

SNACKIFICATION 3.0

How Functional Ingredients, AI-Driven Personalization, and Clinical Science Are Redefining Global Snacking Trends?



The Evolution of Snacking: From Convenience to Cognitive Nutrition

(1990s–early 2010s) **Snackification 1.0:**
Convenience-focused, processed snacks for busy adults on the go

(Mid-2010s–early 2020s) **Snackification 2.0:**
Clean-label, health-forward snacks for millennials, athletes, and gym-goers

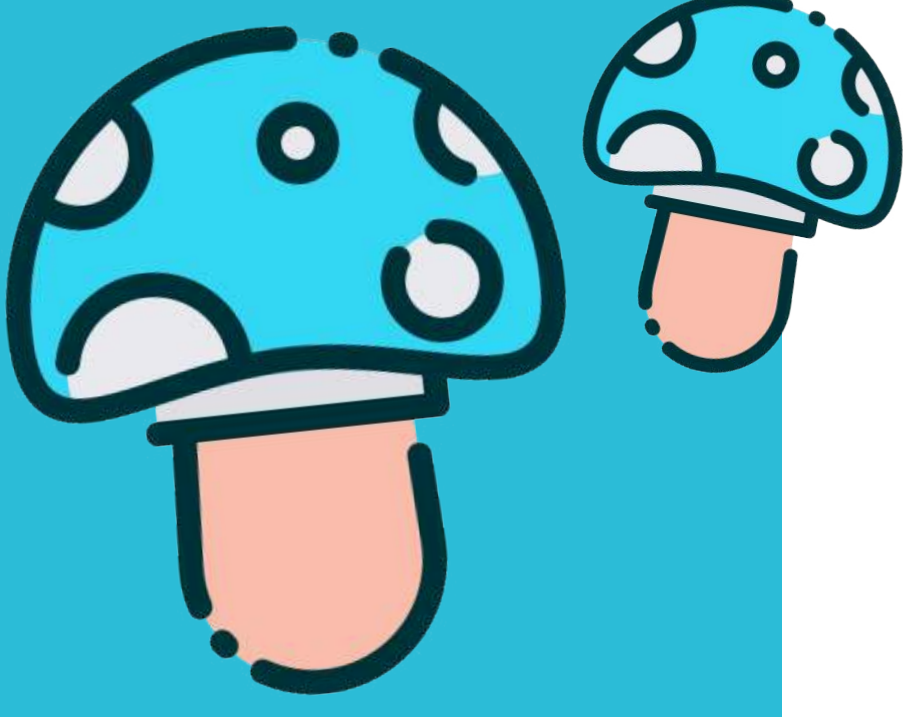
(2020s–present) **Snackification 3.0:**
Clinically backed, functional snacks with probiotics and nootropics for families, kids, and the elderly seeking holistic wellness

From emerging ingredient innovations...

Microbiome-based biscuits and ice-creams using **Lactobacillus** strains
Improves gut health and prevents hyperglycemia



Nootropic-based Beverage using **Chaga mushroom / Reishi mushroom / Sang-hwang mushroom**
Improves cognitive function



...to commercial brands blending science and flavor for targeted wellness

Microbiome-based



Bars

Supports digestive health and relieves constipation

Chocolate

Promote growth of gut bacteria

Yoggies

Promotes growth of immune system

Nootropic-based



Ice-cream

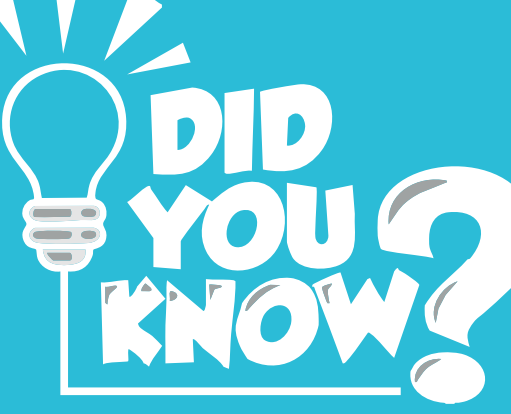
Enhances cognition and mental performance

