

Bioactive Compositions that Boost Probiotic Establishment

This Teagasc development, involves a novel application of bovine colostrum, milk and whey rich in immunoglobulins, as a means of boosting probiotic bacteria’s beneficial effect, by significantly increasing their level of attachment to intestinal cells. This capability would complement and add value to a company’s probiotic range/bio-bank **and may be applicable to a wide range of markets including infant formula, infant and toddler supplements & health and wellness.**

probiotic efficiency; bio-bank; gut microflora; Bifidobacterium; infant formula; infant and toddler supplements; inflammatory bowel diseases

Problem Addressed

Species such as bifidobacteria are abundant in the gut of breast-fed infants and are important for inhibiting the growth of pathogenic organisms, improving the barrier function in the gut, and promoting proper immunological and inflammatory responses. In order to exert a beneficial effect, these bacteria must colonize the gut in sufficient numbers. The first step in colonization is attachment to the intestinal surface. There is currently an absence of available products developed to aid or increase the attachment/colonization of probiotic strains to the intestinal cells, which this technology aims to address.

The Solution

Teagasc researchers (led by Rita Hickey, Teagasc Food Research Centre Moorepark) have developed novel applications of a series of compositions (fractions from bovine whey and colostrum whey rich in Immunoglobulin) that increase the attachment of health-promoting bacteria to the intestinal surface, by altering the gut cell surface and increasing the number of attachment sites for these bacteria. This does not alter the effects of the probiotic strain, but simply boosts its attachment to the gut, potentially allowing it to function more efficiently.

Value proposition

1. Up to 40 fold increase in the attachment of Bifidobacteria and Lactobacilli bacteria to intestinal wall compared to non-treated cells (see diagram).
2. Demonstrated effect on the most common probiotic species and on strains in the lucrative infant formula and supplements markets.
3. Can add value to any current probiotic bio-banks, as potential booster for probiotic efficacy.

Stage of Development

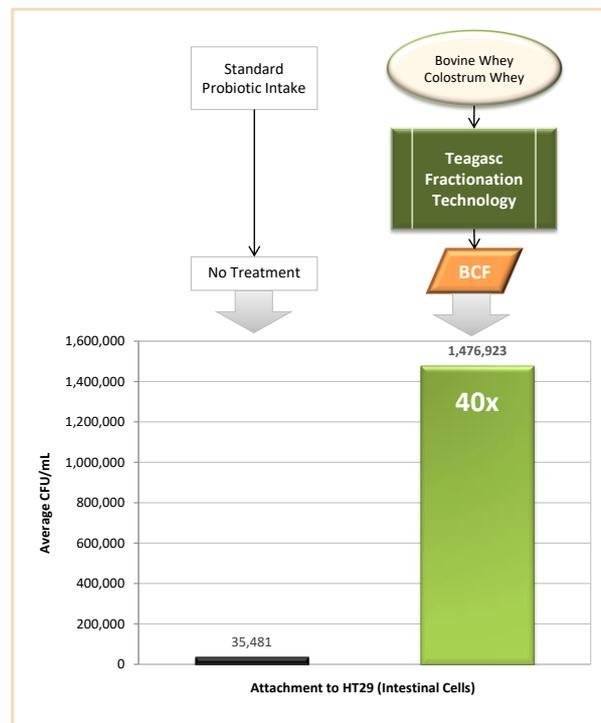
Specific probiotics have been examined for increased attachment to intestinal cells using a Teagasc *in vitro* model with great success. Research is underway evaluating various dairy waste streams as potential sources of bioactivity.

Intellectual Property Status

Patent application “A composition and uses thereof” filed by Teagasc in 2017 -PCT/EP2018/080025. National filings since made in China, US, Canada, Australia, New Zealand , Europe in 2020

Opportunity

Teagasc is interested in partnering with companies in the infant/toddler probiotics/supplements industry to commercialise this technology, with a view to adding value to their probiotic range. There is also opportunity to collaborate with dairy waste stream providers in evaluating various sources of bioactivity.



Funding

Internal Teagasc funding- (Walsh Fellowship Scheme).

How to Proceed:

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