one·bio

Mind the fiber gap: Unlocking next-generation prebiotics

Background

Dietary fibers exert important health effects both directly and through the modulation of the gut microbiota

Across the world and throughout human evolution, carbohydrates have made up an essential and diverse component of our diet

OECD

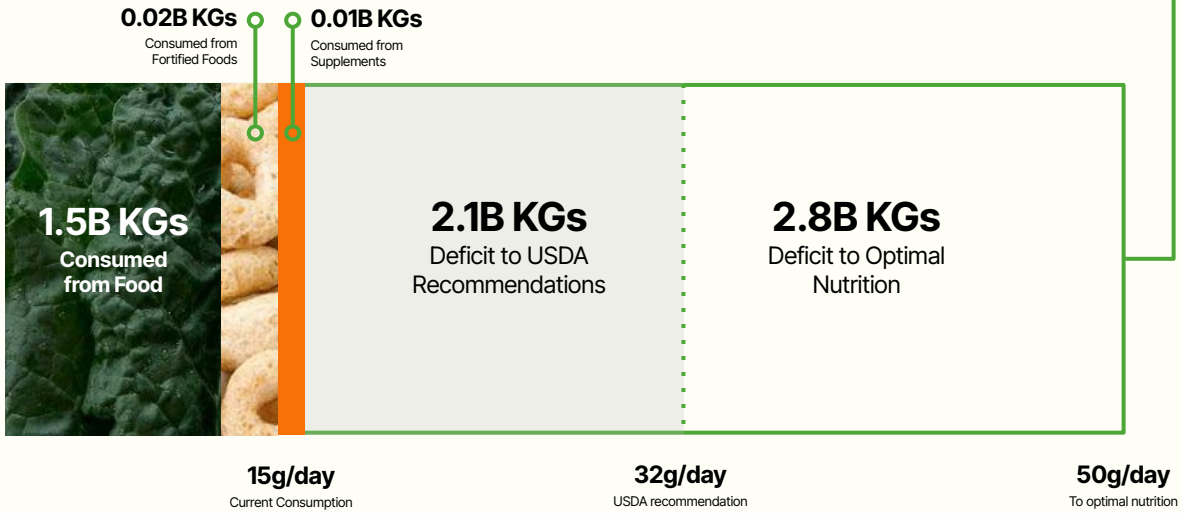
Rene Cortin

en:User:Daderot

PUBLIC HEALTH IMPACT

Closing the Fiber Gap

350M Americans have a daily fiber deficit, adding up to a gap of **4.9B KGs/year**



OUTCOMES:

Consuming 50g per day:

↓35%

Reduction in

All Cause Mortality

↓40%

Reduction in

Cardiovascular Related Deaths

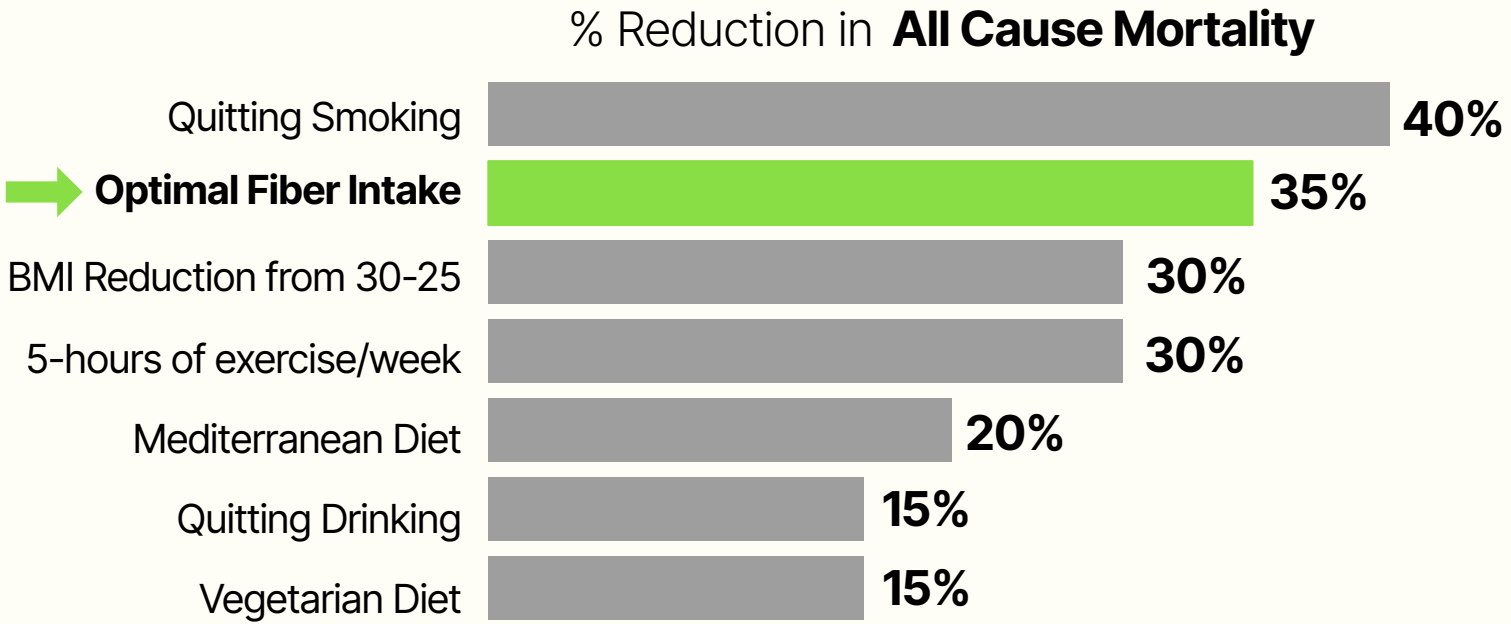
↓25%

Reduction in

Cancer Related Deaths

PUBLIC HEALTH IMPACT

Dietary fiber consumption is the most powerful tool that most people have for improving longevity and healthspan



