Palni Kundra, Dr. sc.
In der Lachen 10
CH-8953 Dietikon
Switzerland
Email: palnikundra@gmail.com
Tel: +41 77 993 58 99

dsm-firmenich
Wurmisweg 576
CH-4303 Kaiseraugst
Switzerland

August 12, 2024

Dear Members of the Hiring Committee,

I am writing with genuine excitement about the Application Scientist (Biotics) position at dsm-firmenich. My doctorate from the Laboratory of Food Biotechnology at ETH Zurich, which focused on the complex interactions between vitamins B9 and B12, human gut microbial communities, and probiotic gut microbes, has put me at the forefront of biotics research. I believe my expertise uniquely qualifies me to drive innovation in your team's groundbreaking work in dietary supplements, medical, and early life nutrition.

My research experience not only fits perfectly with the key responsibilities outlined in the job description but also shows my passion for pushing the boundaries of nutritional science:

1. **Solution development:** My doctoral research explored the effects of dietary and gut-microbially produced vitamins B9 and B12 on complex gut microbiota and individual gut microbes. This work has given me valuable insights for developing cutting-edge solutions in prebiotics, probiotics, and postbiotics. For instance, I discovered how different vitamin B12 forms uniquely affect certain bacteria in the gut, boosting propionate production and potentially improving overall health. I am excited to turn this knowledge into real products that could transform dietary supplements, nutrition, and health.

2. **Prototype development:** During my Ph.D., I gained extensive experience in designing and carrying out complex experimental protocols. My work with batch fermentations to study human gut microbial communities and single gut microbes as well as with their inactivated preparations (postbiotics) showcases my versatility in handling various biotics formats, a skill crucial for innovative product development.

3. **Stability studies and data analysis:** My research required careful attention to detail in setting up and coordinating stability studies for various vitamin forms and doses. I have become proficient in analyzing complex data sets, from metagenomic data to metabolite profiles, using advanced techniques such as HPLC-RI and UHPLC-DAD. For example, I developed a method to measure different vitamin B12 forms produced by gut bacteria using UHPLC-MS/UV. This experience will be valuable in making data-driven decisions in product development and ensuring the stability and effectiveness of biotics formulations.

4. **GMP laboratory maintenance:** My background in food science, combined with thorough laboratory experience at ETH Zurich and industrial internships at Markfed Canneries and Verka Milk plant, has taught me the importance of maintaining high standards and following safety protocols. I am familiar with environmental monitoring practices and careful data recording, which are essential for maintaining GMP standards in biotics production.

5. **Documentation, reporting, and external collaboration:** I have a strong track record in writing detailed scientific reports, preparing research findings for publication, and presenting at international conferences. This demonstrates my ability to communicate complex scientific ideas clearly and effectively. During my

Ph.D., I worked with researchers across different fields and institutions. This experience has improved my ability to work effectively across organizational boundaries and foster a collaborative environment that drives innovation - skills I am keen to bring to your team

My doctoral research has led to several impactful publications that demonstrate my expertise in biotics and nutrition science. These include studies on how different vitamin B12 analogues from gut microbes and diet distinctly impact commensal propionate-producing bacteria in the human gut, enhancing propionate production and potentially improving overall health (*Frontiers in Nutrition*, 2024); how healthy adult gut microbiota can sustain its own vitamin B12 requirement in an in vitro batch fermentation model (*Frontiers in Nutrition*, 2022); and a review exploring the role of dietary micronutrients on gut microbial dysbiosis and modulation in inflammatory bowel disease (*Molecular Nutrition & Food Research*, 2021). Additionally, my recent work (submitted to *BMC Microbiology*, 2024) investigates the effect of microbially-produced vitamin B9 on the growth and metabolism of a butyrate producing beneficial gut bacteria, opening new avenues to produce live biotherapeutics.

While the position requires a master's degree, my Ph.D. in gut microbial biotechnology offers advanced expertise valuable to this role. My educational background - a Bachelor's in Food Science and Technology, a Master's in Food Science, and a doctorate - provides a solid foundation in food science, nutrition, and gut microbiology and biotics, along with strong analytical and critical thinking skills.

Additionally, my language skills, including fluency in English and intermediate German (B1 spoken), will help me communicate effectively in the Swiss work environment and with international colleagues.

I am truly excited about dsm-firmenich's commitment to advancing biotic and nutrition science. I am eager to bring my expertise, dedication, and collaborative spirit to your team, working to develop groundbreaking solutions that positively impact human health across all life stages.

Thank you for considering my application. I am available for interviews on August 19th and 20th and can start immediately. I look forward to the possibility of discussing how I can contribute to dsm-firmenich's continued success and leadership in nutrition science.

Sincerely,

Palni Kundra

P.S. I would like to mention that I am also applying for the "Pharma & Biological Model Lead" role within dsm-firmenich. My strong interest in both roles comes from my expertise and passion for innovative research in biotics to improve nutrition and health. I believe my skills and experience could be valuable in either position, and I am excited about the prospect of contributing to dsm-firmenich's mission in whichever role best fits the company's needs.