Palni Kundra, Dr. sc. Ringstrasse 15 CH-8107 Buchs (ZH)

E-mail: palnikundra@gmail.com

Phone: +41779935899

Prof. Dr. med. Johannes Häberle Head of Metabolic Laboratory University Children's Hospital Zurich

31 October 2024

Dear Prof. Häberle,

I am writing to express my strong interest in the Postdoctoral Researcher position focusing on rare Urea Cycle Disorders (UCDs) in your laboratory. With my PhD in gut microbial biotechnology from ETH Zurich and extensive experience in metabolic research, I am particularly excited about the opportunity to contribute to advancing our understanding of UCD pathology and developing therapeutic strategies.

During my doctoral research at ETH Zurich, I investigated the modulatory potential of dietary and gut microbially produced vitamins B9 and B12 on the adult human gut microbiota and its metabolic activity. I believe these skills would transfer directly to studying metabolic disorders and analyzing clinical and biological data from UCD patients. My key technical competencies include:

- Development of complex experimental designs to understand the role of vitamins on the growth and metabolism of human gut microbes
- Development of advanced analytical methods including liquid chromatography and mass spectrometry to detect and quantify novel vitamin B9 and B12 forms produced by human gut microbes
- Extensive data analysis and interpretation including metagenomic analysis and bioinformatics expertise

My track record of five peer-reviewed publications demonstrates my contributions towards extensive knowledge in protocol development and experimental design, as well as my ability to analyze complex data and communicate findings effectively to diverse audiences. Moreover, throughout my career, I have successfully collaborated with international research teams and mentored students, developing strong communication and leadership skills.

I am motivated in this position because of its unique combination of basic research and clinical applications, offering the meaningful opportunity to improve patients' lives. The position aligns well with my career aspirations of applying multidisciplinary expertise to advance scientific discovery (especially rare disorder) through development, transforming research insights into practical pharmaceutical solutions that benefit patients. The prospect of combining postdoctoral research work with clinical transition is especially motivating to me. I am enthusiastic about working with clinicians, scientists, and patient organizations to advance our understanding of UCDs. While I am new to clinical trials, I have proactively completed training in ICH E6(R2) interpretation and application through the MRCT Center of Brigham and Women's Hospital and Harvard, demonstrating my commitment to understanding clinical research regulations.

I am confident that my strong background in biochemical and analytical methods, combined with my proven ability to lead complex research projects and collaborate effectively, makes me an ideal candidate for this position.

Thank you for considering my application. I look forward to discussing how my skills and experience can contribute to your research program.

Sincerely,

Palni Kundra

PALNI KUNDRA

Biotechnology, Food Science, Microbiology, Nutrition, Vitamins, Metabolomics



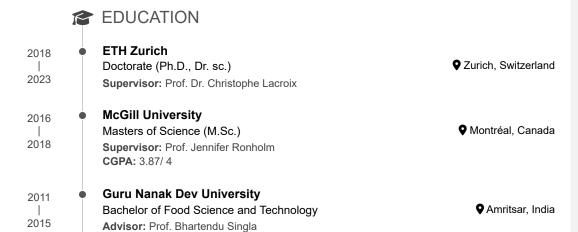
PERSONAL STATEMENT

As a Ph.D. graduate from ETH Zurich, I bring expertise in microbial metabolism and advanced analytical techniques. I am skilled in developing and optimizing methods for metabolite quantification using UHPLC-UV/MS in complex biological samples. I have extensive experience in analyzing metabolic pathways and interpreting diverse datasets, including metagenomic data. Throughout my career, I have successfully led research projects, mentored junior scientists, and collaborated effectively in multidisciplinary environments. I am eager to apply my analytical expertise and interdisciplinary background to advance research in metabolic disorders, particularly focused on understanding complex metabolic pathways and their clinical implications.



KEY COMPETENCIES

- Possess in-depth knowledge across various scientific disciplines, including food science, microbiology, nutrition, gastroenterology, probiotics, biotechnology and biology.
- Proficient in translating complex scientific concepts into clear, engaging content, as well as translating scientific findings into actionable next steps.
- Proficient in designing, implementing, and executing research projects, encompassing laboratory techniques, statistics and bioinformatics.
- Proven ability to collaborate effectively with internal and external teams.