Beverage

Reduces stress & anxiety

Gummies

Supports brain health



Your Snack Has Scientific Credentials

Consuming a functional cone mushroom protein snack bar daily for 6 weeks **improves cognitive function and working memory**



Coffee berry **reduces fatigue**, apple extract **boosts alertness**, and blueberry **eases depression and anger**

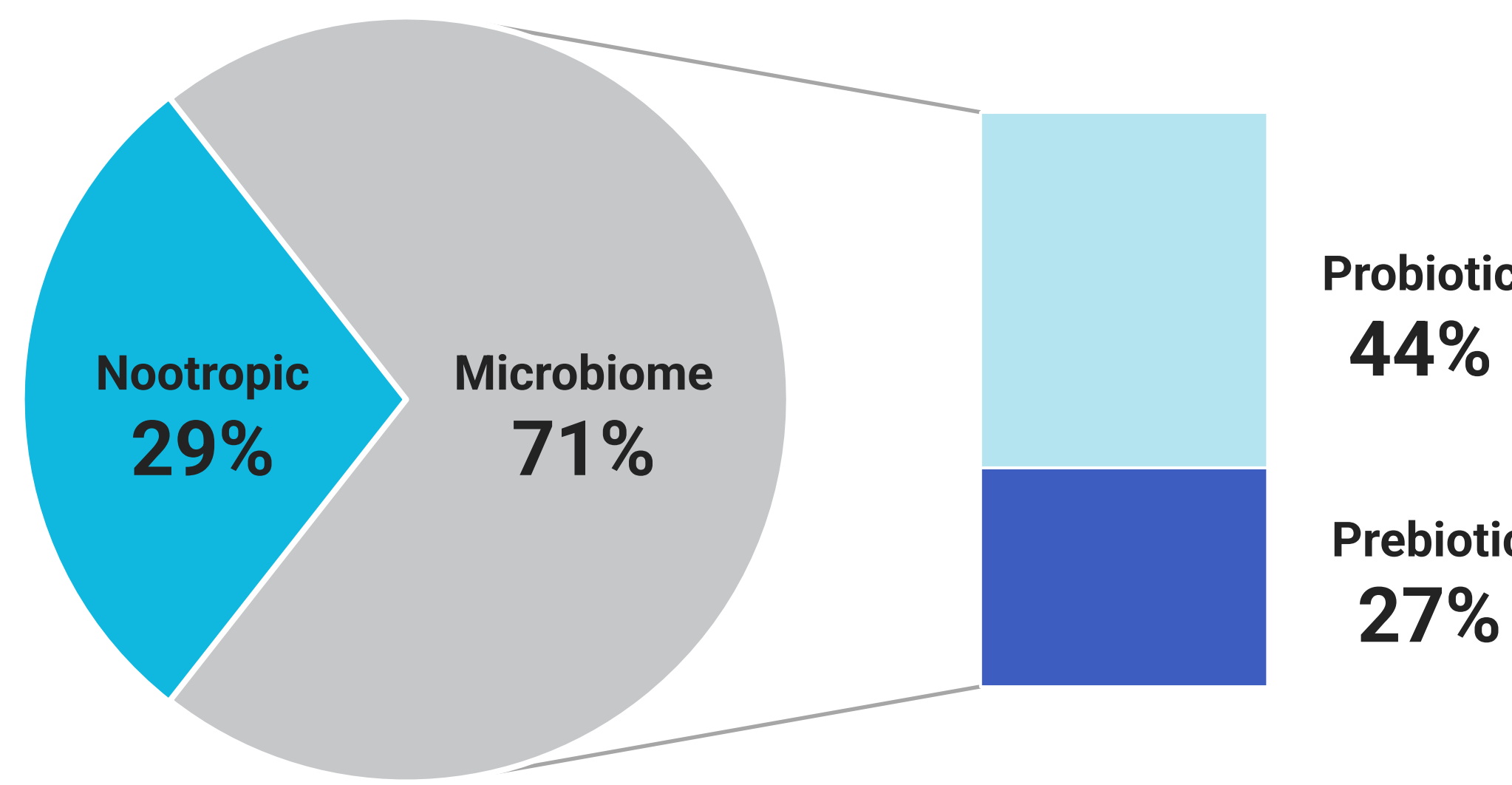


Oat milk in ice-cream **enhances probiotic survival** and **boosts antioxidant activity**