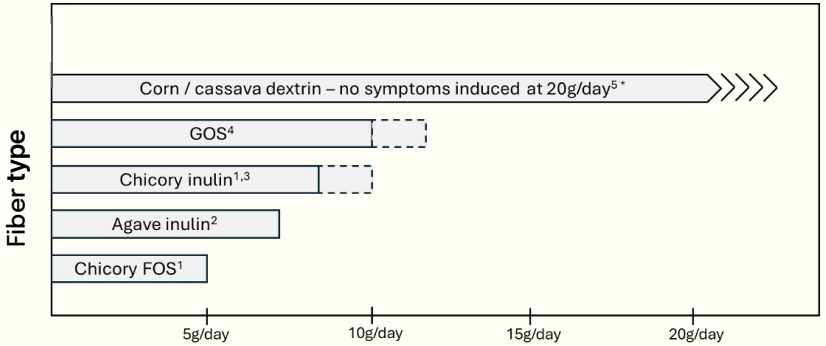
LANDSCAPE

Despite the fiber gap and well known benefits, fiber has been historically overlooked and is lacking in supplements

Over the last 100 years, the food industry has relied mostly on synthetic, low tolerable and hard to formulate fibers

- Many of the most widely used fibers cause GI distress at effective doses
- Many fibers have poor organoleptics
- Until recently, most consumers did not understand the benefits of fibers

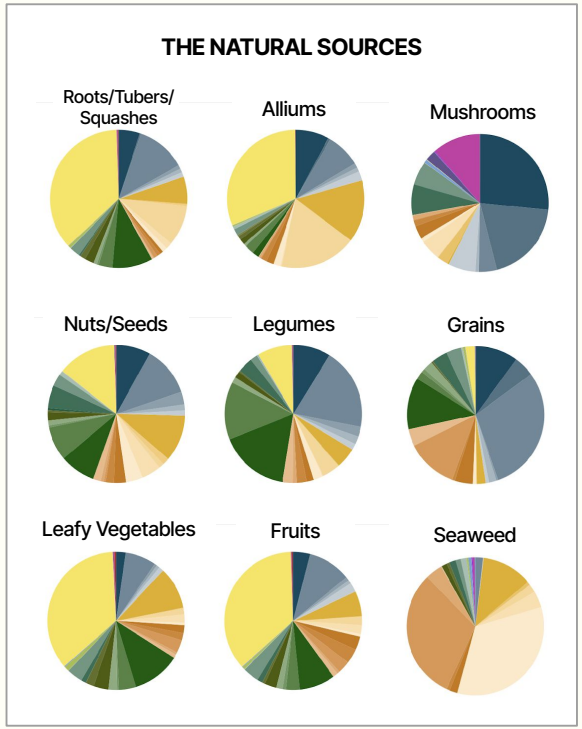
Amount provoking onset of at least 1 gut intolerance symptom (p<0.05)

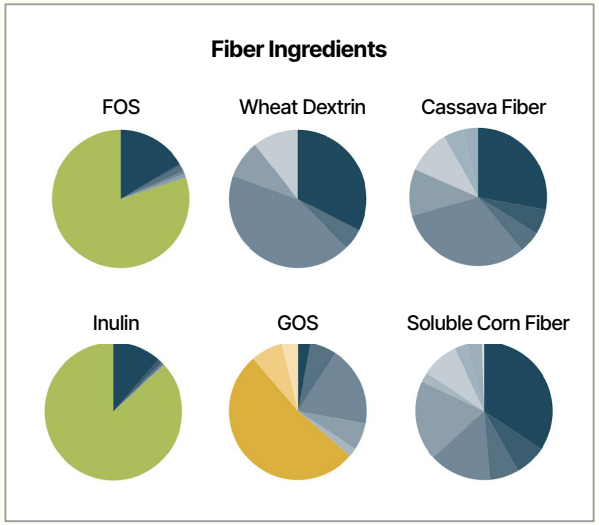


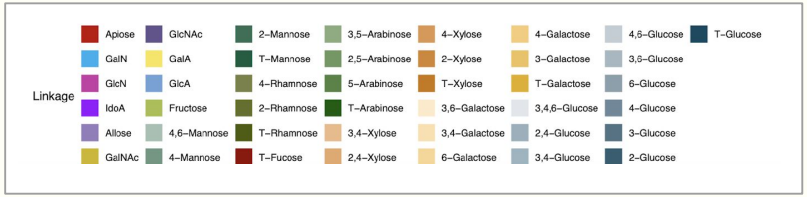
[1] Davis et al, 2010, Int J Food Micro; [2] Bonnema et al, 2010, J ADA; [3] Holscher et al, 2014, Food Funct.; [4] Ripoll et al, 2010, Nutrition; [5] EFSA assessment; [6] One.bio human study

LANDSCAPE

Furthermore, fiber ingredients don’t reflect the diversity found in nature



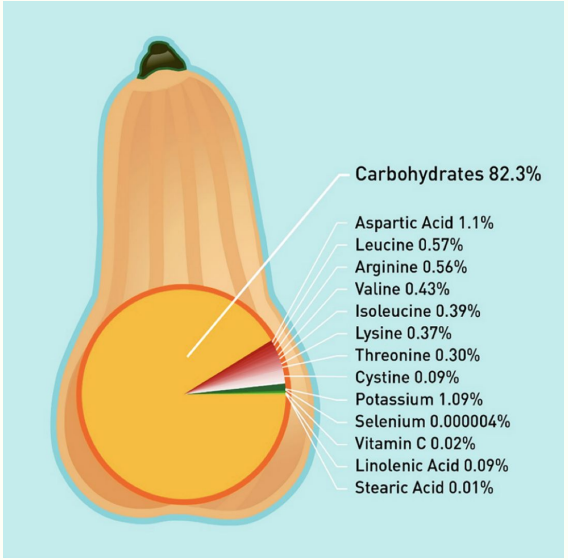




LANDSCAPE

A major contributor is a lack of analytical tools that enable dietary fiber structural characterization

Traditional carbohydrate analysis for nutrition labels is calculated by difference and describes fibers by their solubility at best. Furthermore, there are currently no publicly available databases that describe the specific fibers found in even common foods.



