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Foreword – nearly 10 years of Beneficial Microbes

At the end of this year we will celebrate the 10th anniversary of our journal Beneficial Microbes. Traditionally I start the foreword with a brief description of the development of the impact factor (IF). At just 10 years old, we are still considered a young journal, and in the early days of a young journal the IF is bound to fluctuate a little. Last June we reached 2.310. In my foreword at that time I concluded that my abilities to predict the future were horrible and I made an urgent request for a probiotic to improve that prediction capacity! But now I think it is safe to say (and predict) that by the end of June 2019 (when the new IF will be provided by Clarivate Analytics) we will have reached a higher IF than the 2.310 of June. I keep track of the IF development over the course of the year and we are well on our way to an IF above 2 again (with still another 5 months to go until the end of June). It is safe to predict it will be higher than last year, because at this moment (year-to-date on Jan 17, 2019) it is already >2.5 ... ☺

Again, the number of manuscripts being submitted is stabilising, finishing at just below 200 in 2018. This still allows us to be critical about which manuscripts we select for review, as we now have sufficient manuscripts. In fact, we have decided to increase the minimum number of issues to be published this year to 6.

The following part is re-iterated from last year, as I believe it is an important message: authors of manuscripts that are immediately rejected (without being reviewed) may have noted that the editorial board actually screens each manuscript before it is processed further. This is done to protect our reviewers, if you like. We want to prevent them receiving manuscripts that either don't fit the scope or are of insufficient merit or breadth to be published in the journal. In so doing, we hope to reduce their workload, as we are discovering that it increasingly difficult to find people that are willing and able to review our manuscripts. Sometimes the section editors (SEs) have to ask more than 10 potential reviewers (our record stands at 21!) before finding two that are willing and able to review a manuscript. Because we do not ask all of these >10 people at the same time, this sometimes means that some of the manuscripts remain in our system for a long time. This problem is also caused by reviewers that simply do not respond to our request, making it difficult for us to determine whether it is time to select new potential reviewers or wait a little longer. So, I would urge everyone that reads this to click on the decline or unavailable link if you are not able or not willing to review a particular manuscript for Beneficial Microbes. Hopefully that will reduce the average throughput time in Manuscript Central (MC). By the way, I'd sincerely like to thank those reviewers that do this already and especially those that take the time to suggest another potential reviewer. This makes the life of the SEs a lot easier.

This year we have started to renew/increase our board of section editors. With the current number of manuscripts submitted, the workload for some of the SEs had become too great, which also caused a longer-than-wanted throughput time in MC. So, if you are young (wild J) and willing to become an SE, please contact the editor-in-chief and send your CV.

Back to science. If we understand on the molecular level how probiotics and/or members of the microbiota interact with the host and which bugs are important for that, and if we can couple that to the functional benefits in an animal or clinical trial, then I foresee that in the near future products will once again be allowed to carry health claims. This requires good studies in the target-host, i.e. a human, or an animal in the case of pro- and prebiotics developed for e.g. livestock or pets.

As a matter of fact, this year as well we are seeing an increase in the number of clinical and animal trials that are being published in Beneficial Microbes. Take this current issue: Murphy *et al.* (2019) report that the administration of probiotic *Lactobacillus rhamnosus* HN001 in early life has been shown to reduce the risk of infant eczema. They provide evidence that the strain alters infant gut microbiome functional capacity but not microbiota composition. In another study, Russo *et al.* (2019) describe the efficacy of a probiotic mixture, including the same HN001 strain and *Lactobacillus acidophilus* GLA-14, in combination with bovine lactoferrin, as adjuvant therapy to metronidazole in

women with recurrent bacterial vaginosis. The results show that, compared to metronidazole alone, symptoms (vaginal discharge and itching), Nugent score and recurrence rate were significantly improved by the probiotics in association with lactoferrin. Wing and Kremenchutzky (2019) review the current knowledge about the immune system and gut bacteria interactions and discuss faecal microbial transplantation as a potential intervention to ameliorate gut dysbiosis in multiple sclerosis, as well as the caveats of clinical trial designs in this disease.

In the animal world, Garcia *et al.* (2019) show the beneficial effects of the mycotoxin-binding *Saccharomyces cerevisiae* RC016 in weaned piglets. After determining the anti-inflammatory potential of the strain *ex vivo* using jejunal explants, oral administration of *S. cerevisiae* RC016 to weaned piglets increased secretory IgA, the number of goblet cells in the small intestine and all of the growth parameters measured. Another animal trial evaluated the protective effect of *Lactobacillus reuteri* KUB-AC5 against *Salmonella* Enteritidis in chickens (Nakphaichit *et al.*, 2019). Compared to the control, both a low and high dose of KUB-AC5 was shown to prevent *S.* Enteritidis colonisation in the ileum and caecum at age 14, 21 and 35 days. Only the high dose of KUB-AC5 supplementation also enhanced the amount of *Lactobacillaceae* in the growing stage in both the ileum and caecum and affected suppression of *Enterobacteriaceae* in the finisher stage on day 35.

Other publications in this issue deal with mechanistic studies. Kim *et al.* (2019) show that *Bifidobacterium longum* IM55 and *Lactobacillus plantarum* IM76 alleviate allergic rhinitis in a mouse model by restoring the Th_2/T_{reg} imbalance and gut microbiota dysbiosis. In a mouse model of lung inflammation, Panebianco *et al.* (2019) showed that docosahexanoic acid, vitamin C and vitamin E, and the *Bifidobacterium lactis* Bb12 strain prevented induced lung inflammation in a synergistic combination, whereas the individual components did not.

A contribution by my own team describes the mechanisms behind the increase in plant protein digestion by spores of the probiotic *Bacillus coagulans* GBI-30, 6086 (BC30), which show high germination, survival and enzyme activity in a validated *in vitro* model of the human upper GI tract (TIM-1). Metabolomics analyses showed increased free amino acids and dipeptides upon BC30 addition to a meal containing protein (Keller *et al.*, 2019). In another study, Kurose *et al.* (2019) describe how the addition of conditioned-medium obtained from *Bifidobacterium breve* strain B-3 to Caco-2 cells for 24 h increased trans-epithelial electrical resistance (TEER). Further analyses demonstrated an increase in claudin-4 expression, by enhancing the transcriptional upregulation of claudin-4. The culture medium contained a significant amount of acetic acid. Subsequent administration of acetic acid to Caco-2 cells partially mimicked the conditioned-medium increase in TEER but failed to increase claudin-4 expression. Taken together this showed that several bioactive factors secreted by *Bifidobacterium breve* B-3 enhanced the tight junction barrier integrity in intestinal Caco-2 cells. Lastly, Martín *et al.* (2019) showed the role of OppA, a surface protein of *Lactobacillus salivarius* Lv72, in adhesion to heparin sulphate and chondroitin sulphate of host cells. Substitution of critical basic amino acids by acidic ones in two of five potential domains for glycosaminoglycan-binding in the protein prevented adhesion, indicating their importance in *Lactobacillus* adhesion.

We, the editorial board, the editorial office and I, the editor-in-chief, are proud to be part of yet another exciting year for Beneficial Microbes.

Koen Venema

Editor-in-chief

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