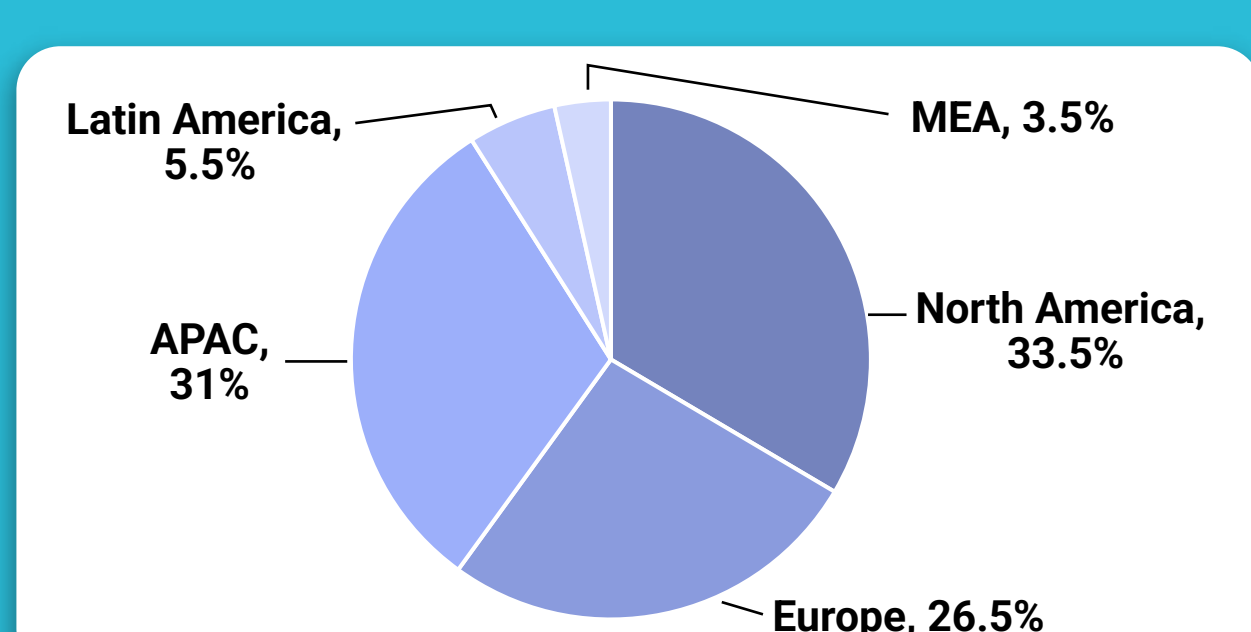
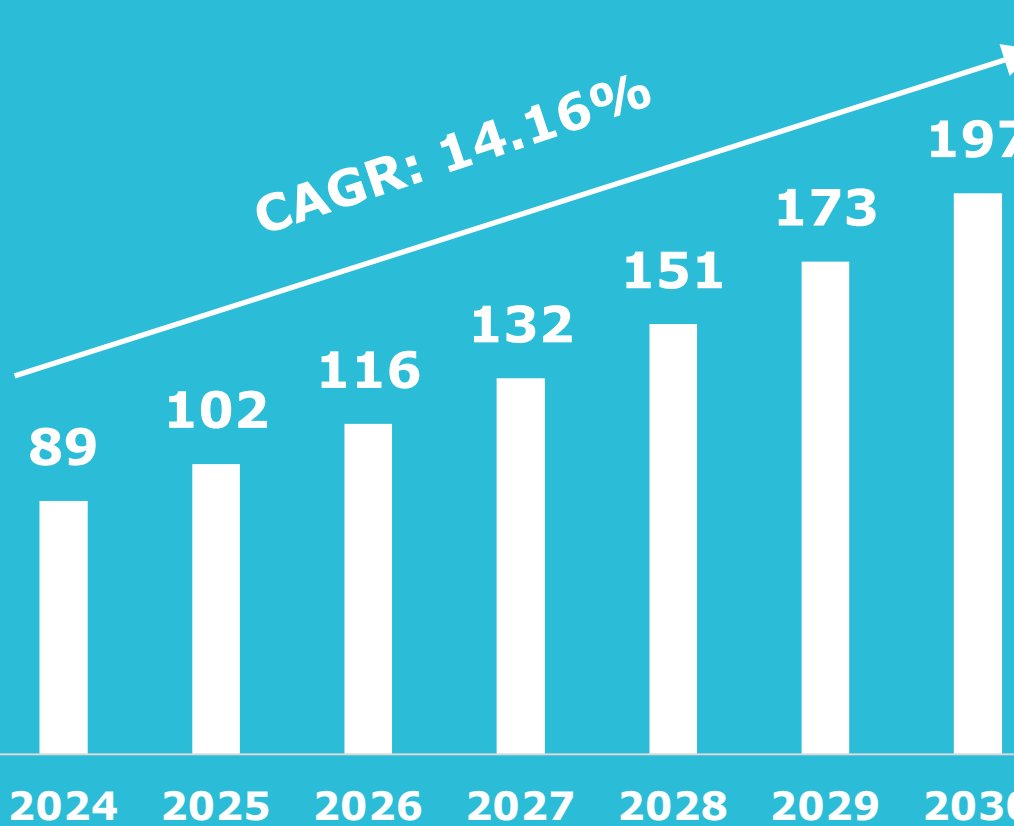
Where Clinical Science Focuses Its Bite

