



# Kata TRIFKOVIC

**Institution:** Teagasc Food Research Centre, Fermoy

**Academic Mentor:** Dr Tom P Beresford

**Commercial Partner:** Glanbia Ltd

**Commercial Mentor:** Dr John A Hannon

Kata obtained her Masters and Doctoral degrees at the University of Belgrade, Faculty of Technology and Metallurgy. Her research explored Chitosan-based hydrogels for controlled delivery of polyphenols.

She has worked at the Innovation Centre of the Faculty of Technology and Metallurgy, at the University of Belgrade developing her expertise through numerous national and international research projects in areas such as food technology, food analytics, functional food ingredients and functional foods, as well as innovative food packaging solutions.

Kata has presented at more than 20 international conferences; and appeared in more than 18 international per-reviewed papers, and three book chapters.

She has been involved in teaching activities at University of Belgrade and University of East Sarajevo.

*See case study overleaf*

## Dr Tom P Beresford

Dr Beresford's earned a PhD in Microbiology from University College Cork, and worked as a post-doctoral researcher at the New Zealand Dairy Research Institute (now part of Fonterra). He joined Teagasc as a food microbiologist and is currently Senior Principle Research Officer where his particular research interest is in molecular microbiology and dairy fermentation. He has published over 90 peer-review papers, with over 3,300 citations.

## Dr John A Hannon

Dr John A Hannon is author/co-author of over 30 peer-reviewed scientific papers and presented at international conferences on dairy starter microbiology, biochemistry of cheese ripening, flavour chemistry, sensory analysis and proteomics. His career has taken him to France twice, and to Teagasc, Moorepark where he obtained his PhD. He now works at Glanbia where he established their Cheese R&D program.

## Teagasc Food Research Centre, Fermoy

Teagasc supports science-based innovation in the Agri-food sector and broader bio-economy offering innovations and solutions for the Irish food industry. Its Food Research programme includes: 41 scientists, 16 technical staff, 80 contract scientists and 150 post-graduate students.

## Glanbia Ltd

Glanbia is a global agri-food and nutrition business, with a diverse portfolio of ingredients, consumer brands and agri products such as Avonmore, Premier Milk and GAIN Animal Nutrition. It processes a 2.4 billion-litre, globally-sourced milk pool and exports to over 60 countries.

## Kata's project

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This project aims to use encapsulation technology to enhance the nutritive value of cheese.

Bioactive compounds that contribute to human health such as bioactive peptides and antioxidants are widely present in nature and can be applied to Cheddar cheese. However, to preserve the biological activity of these compounds during production, they must be protected in the process.

For that purpose, the entrapment of bioactive compounds within particles that act as a shield against a detrimental environment, while enabling the prolonged/controlled release of bioactives, can be achieved through encapsulation technology.

This also allows the release of the compounds in the gastrointestinal tract to achieve optimal absorption.

In addition, encapsulation technology can promote the production of bioactive peptides in younger cheese. To achieve this, enzymes (natural biocatalysts, which speed-up cheese maturation) can be entrapped, facilitating the occurrence of bioactive peptides earlier than usual. In this way, maturation time is shortened, which is important economically, but increases the health-promoting properties of the cheese.

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