

Smart Encapsulation of Bioactives: Dual Protection Against Thermal and Gastric Stress with Controlled Targeted Delivery

ASTRI's encapsulation technology employs a core-shell architecture in which vulnerable bioactives form the core, while a specially designed polymer matrix serves as the protective shell, enabling controlled and targeted delivery. After administration into the human body, the polymer shell disintegrates in response to specific stimuli, releasing the bioactives in a precise and desired manner at the target site

Industry Challenges

- Susceptible to the harsh conditions of the human digestive system, including gastric acid, bile, and enzymes, resulting in reduced bioactivity
- Ineffective controlled and targeted delivery
- Lacking synergistic interactions among bioactives in a single formulation, limiting their overall health benefits

Major Benefits

- **Versatile Application:** Accommodates diverse bioactives - live probiotics, enzymes, and small-molecule compounds
- **Excellent Protection:** Maintains over 90% bioactivity throughout the digestive tract
- **Precise Delivery:** Provides customisable release profiles tailored to clinical requirements
- **Enhanced Synergy:** Maximises health benefits within single formulation

Application Areas

- Controlled, targeted drug delivery
- Encapsulation of probiotics and their corresponding prebiotics, either as a standalone formulation or incorporated into ready-to-consume food and beverage products
- Expanded applications beyond oral delivery to other routes of administration, such as topical delivery

Collaborator(s)

- Supplement manufacturers
- Healthcare products manufacturers
- Pharmaceutical companies

Award(s)

International Exhibition of Inventions Geneva



Clinically validated probiotics strains and together with their corresponding prebiotics, protected by ASTRI's polymer encapsulation, safely reach the intestine, enabling colonisation and supporting gut health