Gut leads the science—**71%** of clinical studies target the microbiome (44% probiotics, 27% prebiotics), while **29%** focus on nootropics

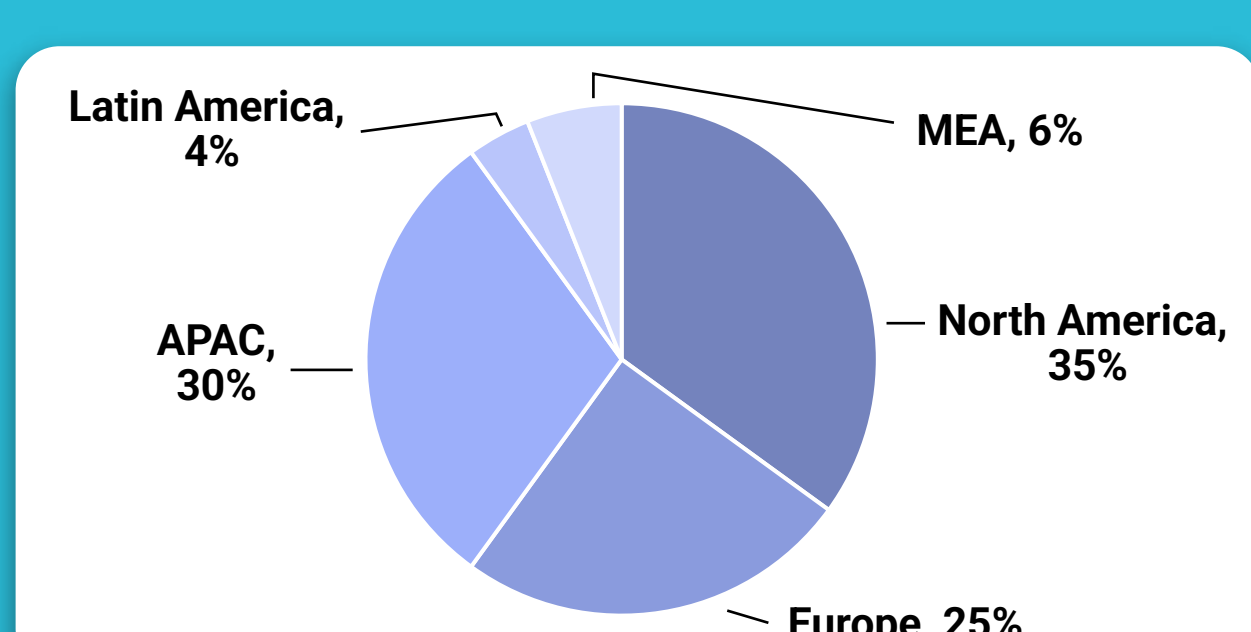
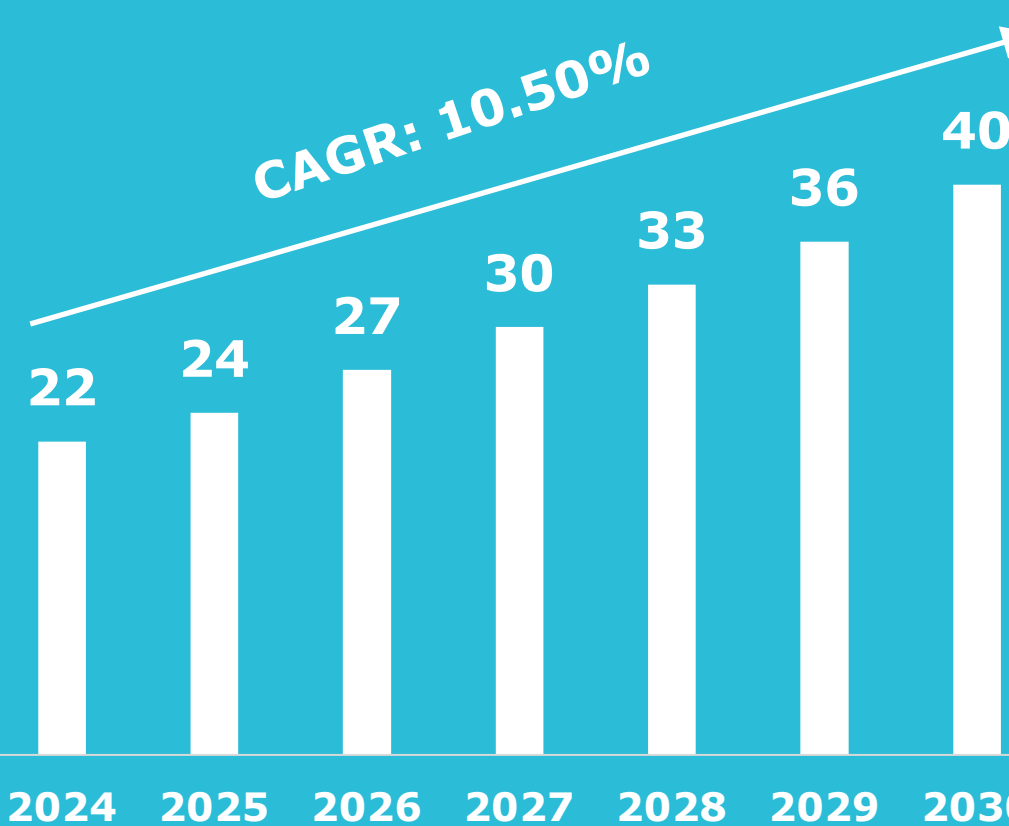