(Amicucci et al., J. Agric. Food Chem, 2019)

Squash, winter, butternut, raw

Data Type: Foundation **Food Category:** Vegetables and Vegetable Products **FDC ID:** 2685570 **NDB Number:** 11485
FDC Published: 4/18/2024

Components | Individual Samples | Other Information

Portion: 100g

Name	Average Amount	Unit	Deriv. By	n	Samples	Min	Max	Median	Footnote	Initial Year Acquired
Proximates:										
Water	87.3	g	Analytical	8	Samples	84.1	91.9	87.5		2023
Energy (Atwater General Factors)	48	kcal	Calculated							
Energy (Atwater Specific Factors)	42	kcal	Calculated							
Nitrogen	0.18	g	Analytical	8	Samples	0.1	0.25	0.18		2023
Protein	1.15	g	Calculated			0.62	1.56	1.09		
Total lipid (fat)	0.17	g	Analytical	8	Samples	0	0.51	0.17		2023
Ash	0.86	g	Analytical	8	Samples	0.51	1.51	0.71		2023
Carbohydrates:										
Carbohydrate, by difference	10.5	g	Calculated							
Fiber, total dietary	2	g	Analytical	8	Samples	1.5	2.5	1.9		2023
Minerals:										
Calcium, Ca	22	mg	Analytical	8	Samples	13	33	22		2023
Iron, Fe	0.21	mg	Analytical	8	Samples	0	0.45	0.27		2023
Magnesium, Mg	15	mg	Analytical	8	Samples	9.9	22.2	14.8		2023
Phosphorus, P	27	mg	Analytical	8	Samples	12	45	27		2023
Potassium, K	329	mg	Analytical	8	Samples	214	492	315		2023
Sodium, Na	<2.5	mg	Analytical	8	Samples					2023
Zinc, Zn	0.19	mg	Analytical	8	Samples	0.1	0.27	0.19		2023
Copper, Cu	0.073	mg	Analytical	8	Samples	0.045	0.106	0.07		2023
Manganese, Mn	0.075	mg	Analytical	8	Samples	0.053	0.1	0.078		2023

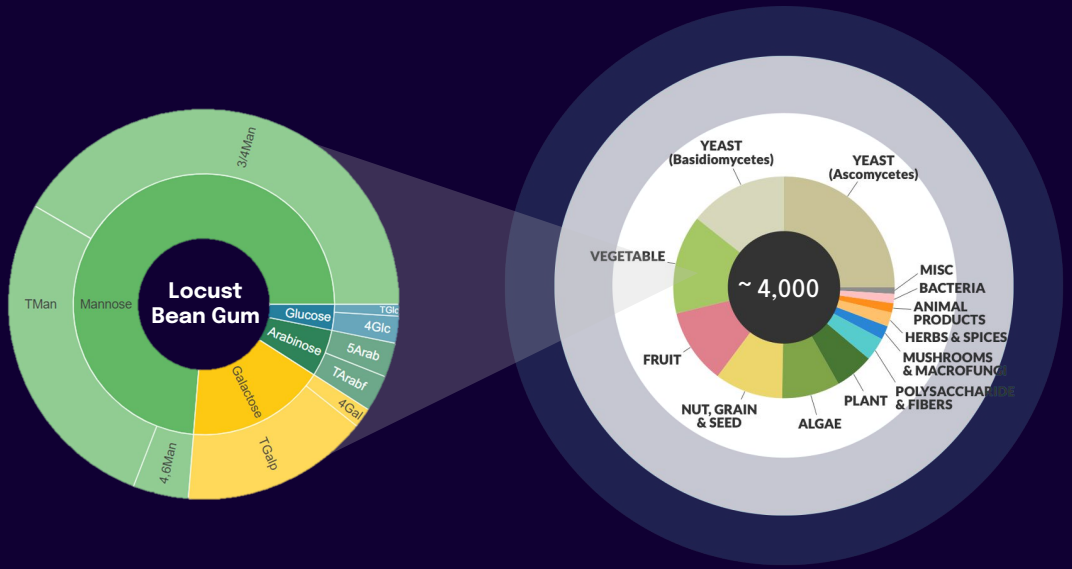
USDA Food Data Central

one·bio created the world's largest database of fiber structures with unique expertise in fiber analysis

By collating the monosaccharide and glycosidic linkage composition of thousands of fiber sources, we have revealed nature's fiber diversity which drive differentiated products and health benefits.

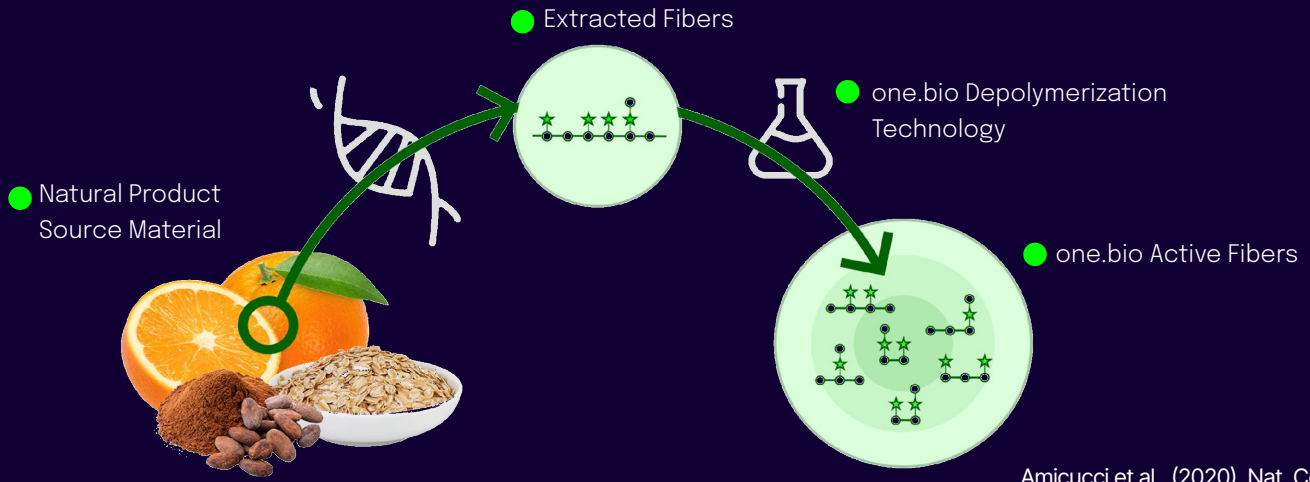
one·bio Glycopedia

Each natural product has a detailed glycan composition, stored in our proprietary database



one.technology: any fiber, functional, formulable, well characterized

With our proprietary and universal technology, we make food grade, ultra-soluble, invisible fiber ingredients from any plant source - including co-product streams like oat fiber residue or cacao shell



