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**CATEGORY:** Bio Food

**SESSIONS:** The Next Bite; Evidence Based Bio-Food by Design

- Executive Summary / Investment Rational

Prebiotics is a well-established strategy for promoting gut-probiotics, while most prebiotics are carbohydrate-based. However, since ~90-80% of dietary proteins are absorbed in the small-intestine, gut microbes compete for limited residual protein. To overcome this limitation, we introduced the concept of protein-containing-prebiotics, designed to selectively deliver both proteins and carbohydrates to gut probiotics, boosting their growth compared to conventional-prebiotics.

- Core Technology

This novel prebiotic is based on Maillard-conjugates of prebiotic-oligosaccharides and protein-hydrolysate, forming micelles with an oligosaccharide-shell and protein-core. This structure reduces protein-core digestibility, while the prebiotic-oligosaccharides are hypothesized to selectively-target colonic-probiotics. The advantage inherent in this technology lies in its versatility, and ability to upgrade any existing prebiotic product. This technology is the basis for the establishment of PreeBio™ startup.

- Product Profile/Pipeline

Our novel protein-containing prebiotics, composed of Maillard-conjugates of 2'-fucosyllactose with potato protein- or lactoferrin hydrolysate, selectively promoted beneficial gut bacteria in mice, increasing short-chain-fatty-acids levels and improving metabolic and gut health. These prebiotics outperform conventional prebiotics and can be tailored to target specific microbes, offering a promising platform for personalized gut and metabolic health solutions across diverse health conditions.

- Business Strategy

The novel prebiotics can be incorporated into various products, including foods, dietary-supplements, or medical-foods for various microbiota-related diseases. It can be designed to target specific beneficial bacteria linked to desired health benefits. Furthermore, it can be combined with the targeted probiotics to be boosted, to create powerful synbiotic products, offering enhanced therapeutic potential for individuals with specific health concerns.

- What's Next?

Next steps focus on advancing toward clinical studies to validate the efficacy of our prebiotics in human gut microbiota. Further Research involves evaluating therapeutic efficacy across various compositions and disease models, alongside mechanistic studies on how probiotics utilize these conjugates.