WORK AND RESEARCH EXPERIENCE

Sep 2018 | Jun 2023

Scientific Assistant ETH Zurich

CGPA: 8.7/ 10 (Gold medalist)

• Supervisor: Prof. Dr. Christophe Lacroix

- ♥ Zurich, Switzerland
- Completed a multi-year research project investigating the modulatory potential of dietary and gut-microbially produced vitamin B9 and B12 on the complex gut microbiota, as well as on single next generation probiotic gut microbes.
- Led the planning and execution of laboratory experiments, developed experimental and analytical methods (UHPLC-UV/MS), and analyzed metagenomic and other data types.
- Completed project deliverables by preparing research findings for publication in scientific journals.
- Presented research findings at scientific conferences, effectively communicating complex scientific concepts to diverse audiences.
- Mentored Bachelor's and Master's students throughout their thesis projects, and facilitated a semester laboratory course, enhancing hands-on learning experiences.



AWARDS AND MEDALS

Gold medal (Bachelor Studies) University topper 2015

Poster presentation award
Second prize, Green tea ice cream
Presented at science exhibition
2015

COMPUTATIONAL SKILLS

Bioinformatics skills: metagenomic data analysis Programming: R, Bash Version control: git Project management: GitHub

LANGUAGES

English (Native, C1)
German (Written A2, spoken B1)
Hindi (Native)
Punjabi (Native)

CONTACT INFO

■ palnikundra@gmail.com ↓ +41 77 993 58 99

MORE INFO

© 0000-0002-8999-6451
in palnikundra

Palni Kundra

R⁶ Palni_Kundra

pkundra

May-Sep 2017

Graduate research project

McGill University

Montréal, Canada

- Supervisor: Prof. Jennifer Ronholm
- Conducted whole-genome SNP-based analysis to identify changes under laboratory conditions in major foodborne pathogens responsible for global outbreaks.
- Provided support for preparing the manuscript for publication.

Jan-Feb 2015

Student research assistant

Guru Nanak Dev University

Amritsar, India

- · Supervisor: Prof. Pankaj Gupta
- Developed an innovative food product Green tea ice cream.
- · Performed sensory and organoleptic evaluation.
- · Presented the product at scientific conference.

Jul 2014

Student research assistant

Guru Nanak Dev University

Amritsar, India

Mar 2015 • Superviso

• Supervisor: Prof. Bhartendu Singla

• Developed various innovative soy-based food products to enhance gluten-free product.

May-Jun 2013

Research internship

Indian Council of Agricultural Research

Q Ludhiana, India

- · Supervisor: Dr. Pranita Jaiswal
- Applied a non-destructive quality control approach to a develop spectrophotometeric method for the detection of Soy-milk adulteration in cow milk.
- · Performed spectrophotometer analysis.

Jun 2013 & Jul 2014

Industrial internship

Markfed Canneries

Jalandhar, India

• Performed microbiological testing and applied quality control assurance techniques.

Jun-Jul 2013

Industrial internship

Verka Milk plant

Jalandhar, India

• Performed microbiological testing and applied quality control assurance techniques.



SCIENTIFIC PUBLICATIONS

Peer-reviewed Publications

Palni Kundra, Annelies Geirnaert, Benoit Pugin, Serafina Plüss, Susanna Kariluoto, Christophe Lacroix, Anna Greppi. Microbially-produced folate forms support the growth of Roseburia intestinalis but not its competitive fitness in fecal batch fermentations. 2024. BMC microbiology. ©: 10.1186/s12866-024-03528-6

Palni Kundra, Anna Greppi, Monica Duppenthaler, Serafina Plüss, Benoit Pugin, Christophe Lacroix, Annelies Geirnaert. Vitamin B12 analogues from gut microbes and diet differentially impact commensal propionate producers of the human gut. **2024**. *Frontiers in Nutrition*. **3**: 10.3389/fnut.2024.1360199

Palni Kundra, Annelies Geirnaert, Benoit Pugin, Paola Morales Martinez, Christophe Lacroix, Anna Greppi. Healthy adult gut microbiota sustains its own vitamin B12 requirement in an in vitro batch fermentation model. 2022. Frontiers in Nutrition. 2: 10.3389/fnut.2022.1070155

Palni Kundra, Carole Rachmühl, Christophe Lacroix, Annelies Geirnaert. Role of dietary micronutrients on gut microbial dysbiosis and modulation in inflammatory bowel disease. 2021. *Molecular Nutrition & Food Research.* ©: 10.1002/mnfr.201901271