Amicucci et al., (2020). Nat. Commun.

one·bio technology enables functional benefits with formulability

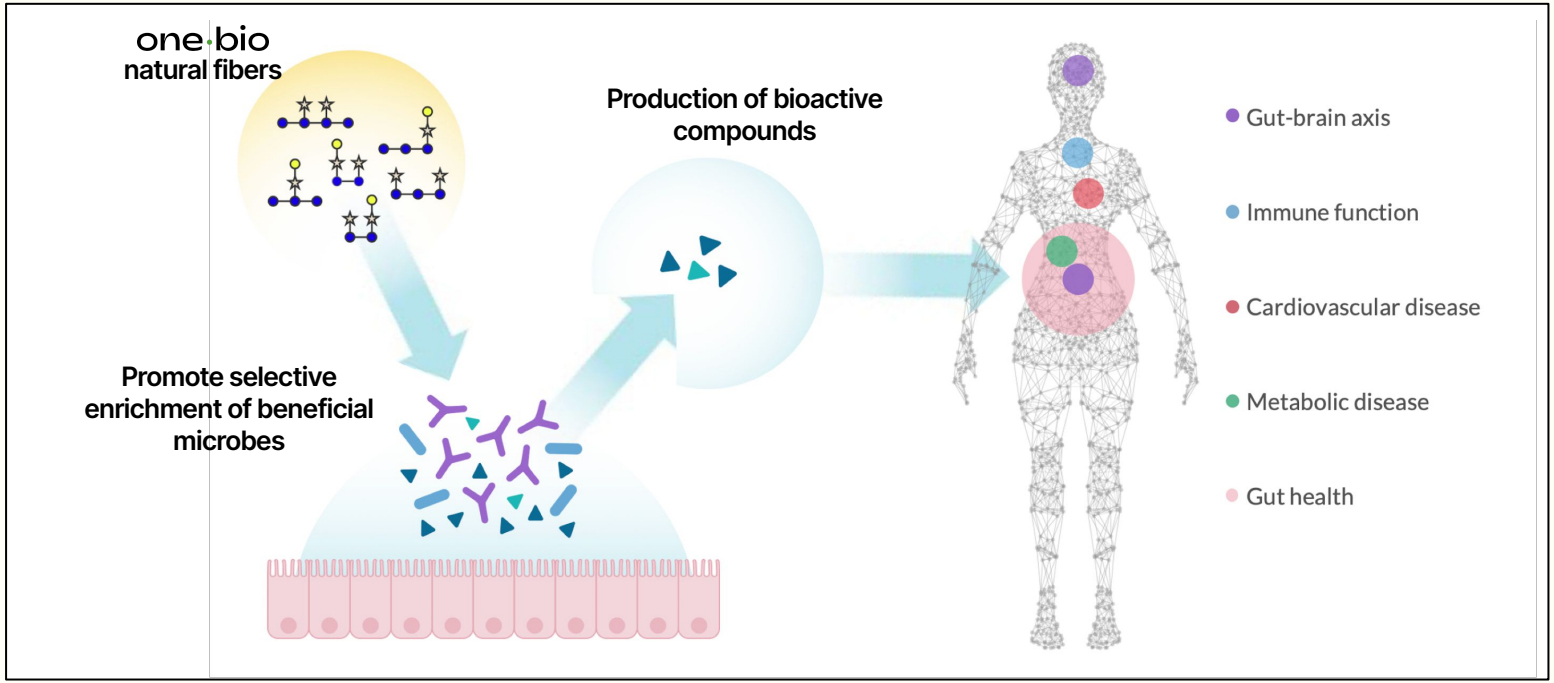
- Scalable, food-grade
- 100% natural material (clean label)
- GRAS status
- Tolerable and Clinical validated
- Neutral taste/color/texture
- Soluble in water and water-based liquids without thickening or gelling

5g of Metamucil in water

20g of one·bio Oat Fiber in sparkling water

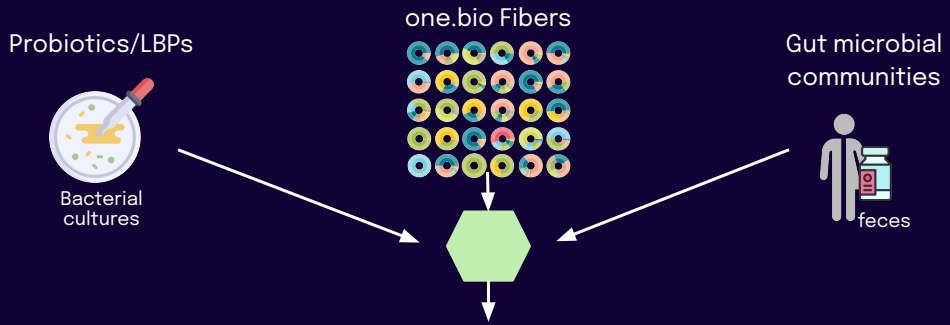
one.bio TECHNOLOGY

At one.bio, we harness nature's fiber diversity to bring new, natural fibers to the market and match them with their unique impacts on health.



Proprietary one·bio screening platform links fiber structure with microbiome function to drive real health outcomes

The one.bio multiomics platform catalogs the effects of each fiber on the biology of the consumer and their microbial community by producing readouts of the direct pre- and postbiotic effects of each fiber.

