

Curriculum Vitae – Vivek V. Thacker

Personal Data

Title	Dr
First name	Vivek
Name	Thacker
Current position	Independent Research Group Leader
Current institution, country	Medical Faculty of the University of Heidelberg Germany
Identifiers/ORCID	0000-0002-1681-627X

Qualifications and Career

Stages	Periods and Details
Degree programme	Natural Sciences, 2006-2010, University of Cambridge, UK
Doctorate	2014, Prof Dr Ulrich F Keyser, Biophysics/DNA nanotechnology, University of Cambridge, UK
Stages of academic/professional career	10/2023 – Group Leader with permanent contract , Department of Infectious Diseases, University of Heidelberg 10/23-06/24, Visiting Scientist , École Polytechnique Fédérale de Lausanne (EPFL), Switzerland. Host: Prof John McKinney 10/21-09/23, Senior Scientist on permanent contract . EPFL, Switzerland. Host: Prof John McKinney 10/15-09/21, Postdoctoral Fellow , EPFL, Switzerland. Supervisor: Prof John McKinney 07/14-09/15, Postdoctoral Fellow , University of Cambridge, UK. Supervisor: Prof Ulrich Keyser.

Supplementary Career Information

Activities in the Research System

Teaching Activities

2023 – now: Lectures and Practicals in the Masters in Biosciences Infectious Diseases Track

2025: Fit for Teaching Module I, Baden-Wuerttemberg Certificate for University Teaching

2014 – 2015: Supervisor, Murray Edwards College, Cambridge – First year Maths for Scientists

2011 – 2013: Supervisor, Trinity College, Cambridge – First year Physics

2010 – 2011: Supervisor, Trinity College, Cambridge – Second year Physics

Peer Review

72 reviews for journals including *Nature*, *Cell*, *Nature Microbiology*, *eLife*, *PNAS*, *Science Advances*, *Cell Stem Cell*, *EMBO Rep*, *Advanced Sciences*, *Nat Commun*. Peer reviewer for grants for the Netherlands Institute for Health Research and Development, ANR France, DFG, Marató de 3Cat, Wellcome Trust, and internal grants for Institute Pasteur and the Francis Crick Institute.

2025: Interview Committee for the Masters in Biosciences Infectious Diseases Track

2022: Jury member, PhD thesis defence committee of Cristina Garcia Moutin at University Complutense Madrid

Supervision of Researchers in Early Career Phases

Postdocs: Richa Mishra (from 2022 at EPFL – now) on host directed therapy in TB (3 publications, 1 manuscript under review, 3 manuscripts in preparation). Vikas Yadav (2025 – now) cellular mechanobiology of cords. Mastura Neyazi (2025) on alveolar organoid models.

PhD student at Heidelberg: Vera Lechner (2025 – now) cord formation and antibiotic resistance. Anna Rafalik (2026 – now) on mechanobiology of mycobacterial cords

PhD students at EPFL: Gauri Paduthol (2021 – now): mini-bladder urinary tract infection model (manuscript accepted). Kunal Sharma (2015 – 2021): bladder-on-a-chip and organoid models for urinary tract infections caused by uropathogenic *E. coli* (2 publications). Cristina Garcia Mouton (2021): visiting PhD student from the Perez-Gil lab to study surfactant trafficking in lung-on-chip model (manuscript in review).

Masters students at HD: Molecular Biotechnology Masters thesis: Melanie Hoos (2026), Anna Rafalik (2025). Masters Rotations – Marc Kronan (2025), Jean-Philipp Heiss (2025), Alexandra Kummer (2024-25), Melanie Hoos (2024-25), Eugenia Guerrero (2024), Michelle Sommers (2024), Julian Menge (2024). Molecular Biosciences – Celina Ronge (2025) Melissa Klein (2024).

Masters students at EPFL: Alexandra-Elena Preda (2023), Gabriela Maria Kirsch (2022-23, 1 publication), Theo Nass (2021-22, 1 publication), Julius Winter (2018-19).

