

PALNI KUNDRA

Biotechnology, Microbiology, Microbiome, Food Science

KEY COMPETENCIES

- In-depth knowledge across various scientific disciplines, including food science, nutrition, gastroenterology, microbiology, biotechnology and biology
- Proficient in translating complex scientific concepts into clear, engaging content
- Proficient in designing, implementing, and executing research projects, spanning laboratory techniques and bioinformatics for scientific solutions
- Skilled at translating scientific findings into actionable recommendations
- Proven ability to collaborate with interdisciplinary teams, fostering project success
- Deep-seated desire for contributing to the scientific community

EDUCATION

- 2018
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2023
- **ETH Zurich**
Doctoral student
Supervisor: Prof. Dr. Christophe Lacroix
📍 Zurich, Switzerland
- 2016
|
2018
- **McGill University**
Masters of Science (M.Sc.)
Supervisor: Prof. Jennifer Ronholm
CGPA: 3.87/ 4
📍 Montréal, Canada
- 2011
|
2015
- **Guru Nanak Dev University**
Bachelor of Food Science and Technology
Advisor: Prof. Bhartendu Singla
CGPA: 8.7/ 10 (*Gold medalist*)
📍 Amritsar, India

WORK AND RESEARCH EXPERIENCE

- Sep 2018
|
Jun 2023
- **Scientific Assistant**
ETH Zurich
📍 Zurich, Switzerland
• **Supervisor:** Prof. Dr. Christophe Lacroix
• Bioinformatics
• Microbiome and Metagenomics
• Supervising students
- May-Sep
2017
- **Graduate research project**
McGill University
📍 Montréal, Canada
• **Supervisor:** Prof. Jennifer Ronholm
• Food-borne outbreak investigation
• SNP based analysis
• Whole-genome sequencing analysis
- Jan-Feb
2015
- **Student research assistant**
Guru Nanak Dev University
📍 Amritsar, India
• **Supervisor:** Prof. Pankaj Gupta
• Green tea icecream
• Innovative food product development
• Organoleptic evaluation
- Jul 2014
|
Mar 2015
- **Student research assistant**
Guru Nanak Dev University
📍 Amritsar, India
• **Supervisor:** Prof. Bhartendu Singla
• Innovative gluten-free product development
• Various soy-based food products
- May-Jun
2013
- **Research internship**
Indian Council of Agricultural Research
📍 Ludhiana, India
• **Supervisor:** Dr. Pranita Jaiswal
• Spectrophotometer analysis
• Soy-milk adulteration detection in cow milk
• Non-destructive QC approach



ABOUT

I am dedicated to contributing to scientific community through my expertise in multidisciplinary academic background.

SKILLS

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

MORE INFO

🆔 0000-0002-8999-6451
in [palnikundra](#)
📧 [Palni Kundra](#)
R^e [Palni_Kundra](#)
🌐 [pkundra](#)

LANGUAGES

English (Native, C1)
German (A1)
Hindi (Native)
Punjabi (Native)

CONTACT INFO

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☎ +41 77 993 58 99



MEDALS AND AWARDS

- 2015 ● **Gold medal**
Bachelor of Food Science and Technology *University topper*
- 2015 ● **Poster presentation award (Second prize)**
Green tea ice cream *Presented at science exhibition*



MENTORING

- **Master projects at ETH Zurich**

Monica Duppenhaler 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 ● **752-5004-00L: Food Biotechnology Laboratory Course**
ETH Zurich  Zurich, Switzerland
Main responsible for cheese practical (2019 & 2020) and sour dough bread practical (2021 & 2022).



ORAL AND POSTER PRESENTATIONS

- Sep 2021 ● **Human Gut Microbial Strains Produce Vitamin B12**
6th International Vitamin Conference  Denmark
- Jul 2021 ● **In-Vitro Vitamin B12 Production by Human Gut Microbial Strains**
ANAEROBE 2021: THE MICROBIOTA AND BEYOND  Online
- Feb 2015 ● **Development of soy-based product and their organoleptic evaluation**
Advances in agricultural Science & biotechnology, *DAV College Jalandhar*  India
- Jan 2015 ● **"Green tea ice cream"**
Science exhibition, *DAV College Jalandhar*  India

CHECK MY PUBLICATIONS

[Link](#)

Scan



Semester course

Oral & Poster

Poster

Poster

Poster



WORKSHOPS/ COURSES (NOT ON TRANSCRIPTS)

- 2023

- **PMDA Summer School**
Roche 📍 Basel, Switzerland
Predictive modelling and data analytics summer school to solve problems in drug discovery and development
- 2022

- **Project Management for research – for doctoral students**
ETH Zurich 📍 Zurich, Switzerland
Project risk management, project management
- 2021

- **Scientific poster design**
University of Zurich 📍 Zurich, Switzerland
content structure, typography do's and don'ts, design principles, design grids, design tools, image editing, perception, color theory
- 2021

- **Energy and stress management: How to perform in the storm**
University of Zurich 📍 Zurich, Switzerland
Energy management, understand obstacles and overcome them, achieve targeted change
- 2021

- **Time and self management for PhD Candidates**
ETH Zurich 📍 Zurich, Switzerland
Assess habits, values, goals, energy, and time management techniques
- 2021

- **Leadership skills for PhD Candidates**
University of Zurich 📍 Zurich, Switzerland
Management, leadership, needs analysis, behavior, destructive leadership, and case studies
- 2020

- **Statistics for Experimental Research**
ETH Zurich 📍 Zurich, Switzerland
Experimental designs, statistical analyses using R, report analyses and results in a scientifically appropriate manner
- 2018

- **Mass spectrometry-based metabolomics - from theory to practice**
Functional Genomics Center of University and ETH Zurich 📍 Zurich, Switzerland
Metabolomics overview, and data analysis and interpretation
- 2017

- **Introduction to genomic analysis**
Compute Canada & University of British Columbia 📍 (Online) Canada
UNIX programming, alignment, Variant calling and annotation, data visualization, and RNA-Seq including statistical analysis
- 2014

- **36th Post-harvest technology - short course**
University of California, Davis 📍 Davis, USA
Crops handling and harvesting systems



PUBLICATIONS

Published papers

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*. doi: [10.3389/fnut.2022.1070155](https://doi.org/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*. doi: [10.1002/mnfr.201901271](https://doi.org/10.1002/mnfr.201901271)

Nicholas Petronella, **Palni Kundra**, Olivia Auclair, Karine Hébert, Mary Rao, Kyle Kingsley, Katrien De Bruyne, Swapna 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*. doi: [10.1139/cjm-2019-0235](https://doi.org/10.1139/cjm-2019-0235)

In preparation

Palni Kundra, Anna Greppi, Monica Duppenhaler, 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.

Palni Kundra, Annelies Geirnaert, Benoit Pugin, Serafina Plüss, Susanna Kariluoto, Christophe Lacroix, Anna Greppi. Effect of microbially-produced vitamin B9 on the growth and metabolism of human gut microbes.

Submitted to *Frontiers in Nutrition*



THESES

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. doi: [10.3929/ethz-b-000641198](https://doi.org/10.3929/ethz-b-000641198)

Jan 2018

Master of Science

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