Turning Insight into Global Snacking Industry Expansion: The Market Momentum

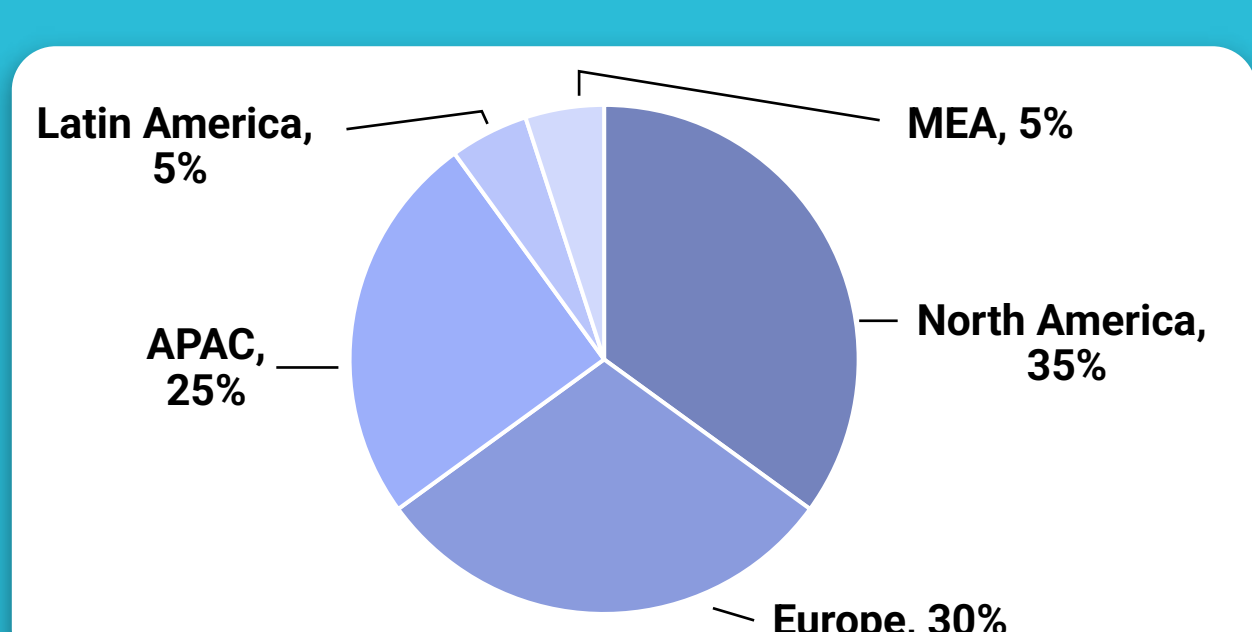
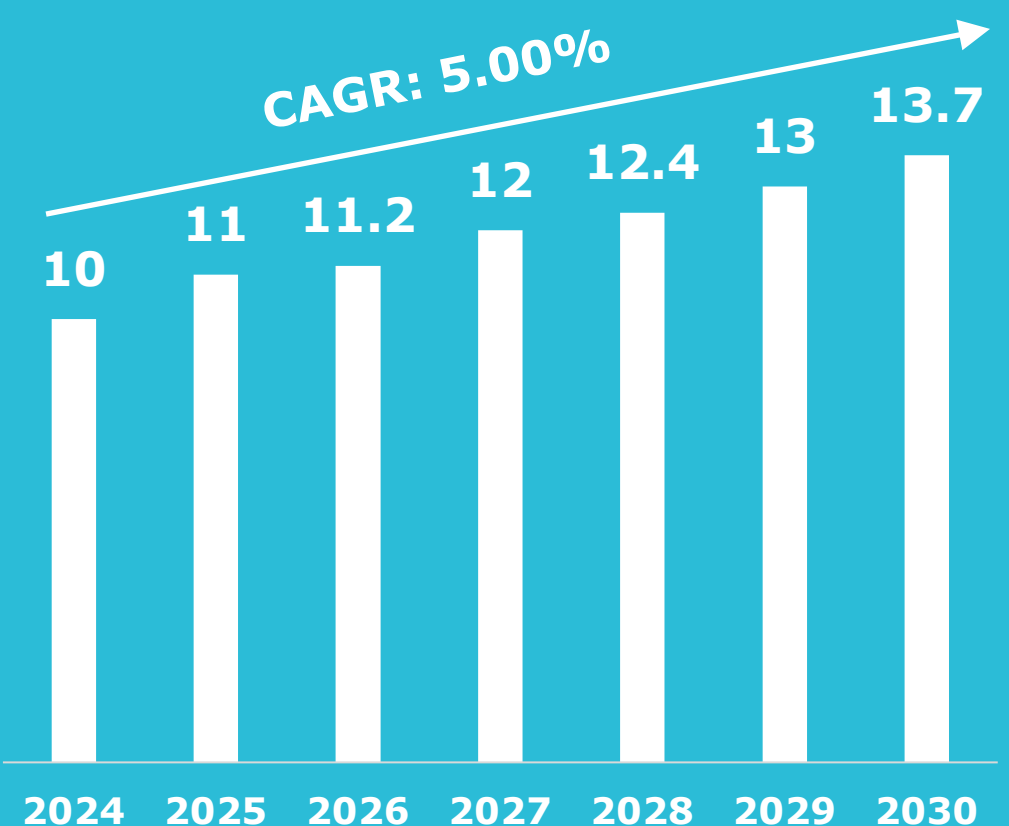
Nutritional Probiotics Market (2024–2030)



