**CSC Dairy Program potential supervisors - University of Groningen**

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| Name | Faculty | Email/Staff page | Research interests |
| Jan Kok | Faculty of Mathematics and Natural Sciences | [jan.kok@rug.nl](javascript:redir('rug.nl'%20,%20'jan.kok');)  http://www.rug.nl/staff/jan.kok/ | 1. the Department of Molecular Genetics (MolGen) aims to increase the added value of milk and of whey (proteins).  2. Fermentation as a technology to obtain interesting products and/or bioactive peptide fractions would be an interesting alternative to in vitro enzymatic degradation, as esp. in the dairy industry. |
| Paul de Vos | Faculty of Medical Sciences | [p.de.vos@umcg.nl](mailto:p.de.vos@umcg.nl)  http://www.rug.nl/staff/p.de.vos/ | The research-group has a strong focus on the role of carbohydrates and glycoproteins in modulation of immunity in production animals and humans. Carbohydrates and (dairy derived) glycoproteins have been shown to modulate immunity in consumers by stimulation of beneficial microbiota and also by interaction with specific receptors on immune cells and epithelial cells in the intestine. These receptors are called pattern recognition receptors (PRRs). The research group is studying on a molecular level how specific carbohydrates can interact with a family of PRRs the socalled Toll-like receptors (TLRs) and modulates immunity and barrier function |
| Oscar Kuipers | Faculty of Mathematics and Natural Sciences | [o.p.kuipers@rug.nl](javascript:redir('rug.nl'%20,%20'o.p.kuipers');)  http://www.rug.nl/staff/o.p.kuipers/ | This group has a keen interest in lactic acid bacteria and Bacilli, both in fundamental research as in biotechnological applications. A main research topic in the group is on identification and testing of antimicrobial compounds.  1. Increasing crop production by beneficial bacteria, in particular Bacillus sp.  2. Developing novel antimicrobials and antimicrobial strains against mastitis.  3. Selection of advantageous bacteria for human GI-tract applications, in particular to counteract or prevent infections. |
| Gert-Jan Euverink | Faculty of Mathematics and Natural Sciences | [g.j.w.euverink@rug.nl](javascript:redir('rug.nl'%20,%20'g.j.w.euverink');)  http://www.rug.nl/staff/g.j.w.euverink/ | 1: Development of a microbioreactor screening system to screen fermentation conditions on a small scale (0.2 – 5 ml). Special reactors are manufactured using 3D printers. The reactors are equipped with small in house developed (bio-)sensors or adapted from other scientific disciplines. Currently we are also working on optimizing biogas and volatile fatty acid production from waste streams.  2: The second line of research is on biorefinery of biomass. This research can be applied on grass (to feed the cow only that part of the grass that can be digested), milk, fermented milk (interesting products synthesize by e.g. lactic acid bacteria) and on manure (to recover water, minerals like ammonia and phosphate and the remaining energy via anaerobic fermentations). |
| Katja Loos | Faculty of Mathematics and Natural Sciences | [k.u.loos@rug.nl](javascript:redir('rug.nl'%20,%20'k.u.loos');)  http://www.rug.nl/staff/k.u.loos/ | Improved characterization techniques for exopolysaccharides for their use in dairy products  1. the design of well-defined branched polysaccharides as tailor made standards for the development of advanced characterization techniques  2. the establishment of new characterization protocols for branched exopolysaccharides using size separation techniques with multiple detection |
| Gert-Jan van Dijk | Faculty of Mathematics and Natural Sciences | [gertjan.van.dijk@rug.nl](javascript:redir('rug.nl'%20,%20'gertjan.van.dijk');)  http://www.rug.nl/staff/gertjan.van.dijk/ | Glycated proteins can also be considered as an emerging quality parameter of dairy products. Recommendations for acceptable concentration of dietary glycation markers combined with how these are influenced and controlled by food processing is missing and very much needed! In this project, an on-site tool/model to judge the risk of protein glycation will be further developed in order to be able to adapt recipe and/or processing conditions in relation to certain target groups. Furthermore, we will perform studies to establish the ‘no observed effect level’ (NOEL) of glycated proteins on the intestinal microbiota of these target groups. |
| Uwe Tietge | Faculty of Medical Sciences | [u.j.f.tietge@umcg.nl](javascript:redir('umcg.nl'%20,%20'u.j.f.tietge');)  http://www.rug.nl/staff/u.j.f.tietge/ | Specifically in the field of cardiometabolic health cholesterol contained within milk causes concern as cholesterol might counteract such beneficial effects.  Therefore, the following specific aims are proposed for this project:  1.Toinvestigatetowhatextenttheeffectsofdairymilkonadultcholesterolmetabolismand  cardiometabolic disease development depend on the intestinal microbiota  2. To define pre-/probiotic combinations that exert synergistic effects to beneficially modulate metabolic risk in response to dairy milk consumption in 2.1 mice and 2.2 humans  3. To determine whether cholesterol content in dairy milk-based infant formula programs adult cholesterol metabolism. |
| Marc van der Maarel | Faculty of Mathematics and Natural Sciences | [m.j.e.c.van.der.maarel@rug.nl](javascript:redir('rug.nl'%20,%20'm.j.e.c.van.der.maarel');)  http://www.rug.nl/staff/m.j.e.c.van.der.maarel/ | Milk contains up to 8% lactose, a disaccharide of glucose and galactose. Many people are intolerant for lactose. Lactose –free milk is produced by removing the majority of the lactose by filtration. The small amount of lactose left after filtration is converted by the enzyme beta-galactosidase, also known as lactase, to glucose and galactose. This gives sweetness to the milk and is an important step in the production of lactose-free milk as most consumers prefer milk with some sweet taste. In this PhD project the immobilization of beta-galactosidase from different sources will be investigated in detail. |
| Lubbert Dijkhuizen | Carbohydrate Competence Centre, Faculty of Mathematics and Natural Sciences | [l.dijkhuizen@rug.nl](javascript:redir('rug.nl'%20,%20'l.dijkhuizen');)  http://www.rug.nl/staff/l.dijkhuizen/ | The Microbiology group isolates novel bacterial carbohydrate acting enzymes, relevant for applications in dairy products (infant nutrition), characterizes their biochemical properties, and applies enzyme engineering (mutagenesis, 3D structural analysis) to elucidate reaction mechanisms and to optimize reaction and product specificity, increase temperature stability to improve their industrial applicability. The full set of techniques is used to characterize and apply Glucansucrase and Beta-Galactosidase enzymes. |