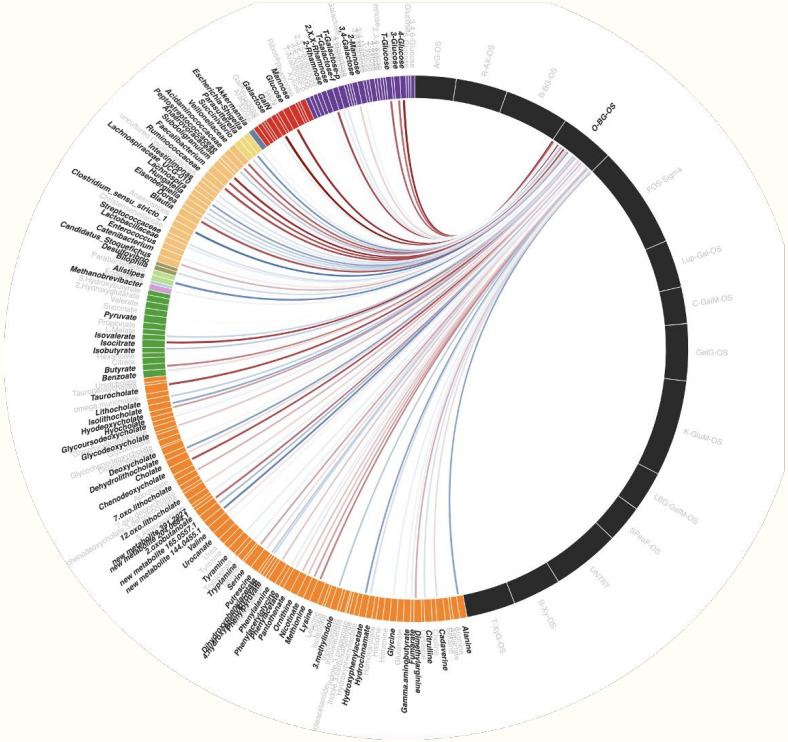


Maldonado-Gomez, et al., (2025) *mBio*

one.bio TECHNOLOGY

This incredibly rich and proprietary knowledge base is the key to understanding fiber biology.

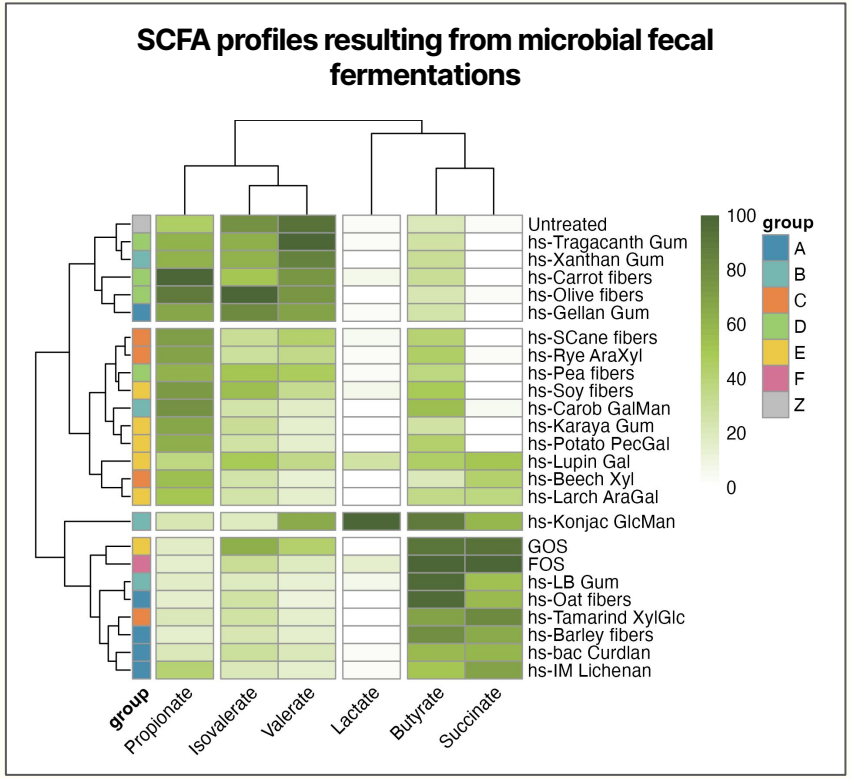
The data set's richness provides immediate value in selecting candidates to develop AND serves as a training set for our emerging AI efforts to understand the interaction of fiber structure, microbiome ecology, and microbial derived metabolism.



comprehensive proprietary database

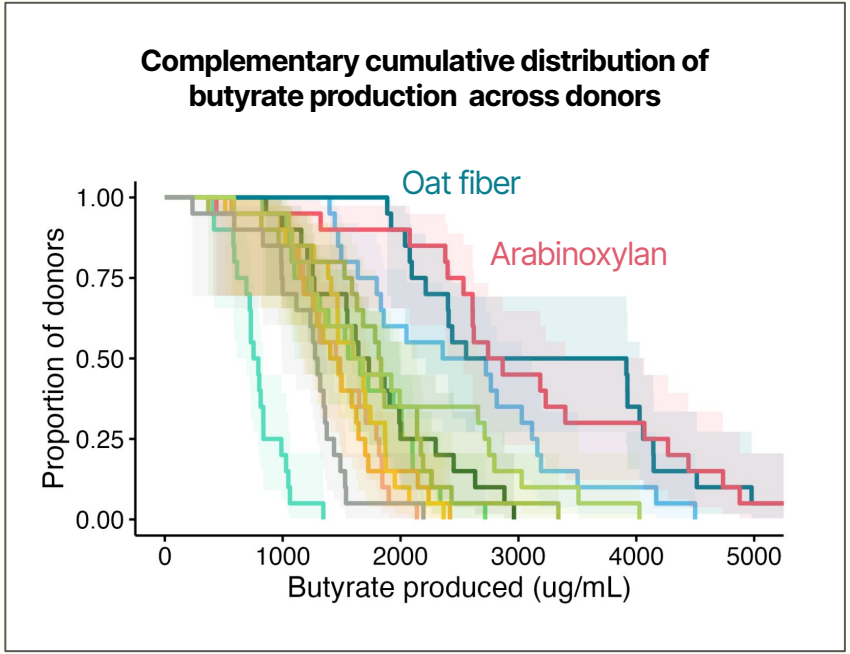
Diverse fibers drive distinct and consistent metabolic profiles across cohorts of donors in a structure-dependent manner.

