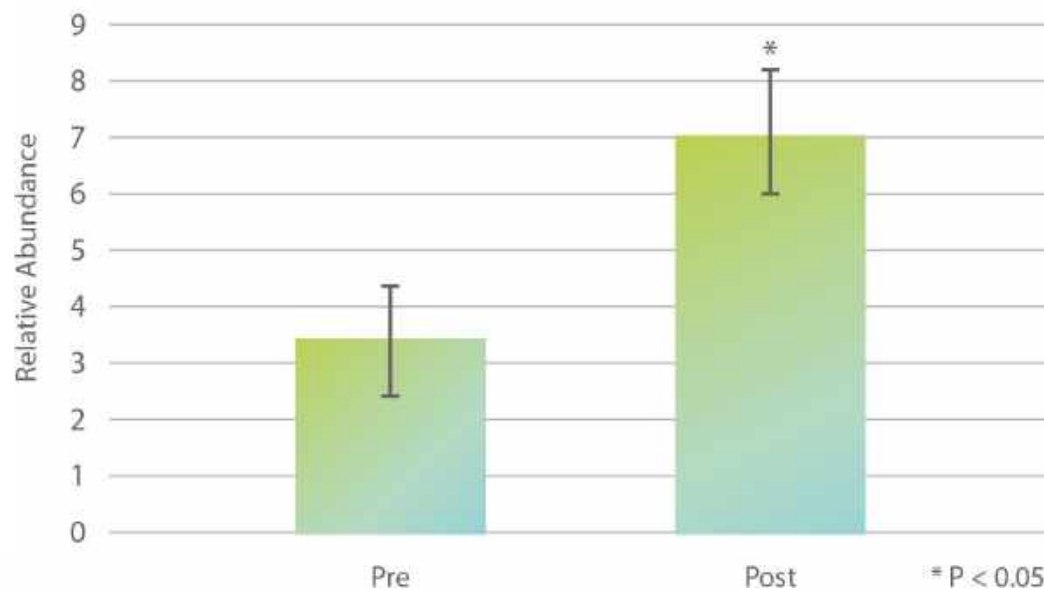
Gold kiwi has been shown to enhance immune response via increased production of T-helper cells, IgG antibodies, and cytokine IL-5.

- Hunter, et al 2012 – gold kiwi consumption led to overall reduction in incidence of cold and influenza-like illness and reduction in symptoms in children 2-5 years.
- Skinner, et al 2012 – gold kiwi consumption significantly reduced head congestion, sore throat symptoms and lipid peroxidation in older adults.



Published Clinical Results – 2-fold Increase in *F. prau* Abundance

Relative abundance of *F.Prau* in functionally constipated individuals pre and post Livaux consumption



Livaux

Consumption significantly* increased (2-fold, 3.4% to 7%) the relative abundance of *F. prau*.

*P = 0.024, as determined by 16S rRNA gene sequencing, in functionally constipated participants

Consumption of kiwifruit capsules increases *Faecalibacterium prausnitzii* abundance in functionally constipated individuals in a double-blind, randomized, placebo-controlled trial.

Blatchford, P., Stokolinski, H., Eady, S., Wallace, A., Butts, C., Garry, R., Gibson, G., Ansell, J. (2017). Journal of Nutritional Science. DOI: 10.1017/jns.2017.52



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Holistic Approach to Healthy Gut, & Healthy Immunity

TARGETING THE ENTIRE DIGESTIVE SYSTEM

↓ Gut transit time (PYY & PKC- α)
• Improved digestion & nutrient absorption

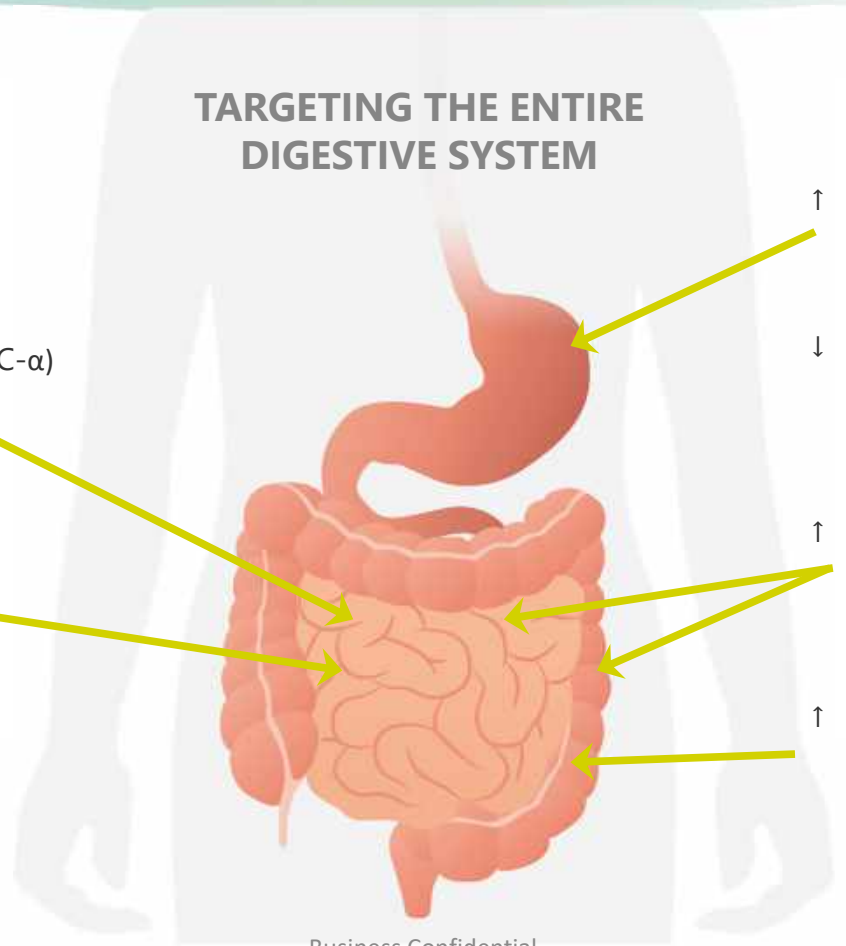
↓ Inflammation (NO)
• Improved intestinal permeability

↑ Protein digestion (actinidin)
• Reduced bloating/discomfort

↓ Gastric emptying (GLP-1)
• Improved digestion & nutrient absorption

↑ Mucus production (mucin 2)
• Enhanced gut protection
• Lubrication

↑ Faecal Bulking
• Fibre swelling & water retention



AIDP Range of Targeted Gut Health Ingredients

ACTAZIN™

Livaux

PreticX
Optimise Your Flora

Beauty OLIGO

GutGard™

Material	Dose	Mechanism	Application	Clinical Studies	Cost/dose
Zespri® green kiwifruit powder	600 mg	Bowel regularity	Digestive Health	2 human 1 in silico	\$0.07
Zespri® gold kiwifruit powder	600 mg	Microbiome balance; Restoring F. prau	Digestive Health Immune Health Inflammation	2 human 1 in silico	\$0.07
XOS prebiotic	1 g	Metabolic reconditioning; Bifidogenic activity	Digestive Health Weight Management Blood Sugar/Lipids Metabolic Function	6+ human In-vivo In-vitro	\$0.03
GOS prebiotic	2 g	Microbiome fermentation; short chain FA production	Digestive Health Skin Health Beauty From Within Immune Health	2 human In vivo In vitro	\$0.03
Flavonoid-rich extract of G. glabra root	150 mg	Manage H. pylori; functional dyspepsia	Upper Digestive Tract Stomach Discomfort Dyspepsia	3 human	\$0.04

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