Masters/Bachelors students at EPFL: Kevin Nicholas (2019), Ankit Kumar (2019), Elisa Hemmig (2013-2015), Clare Xu (2011-12), Adam Thelwall (2014-15)

Scientific Results

Category A

Complete List on Google Scholar: bit.ly/3kz8Y4Z

1. Paduthol G, Sharma K^{*}, Nikolaev M^{*}, Blanc J, Tomasek K, Schlunke L, Borgeat V, Ambrosini G, Clerc-Rosset S, Knott GW, Lutolf MP[&], **Thacker VV[&]**, McKinney JD[&]. A microphysiological human mini-bladder reveals urine-urothelium interplay in tissue resilience and UPEC recurrence in urinary tract infections ([&]senior, corresponding authors). **Nature Communications** 2026. DOI: [10.1038/s41467-026-68573-3](https://doi.org/10.1038/s41467-026-68573-3)
This study uses a bioengineered bladder model with a perfusable lumen to uncover the deleterious impact of high urine osmolarity on bladder resilience and antibiotic clearance.
2. Yadav V, Sahoo S, Malhotra N, Mishra R, Ramani RS, Shanmugam S, Shandil RK, Narayanan S, **Thacker VV**, Jolly M, Seshasayee ASN, Singh A. Bioenergetic reprogramming of macrophages reduces drug tolerance in *M. tuberculosis*. DOI: 10.1101/2025.01.24.634842. **Nature Communications**, 16, 9370, 2025. DOI: 10.1038/s41467-025-64407-w
This study identified a host-directed therapy approach by altering mitochondrial bioenergetics to improve antibiotic treatment outcomes in TB
3. Olmo-Fontáñez, OM, Scordo JM, Schami A, Garcia-Vilanova A, Pino PA, Hicks A, Mishra R, Maselli DJ, Peters PI, Restrepo BI, Clemens DL, Steyn A, **Thacker VV**, Turner J, Schlesinger LS & Torrelles JB. Human alveolar lining fluid from the elderly promotes *M. tuberculosis* intracellular growth and translocation into the cytosol of alveolar epithelial cells. **Mucosal Immunology**, 17(2), 155-168, 2024. DOI: 10.1016/j.mucimm.2024.01.001

This study identified deleterious consequences of ageing on alveolar lining fluid function and the promotion of infection in permissive alveolar epithelial cells

4. Mishra R, Hannebelle M, Patil VP, Dubois A, Garcia-Mouton C, Kirsch G, Jan M, Sharma K, Guex N, Sordet-Dessimoz J, Perez-Gil J, Fantner G, Prakash , Knott G.W., Dhar N, McKinney JD, & **Thacker VV**. (senior author). Mechanopathology of biofilm-like Mycobacterium tuberculosis cords. **Cell** 2023, 186(23), 5135-5150.e28. DOI: 10.1016/j.cell.2023.09.016
This study established a new paradigm based on mechanobiology to understand the roles for the formation of cords in infection and consequences on pathology and antibiotic tolerance.
5. Gulen MF, Samson N, Keller A, Schwabenland M, Glück S, **Thacker VV**, Favre L, Mangeat B, Kroese L, Krimpenfort P, Prinz M, & Ablasser A. The cGAS-STING pathway drives inflammation and neurodegeneration in ageing. **Nature** 2023 620, 374-380. DOI: 10.1038/s41586-023-06373-1
This study identified the role of the cGAS-STING pathway in aged microglia as a driver for reactive microglial transcription, neurodegeneration and cognitive decline
6. di Domizio J*, Gulen MF*, Saidoune F*, **Thacker VV***, Yatim A*, Sharma K, Guenova E, Schaller M, Conrad C, Göpfert C, De Leval L, von Garnier C, Berezowska S, Dubois A, Gilliet M, & Ablasser A. (*first-authors). The cGAS-STING pathway drives type I IFN immunopathology in COVID-19. **Nature** 603, 145-151, 2022. DOI: 10.1038/s41586-022-04421-w
This study identified the GAS-STING activation from mitochondrial damage in endothelial cells as a driver for excessive type I IFN driven pathology in COVID-19.
7. **Thacker VV**, Sharma K, Dhar N, Mancini G, Sordet-Dessimoz J, & McKinney JD Rapid endotheliitis and vascular damage characterize SARS-CoV-2 infection in a human lung-on-chip model. **EMBO Reports** 2021; 22:e52744 (first and corresponding author). DOI:10.15252/embr.202152744
This study reported a human lung-chip model for SARS-CoV-2 in the early days of the COVID pandemic, and showed endothelial cell inflammation as a driver of alveolar inflammation.
8. Sharma K, **Thacker VV***&, Dhar N*[&], Signorino-Gelo F, Clapés Cabrer M, Dubois A, Mullenders J, Knott G, Clevers H, & McKinney JD[&]. Early invasion of the bladder wall by solitary bacteria protects uropathogenic *E. coli* from antibiotics and neutrophil swarms in an organoid model. **Cell Reports** 2021; 36(3):e109351 (*equal contribution, &corresponding author). DOI: 10.1016/j.celrep.2021.109351
This study was the first report of a mouse bladder model that showed that solitary bacteria can be seeded in the bladder early in infection that are protected from host immunity
9. Sharma K, Dhar N*[&], **Thacker VV***&, Simonet TM, Signorino-Gelo F, Knott G, & McKinney JD[&]. Dynamic persistence of UPEC intracellular bacterial communities in a human bladder-chip model of urinary tract infection. **eLife** 2021; 10: e66481 (*equal contribution, &corresponding author). Highlighted - eLife digest DOI: 10.7554/eLife.66481
This study was the first report of a human bladder-chip model which demonstrated via live-imaging how intracellular bacterial communities form, disperse bacteria, and protect bacteria from antibiotic clearance.