These metabolic effects were accompanied by both general and donor-specific changes in microbial taxa. Published in *Maldonado-Gomez, Ng, et al.* (2025) MBio



Diverse fibers drive distinct and consistent metabolic profiles across cohorts of donors in a structure-dependent manner.

one·bio oat fiber (beta-glucan) and one·bio rye fiber (arabinoxylan) produce the highest and most consistent butyrate across a broad donor pool.
Maldonado-Gomez, Ng, et al. (2025) MBio



PRECLINICAL SUPPORT

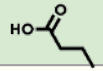
Case Study 1:

Oat and Barley fibers can reduce blood glucose spikes through 3 mechanisms.

We quickly validate candidate fibers in mechanism and outcome specific preclinical models before moving to human trials

1.		
Reduce Sugar Intake 	By **replacing sugar** sources with one.bio fiber in food products.	By **improving satiety** through the increased consumption of one.bio fiber.

2.	
Delay Glucose Metabolism 	By **inhibiting key enzymes** in starch catabolism and glucose absorption.

3.	
Improve Insulin Regulation 	By inducing butyrate production, which is a key **activator of GLP-1 secretion**.

Marcobal *et al*, 2024, Nutrients

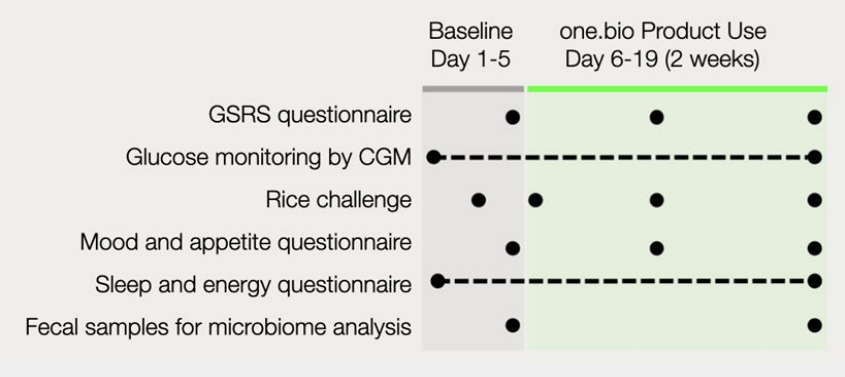
CLINICAL SUBSTANTIATION

Self-GRAS

one.bio Oat Fiber
Clinical study design

DESIGN
Study design focused on tolerance, safety and collection of exploratory data surrounding health benefits and product usage.

- 60 healthy adult volunteers
- 3 dose levels (5g, 10g, 20g/day)



(NCT06739941, Manuscript in preparation)

MEASURED OUTCOMES

Primary Endpoints	Gastrointestinal tolerance as measured by validated Gastrointestinal Symptom Rating Scale (GSRS) questionnaire
Secondary Endpoints	Change in post-prandial glucose uptake between baseline and end of intervention (rice challenge) as measured by iAUC

Gut Health

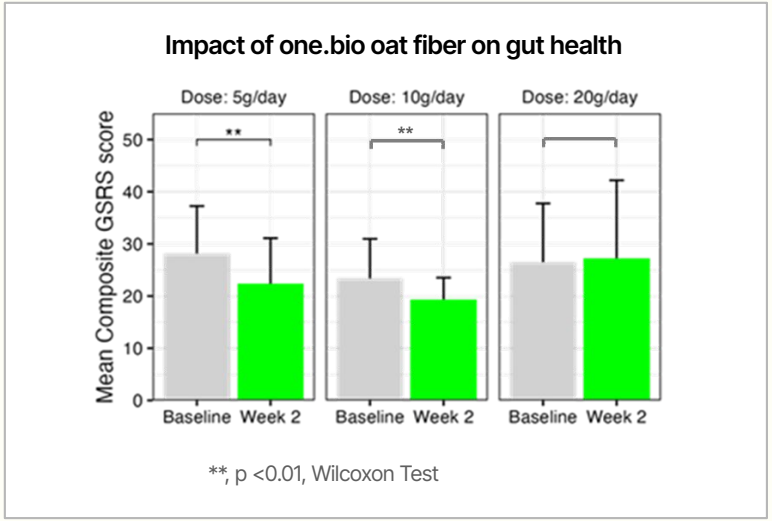
Not only does **one.bio** oat fiber not promote the gastrointestinal symptoms commonly associated with other fibers, it actually improves preexisting symptoms and gut pain in healthy individuals in just two weeks

Gut Friendly

Even at the highest dose of 20g/day we demonstrated exceptional tolerability – enabling high dosing and high functionality

Digestive Health Benefits

Participants receiving up to 10g/day reported significantly fewer gastrointestinal symptoms than the pre-intervention period



Preliminary results, Manuscript in preparation

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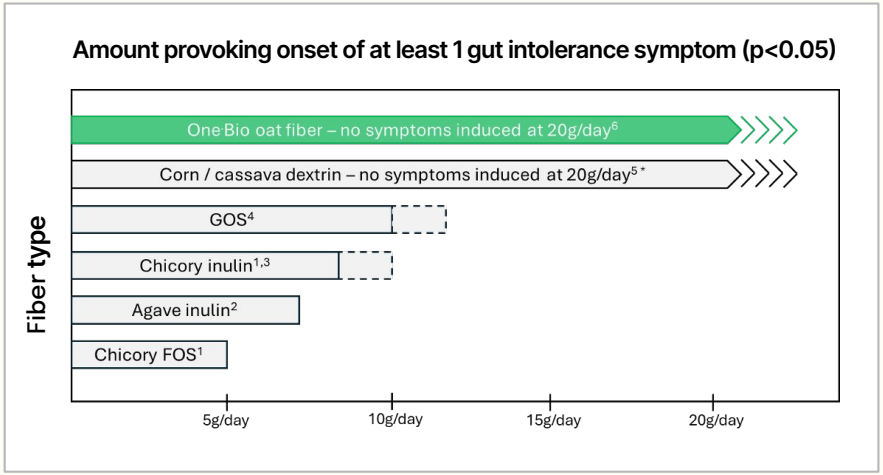