Nicholas Petronella, **Palni Kundra**, Olivia Auclair, Karine Hébert, Mary Rao, Kyle Kingsley, Katrien De Bruyne, Swapan Banerjee, Alexander Gill, Franco Pagotto, Sandeep Tamber, Jennifer Ronholm. Changes detected in the genome sequences of Escherichia coli, Listeria monocytogenes, Vibrio parahaemolyticus, and Salmonella enterica after serial subculturing. **2019**. *Canadian Journal of Microbiology*. **20:** 10.1139/cjm-2019-0235



Jun 2023

Doctor of Sciences

Palni Kundra, 2023. Dr. sc. Thesis. The effect of exogenous and endogenous vitamin B9 and B12 on microbial growth and metabolism in the human gut. 49: 10.3929/ethz-b-

Jan 2018

Master of Science

Palni Kundra, 2018. M.Sc. Research project. Single Nucleotide Polymorphisms in major food-borne pathogens.



Master projects at ETH Zurich

Monica Duppenthaler Vitamin B9 and B12 driven trophic interactions in the human gut. Master in Food Science. Jul 2021 - Jan 2022 (Thesis)

Janik Mutter Vitamin B9 production and cross feeding among human gut microbial strains. Master in Biology. Mar 2021 - Jul 2021 (Research project)

Bachelor thesis projects at ETH Zurich

Sabina Galli B-vitamin bio-factory in the gut: In-vitro vitamin B9 production and utilization by human gut microbes. Bachelor in Food Science. Jul 2022 - Oct 2022

Sara De Crescenzo In-vitro Vitamin B12 Production by Human Gut Bacteria. Bachelor in Food Science. Jul 2021 - Oct 2021

Giuliano Menegon B-vitamin sharing: In-silico and in-vitro study to determine B9 and B12 cross-feeding between human gut microbial strains. Bachelor in Food Science. Jun 2020 - Nov 2020

Lucie Kuhn Give them vitamins: Impact of B9 and B12 on the acetate and butyrate production on human gut microbes. Bachelor in Food Science. Nov 2019 - Feb 2020

Blandine Genet Give them vitamins: Impact of B9 and B12 on the butyrate and propionate production on human gut microbes. Bachelor in Food Science. Jun 2019 - Sep 2019

♣ TEACHING

2019 2022

Jul 2021

Feb 2015

Jan 2015 752-5004-00L: Food Biotechnology Laboratory Course

Zurich, Switzerland

Main responsible for cheese practical (2019 & 2020) and sour dough bread practical (2021 & 2022).

ORAL AND POSTER PRESENTATIONS

Human Gut Microbial Strains Produce Vitamin B12 Sep 2021

Denmark 6th International Vitamin Conference

In-Vitro Vitamin B12 Production by Human Gut Microbial Strains ANAEROBE 2021: THE MICROBIOTA AND BEYOND

Development of soy-based product and their organoleptic evaluation Advances in agricultural Science & biotechnology, DAV College Jalandhar

"Green tea ice cream" Science exhibition, DAV College Jalandhar Online

Semester course

Oral & Poster

Poster

Poster India

Poster

India

	-	WORKSHOPS/ COURSES (NOT ON TRANS	CRIPTS)
2024	•	Interpretation and Application of ICH E6(R2) by Multi-Region (MRCT)	
		The MRCT Center of Brigham and Women's Hospital and Harvard	♥ (Online), Switzerland
2024		A practical introduction to bioinformatics and RNA-seq using Galaxy Training Network Sequencing, quality control and reference based mapping, Differential governments of Deseq2, Bioinformatic and RNA-seq data analysis on Galaxy Platform.	♥ (Online), Switzerland ene expression,
2023	•	PMDA Summer School Roche Predictive modelling and data analytics summer school to solve problem and development.	♥ Basel, Switzerland ns in drug discovery
2022	•	Project Management for research – for doctoral students	
		ETH Zurich Project risk management, project management.	♀ Zurich, Switzerland
2021	•	Scientific poster design	
		University of Zurich content structure, typography do's and don'ts, design principles, design image editing, perception, color theory.	♥ Zurich, Switzerland grids, design tools,
2021	•	Energy and stress management: How to perform in the sto	orm
		University of Zurich Energy management, understand obstacles and overcome them, achiev	♥ Zurich, Switzerland /e targeted change.
2021	•	Time and self management for PhD Candidates ETH Zurich Assess habits, values, goals, energy, and time management techniques	▼ Zurich, Switzerland
2021		Leadership skills for PhD Candidates	
2021		University of Zurich Management, leadership, needs analysis, behavior, destructive leadersh	♥ Zurich, Switzerland nip, and case studies.
2020	•	Statistics for Experimental Research	
		ETH Zurich Experimental designs, statistical analyses using R, report analyses and scientifically appropriate manner.	♥ Zurich, Switzerland results in a
2018	•	Mass spectrometry-based metabolomics - from theory to prefunctional Genomics Center of University and ETH Zurich	oractice ♥ Zurich, Switzerland
		Metabolomics overview, and data analysis and interpretation.	
2017		Introduction to genomic analysis Compute Canada & University of British Columbia UNIX programming, alignment, Variant calling and annotation, data visu including statistical analysis.	♥ (Online) Canada alization, and RNA-Seq
2014	•	36 th Post-harvest technology - short course University of California, Davis Advanced Crops handling and harvesting systems.	♥ Davis, USA



Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich Institute of Food, Nutrition and Health Department of Health Sciences and Technology

ETH Zurich

Prof. Dr. Christophe Lacroix

Head, Laboratory of Food Biotechnology

ETH Zentrum LFV C 20

Schmelzbergstrasse 7

CH-8092 Zürich, Switzerland

Phone +41 44 632 48 67 Fax +41 44-632 14 03 christophe.lacroix@hest.ethz.ch www.fbt.ethz.ch

Zurich, 20 July 2023 LC

Letter of reference

Palni Kundra, born on November 30, 1991 and a citizen of Indien, was 100.00 % employed by ETH Zurich as doctoral student from September 1, 2018 until June 30, 2023. About 30,000 people from more than 120 countries study, carry out research and work at ETH Zurich.

Ms Palni Kundra's duties and responsibilities in this capacity primarily comprised:

- working on her own thesis in the specialist field of Food Biotechnology on the subject of modulation effects of B-vitamins on the human gut microbiota
- publishing her research results in the form of papers, conference papers, articles for books
- publishing her research results in the form of papers in recognised specialist journals
- presenting papers at academic conferences
- supervising students writing semester papers and/or Master theses
- guiding Bachelor students during exercise and practical sessions
- supervising Master students during practical work in the laboratory/institute/field

Palni Kundra possessed proven expertise and extensive experience in her area of responsibility. She successfully applied herself to new duties and used the acquired knowledge with good results. The effort she put into her work was in proportion to the achieved outcome, and she met the requirements. With her rational and precise approach to her work, she always delivered a good performance. Her good command of languages was of great value for the communication in her work environment.

Palni Kundra showed initiative and complete commitment. Under challenging conditions, she remained calm and assured, adapting to changing circumstances with ease. Perceptive in evaluating the scope and impact of her actions, she was careful when weighing up the related risks and opportunities. In the decision-making process she exercised autonomy blended with a great deal of expertise. When arranging the deployment of staff, she was good at doing so according to need and objective. It was important to her to align her outlook and her actions with the goals of Food Biotechnology.

Letter of reference

Palni Kundra immediately conveyed key information to the relevant recipients, and chose the appropriate moment to involve management when the situation demanded it. In terms of verbal and writing skills, she displayed tremendous adroitness when tailoring her communications to her addressees. Moreover, she was adept at presenting her own ideas in a convincing manner. She took on board other opinions and constructive criticism; she listened to what was said and was tuned in to the needs of her conversational partners. She supported and encouraged collaboration within the team and was highly adept at reconciling differing views. Management, staff and students alike appreciated her greatly and held her in high esteem.

Palni Kundra left us on expiry of her fixed-term employment contract. We thank her for her contribution and wish her every success going forward.

