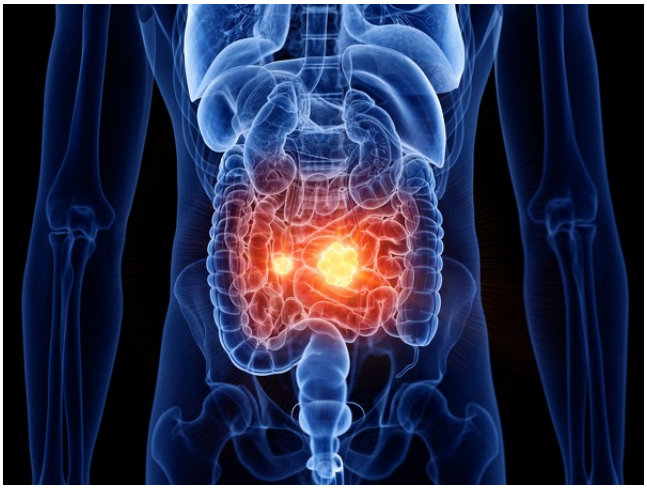
INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

Inulin Gel for Immune Health

TECHNOLOGY NUMBERS: 2019-461, 2021-100, 2025-270



Technology ID
2019-461

Category
Therapeutics and Vaccines
Life Sciences
Accelerate Blue Foundry - 2025/Life Sciences

Inventor
James Moon

Further information
Tiefei Dong
tiefeid@umich.edu

View online

Accelerate Blue Foundry - 2025 (Life Sciences)

OVERVIEW

Inulin gel is an immune health–focused, orally administered platform technology derived from a natural dietary fiber, engineered for superior gut delivery and retention. By strengthening gut-immune interactions, this next-generation therapy is designed to enhance cancer immunotherapy, prevent cancer formation, enable safer food allergy treatments, and open new opportunities to treat autoimmune and metabolic diseases. Importantly, inulin gel is already being evaluated in an ongoing Phase I/II clinical trial, providing an early demonstration of its safety and therapeutic potential in cancer patients.

DESCRIPTION

Inulin gel is a novel formulation of the common dietary fiber inulin, optimized for immune modulation through the gut. Once ingested, it selectively enriches beneficial microbes and reshapes the intestinal ecosystem, which in turn promotes balanced immune activation and tolerance. This persistent microbiome remodeling has been shown to boost the effectiveness of immune checkpoint therapy, reduce immune-driven toxicities, and improve the safety and efficacy of oral immunotherapies for food allergy.

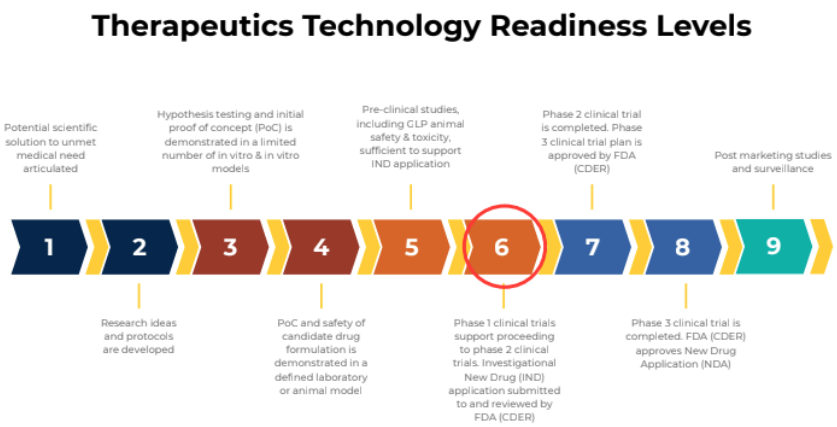
Unlike inconsistent probiotics or invasive fecal transplants, inulin gel harnesses a safe, FDA-recognized ingredient engineered for predictable immune benefits in the gut. Moreover, it can be co-formulated with immunotherapies, vaccines, or allergens, providing a versatile tool to fine-tune immune health in diverse disease contexts.

- Video Link

VALUE PROPOSITION

- **Multifunctional Platform**: One easy-to-ingest, natural formulation with the flexibility to address cancer therapy, cancer prevention, allergy desensitization, and potential applications in autoimmunity and metabolic disease.
- **Superior Microbiome Modulation**: Provides targeted, reproducible modulations to the gut microbiome - outperforming inconsistent results from current probiotics and eliminating the health risks of fecal transplants.
- **Proven Efficacy, Safety, and Adaptability**: Demonstrated effectiveness in preclinical studies for both enhancing immunotherapy and food allergy. Demonstrated safety in a Phase I trial with healthy volunteers using FDA-recognized ingredients that can be readily customized for different patient needs or disease areas.

TECHNOLOGY READINESS LEVEL



INTELLECTUAL PROPERTY STATUS

Patent applications pending.

MARKET OPPORTUNITY

There is a pressing demand across oncology, allergy, and immune health industries for safe, accessible, and effective ways to harness the gut microbiome to strengthen immune function. In cancer, inulin gel offers the potential to enhance the effectiveness and safety of immunotherapies—a multi-billion-dollar and rapidly expanding sector. In allergy, it provides a path to safer and more durable oral desensitization, addressing a fast-growing clinical need. Beyond these, inulin gel's ability to rebalance gut–immune signaling positions it for impact in the massive markets of chronic inflammatory and metabolic diseases, where immune dysregulation is a core driver.

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The global immuno-oncology market exceeded $100B in 2024, driven primarily by PD-1/PD-L1 (immune checkpoint blockers, ICBs). Our target population - patients receiving ICB therapy - represents ~3M patients annually worldwide. Even with a conservative 10% adoption rate and a $5,000 price point, the serviceable obtainable market exceeds $1.5B. Customer discovery with oncologists and patients highlighted strong interest in adjuvant approaches that improve ICB response with potentials of ameliorating ICB associated-toxicity.

Inulin gel's versatility as an immune-focused platform creates unique entry points across pharmaceutical, clinical, and consumer health segments, spanning targeted therapies to general wellness, bringing an additional $0.9B to the total market size as microbiome therapeutics for metabolic diseases, infections, and GITs etc. Recent surges in clinical trials and investment in microbiome-based immunotherapies underscore the urgent industry demand for scalable, reproducible, and safe immune-modulating technologies that go beyond probiotics and transient interventions.