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GUT HEALTH BENEFITS

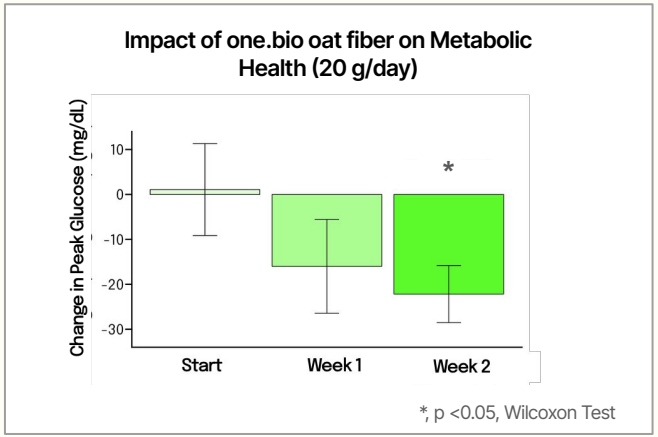
Metabolic Health

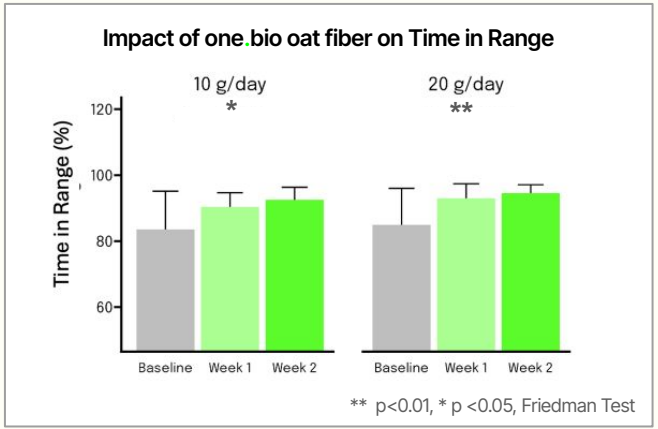
one.bio oat fiber improves post-prandial glucose response in a dose-dependent manner with improvements being seen as quickly as one week.

one.bio oat fiber improves all-day glucose regulation — making every meal you eat healthier. Improvements are seen in both dose and time-dependent manners with improvements seen as early as one week.

Benefits

- Reduces blood glucose spikes
- Increases the time “in-range” of blood glucose
- Supports healthy glucose metabolism





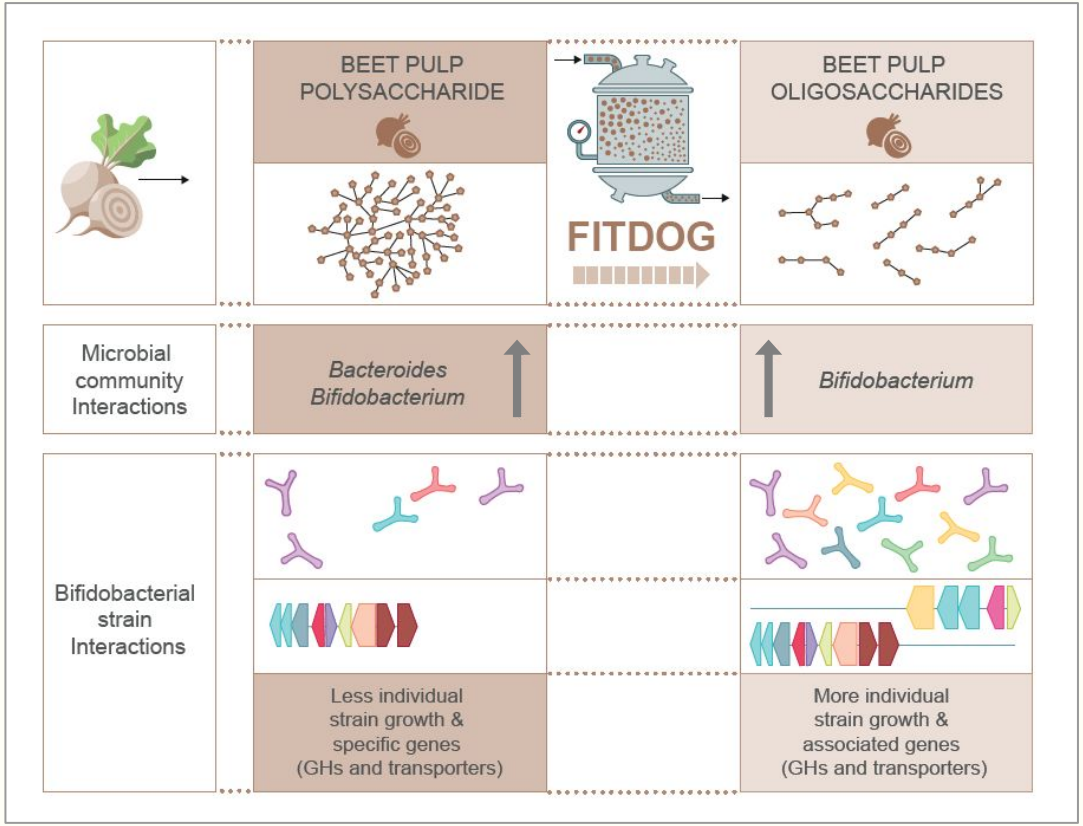
Preliminary results, Manuscript in preparation

BASIC RESEARCH

Case Study 2:

Beet pulp fibers elicit strong bifidogenic effects and support growth across more *Bifidobacterium* strains than matched polysaccharides

Reinforces that glycan structure profoundly shapes microbial carbohydrate metabolism