Christophe Lacroix

CLacroix

Cynthia Kümin

verleiht

Palni Kundra

geboren am 30. November 1991 Master of Science, McGill University

den Titel

DOKTORIN DER WISSENSCHAFTEN

aufgrund der Doktorarbeit

ON MICROBIAL GROWTH AND METABOLISM IN THE HUMAN GUT THE EFFECT OF EXOGENOUS AND ENDOGENOUS VITAMIN B9 AND B12

Leiter der Doktorarbeit: Prof. em. Dr. Christophe Lacroix

und der mündlichen Prüfung vom 21. Juni 2023

Zürich, 27. November 2023

Gesundheitswissenschaften und Technologie Die Vorsteherin des Departements

July Disenton

Prof. Dr. Laura Nyström

Prof. Dr. Günther Dissertori

Swiss Federal Institute of Technology Zurich Eidgenössische Technische Hochschule Zürich



McGILL UNIVERSITY MONTREAL

WE, THE GOVERNORS, PRINCIPAL, AND FELLOWS OF McGILL UNIVERSITY TESTIFY THAT TO ALL TO WHOM THESE PRESENTS MAY COME, GREETING:

Palni Kundra

HAVING DILIGENTLY COMPLETED THE REQUIRED COURSE OF STUDY AND PERFORMED THE PRESCRIBED EXERCISES HAS BEEN ADMITTED TO THE DEGREE OF

MASTER OF SCIENCE

WHEREOF WE HAVE AFFIXED OUR SIGNATURES AND HAVE CAUSED THE SEAL OF THE UNIVERSITY TO BE WITH ALL THE HONOURS, PRIVILEGES, AND PREROGATIVES PERTAINING TO THAT DEGREE, IN WITNESS ATTACHED HERETO. GIVEN IN CONVOCATION THIS 6TH DAY OF JUNE IN THE YEAR 2018

Malbantofle

REGISTRAR

Nitaul A. Minge

Sugarno Patier

PRINCIPAL

CHANCELLOR



गुंच राह्य रेंड प्रतिस्वित





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Gurul Nanak Dev University

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	Division (with Distinction).	has been admitted to the Degree	HAR	(海母乳母祖张島) KIRAN KISHORE KUNDRA	1

ਪੁਫੈਸਰ ਇੰਚਾਰਜ (ਪੁੰਖਿਆਵਾਂ) ਅੰਮ੍ਤਿਸਰ] *June* 17, 2015 Amritsar] Professor Incharge (Exams.)

> X Devision ਰਜਿਸਟਰਾਰ

Registrar

Siben under the seal of the University ਵਾਈਸ-ਚਾਂਸਲਰ

Vice-Chancellor

Chancellor ਚਾਂਸਲਰ





Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich

Functional Genomics Center Zurich

Universität Zürich / ETH Zürich Functional Genomics Center Zurich Winterthurerstrasse 190 CH-8057 Zürich Telefon +41 44 635 39 21 Telefax +41 44 635 39 22 www.fgcz.ch ngs.courses@fgcz.ethz.ch proteomics@fgcz.ethz.ch

CONFIRMATION OF ATTENDANCE

Palni Kundra

successfully completed the course

'Mass spectrometry-based metabolomics – from theory to practice'

The participant:

- Attended all introductory lectures, practical tutorials and lab sessions
- Got acquainted with several LC-MS technologies and applications
- Learned the principles and operations of MS platforms
- Learned how to carry out the entire process of mass spectrometry-based metabolomics, including data analysis and interpretation of the results.

Content of the course:

Lectures

- · Introduction to metabolism and metabolomics
- Introduction to LC-MS technologies and different applications
- · Introduction to MS data analysis in untargeted and targeted mode
- Introduction to sample preparation and experimental design

Tutorials

- Principles of quality control (QC)
- Technical QC of mass spectrometry results using specific software
- Data analysis and metabolite identification with hands-on exercises for untargeted mass spectrometry data
- Data analysis and quantification with hands-on exercises for targeted mass spectrometry data

Practical lab sessions

- Sample preparation workflow, including:
 - Sample extraction
 - Sample reconstitution
 - Sample acquisition
- Nano LC/MS setup and standard QC on Thermo Q-Exactive and QqQ Quantiva

Organizer: Serena Di Palma, Endre Laczko

Instructors: Serena Di Palma, Endre Laczko, Stefan Schauer, Sebastian Streb

Credit points:

Dates: 5 November - 8 November 2018

Location: University of Zurich

Zürich, 13.11.2018

Dr. Serena Di Palma

Serve No Pele



CERTIFICATE OF COMPLETION

Palni Kundra

has completed Version 1.0 of

Interpretation and Application of ICH E6(R2)

Online Course of 10 Modules.

This course is an ICH Recognised Training Programme.

Cambridge, Massachusetts - September 23, 2024

<u>Barbara E. Bierer, MD</u> MRCT Center Faculty Director