Brain Health Food & Beverage Market (2024–2030)



Functional Proteins Market (2024–2030)



Smart formulation to deliver effective, shelf-ready products

Microbiome Boosters

Prebiotics, fermented grains, and heat-stable probiotics (e.g., inulin, fermented oats, cassava, *Bacillus coagulans*) support gut health and shelf life

Nootropic Components

L-theanine, GABA, lion's mane, and Rhodiola enhance focus, mood, and stress resilience

Functional Proteins

Pea-rice blends, algae, and fermented proteins offer better digestion and complete nutrition

Taste & Texture

Puffed grains, beta-glucans, and bitterness blockers make lighter snacks flavorful

Clean Label Appeal

Organic ingredients combined with natural colors (beet, *spirulina*, turmeric) and flavors (fruit extracts, vanilla bean) makes for a cleaner appeal

Forward-thinking brands pair these snacks with sustainable packaging

Probiotic Nounós Greek Yogurt



Eco-Friendly Features

- Lightweight cup = less plastic
- Detachable cardboard wrap = easier sorting
- Transparent plastic = better recyclability

Sustainability Impact

- 32.7% less plastic
- 80% recycled cardboard
- 17% CO₂ reduction

All Real Natural Protein Bar



Eco-Friendly Features

- Durable 3-layer laminate
- Moisture & light resistant
- Heat-sealable for freshness

Sustainability Impact

- Breaks down in 26 weeks (home compost)
- Made from paper & wood pulp
- Reduced environmental footprint

Brite Natural Nootropic Drink



Eco-Friendly Features

- Lightweight build
- Protects against light, oxygen & moisture
- Preserves flavor & freshness

Sustainability Impact

- 100% recyclable
- Reduced carbon emissions

What Consumers Want?

- 74%** of consumers snack for emotional balance (Especially Gen Z and Millennials)
- 42%** choose snacks for supporting their body and nutritional goals
- Over 70%** look for personalized nutrition solutions via AI, biosensors, and wearables



Strategic Moves by Industry Leaders



KIRIN (2022)

Added *Lactococcus lactis* strain plasma postbiotic to key beverages, expanding their reach in Japan's growing functional drinks market



(2023)

Launched Mighty Pop, the first soda combining prebiotics, probiotics, and postbiotics for gut and immune health



poppi (2025)

A \$1.95B acquisition expands low-sugar, gut-health sodas to meet growing demand for healthier drinks

Global Regulatory Guidelines Shaping Snack Innovation

North America: FDA allows truthful structure/function claims; probiotics need GRAS status; Canada permits non-strain specific claims without full review

European Union: "Probiotic" is a regulated health claim requiring EFSA approval; no probiotic claims yet authorized; some countries allow the term on foods

South America: Brazil mandates ANVISA pre-market approval for functional and probiotic health claims

Middle East & Africa: UAE enforces probiotic safety standards covering bacteria types, counts, and testing methods

Asia-Pacific: Japan and Australia require key insights into probiotic health claims; Australia and New Zealand demand scientific evidence for all health claims

Future Outlook & Innovation Opportunities

Dual-Action Performance

Snacks with ingredients like creatine now target both brain and body—ideal for esports, athletes, and high-focus professions

AI-Driven Formulation

Machine learning analyzes ingredient synergies to design optimal, evidence-backed snack formulations for function and flavor

Real-Time Microbiome Monitoring

At-home gut sensors + AI = personalized snack recommendations based on the single scan real-time microbiome state

Snacking is evolving into a **smarter, cleaner, and more functional experience**, driven by science, tailored nutrition, and conscious choices

Partner with **Ingenious e-Brain** to lead the next wave of innovation