Masarweh *et al*, 2025, Applied and Industrial Microbiology

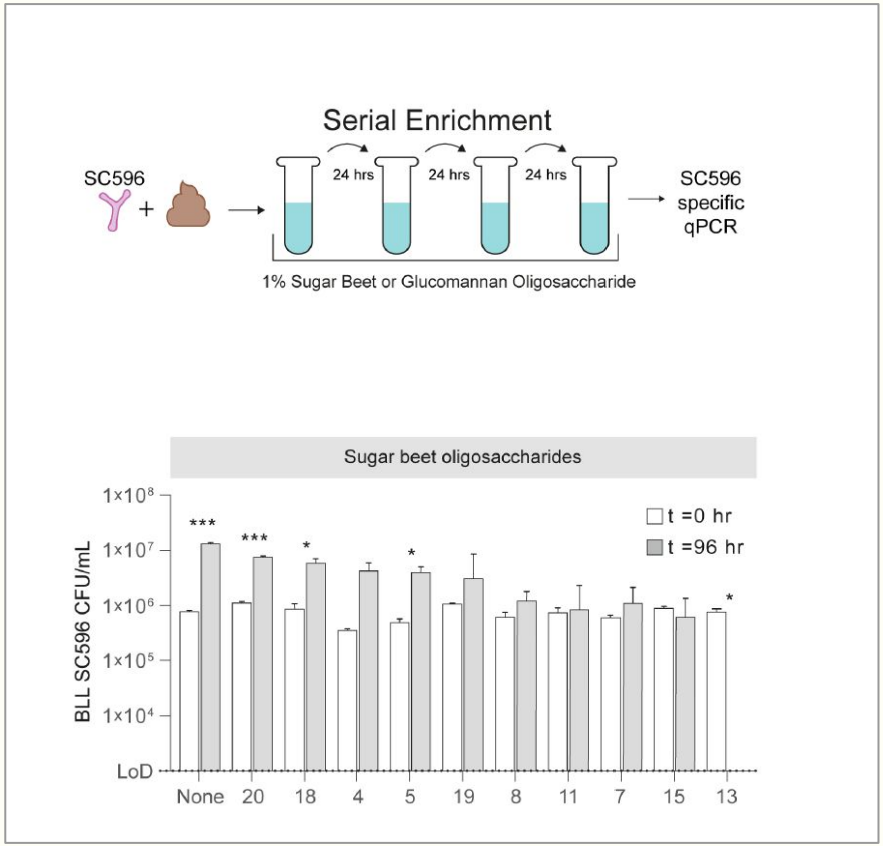
UC DAVIS
UNIVERSITY OF CALIFORNIA

BASIC RESEARCH

A tool to identify synergistic fiber–bacteria pairs for synbiotic applications

Beet pulp cognate *Bifidobacteria*, BLL SC596, successfully persisted after three consecutive fecal fermentation.

Conversely, when paired with galactomannan, which does not support SC596 growth, the strain was washed out of the majority of the fermentations.



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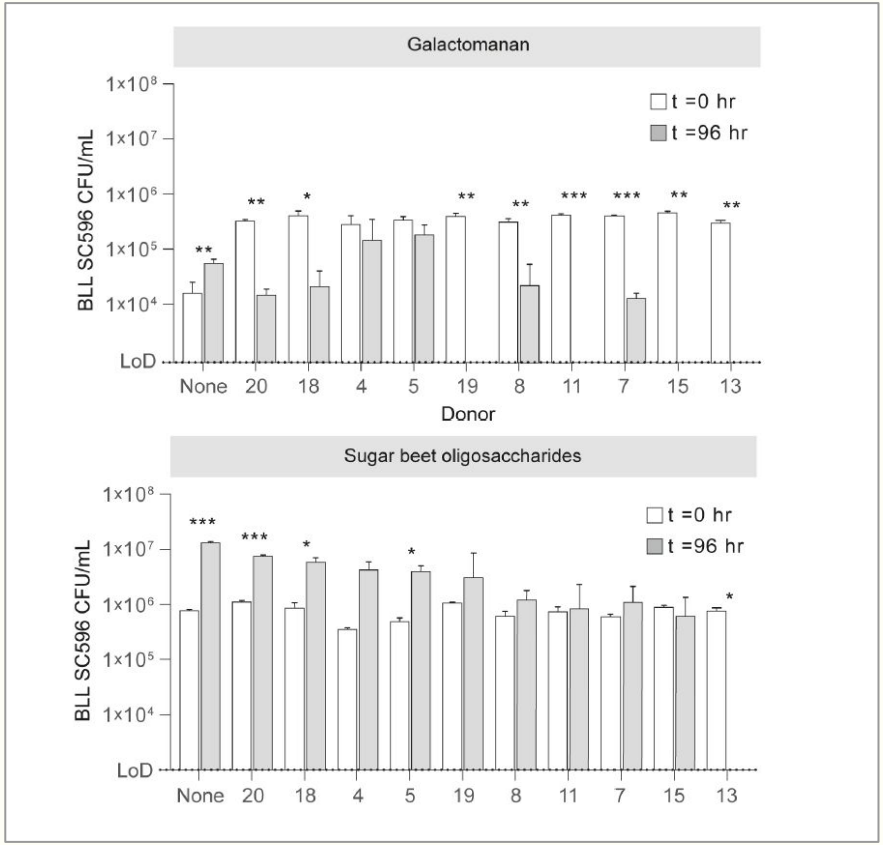
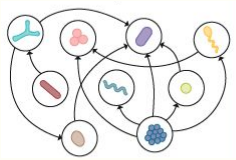
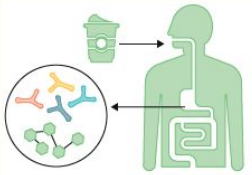


Masarweh *et al*, 2025, Applied and Industrial Microbiology

UCDAVIS
UNIVERSITY OF CALIFORNIA

We demonstrated that leveraging fiber diversity yields actionable tools from mechanistic research to functional ingredients that can improve health at scale

1.	2.	3.
Tools for basic science research	Functional fiber ingredient	Synbiotic applications
Poly- and oligosaccharides to examine microbial trophic networks 	Ingredient that harness nature’s fiber diversity and broadness impacts on health. 	Identify fiber-bacteria pairs for synbiotic applications 

Thank You

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