10. **Thacker VV**, Dhar N, Sharma K, Barrile R, Karalis K, & McKinney JD. A lung-on-chip infection model of early *M. tuberculosis* infection reveals an essential role for alveolar epithelial cells in controlling bacterial growth. *eLife* 2020; 9: e59961 (shared corresponding author) Highlighted - eLife digest & press release. DOI: 10.7554/eLife.59961

This study was the first report of a human lung-chip model for TB, where we demonstrated via live-imaging that pulmonary surfactant produced by alveolar epithelial cells were important drivers of protection and control of bacterial growth in early infection in TB.

Category B

1. Garcia-Mouton C, Mishra R, Sharma K, Nass T, Sommers M, Perez-Gil J[&], **Thacker VV[&]**. Vehiculation and functional delivery of lipophilic therapeutics and antibiotics via pulmonary surfactant in a lung-on-chip model. ([&]senior, corresponding author), *in revision at AJRCMB*. doi: [10.64898/2025.12.18.695116](https://doi.org/10.64898/2025.12.18.695116)
2. 3D Human Tissue Models for HIV Working Group (Yin DE... **Thacker VV**...Ndhlovu LC, Ott M). 3D Human Tissue Models and MPS for HIV and Related Comorbidities. *Trends Biotechnol.* 42(5), 526-543, 2024. DOI: [10.1016/j.tibtech.2023.10.008](https://doi.org/10.1016/j.tibtech.2023.10.008)
3. Dataset for Thacker V.V. et al., *eLife* 2020. DOI: 10.5281/zenodo.4266199
4. Dataset for Sharma K. et al., *Cell Reports* 2021. DOI: 10.5281/zenodo.4772819
5. Dataset for Sharma K. et al., *eLife* 2021. DOI: 10.5281/zenodo.5028262
6. Dataset for diDomizio...Thacker V.V et al., *Nature* 2022. DOI: 10.5281/zenodo.5818157
7. Dataset for Mishra R and Hannebelle M et al., *Cell* 2023. DOI: 10.5281/zenodo.7740872.
8. Dataset for diDomizio...Thacker V.V et al., *Nature* 2022. Accession Number: PXD030753
9. **Thacker VV**. Shining a light on ‘first contact’ in TB. *Science Breaker*, 2021 DOI: 10.25250/thescbr.brk503

Academic Distinctions

09/2024: Aventis Life Sciences Bridge Award 2024

05/2024: Swiss TB Award 2024 from the Swiss Foundation for Tuberculosis Research

2021 – now: Member, *eLife* Early Career Reviewer Panel

2021 – now: NCATS-N3CRs MPS in COVID Research (MPSCoRe) working group

2016 – 2019: Human Frontier Research Program Long-Term Fellowship

2016 – 2018: EMBO Long-Term Fellowship (held as a non-stipendiary fellowship)

2014 – 2015: College bye-fellowship, Churchill College, Cambridge

2011 – 2014: NanoDTC Associates Grant — £3500 grant over duration of PhD

2010 – 2013: JN Memorial Trust, CISS Scholarships for PhD fees and stipend

2006 – 2010: Trinity Overseas Fees, Commonwealth Trust Bursaries for fees and stipend

2007 – 2010: Trinity Junior and Senior Scholarships for performance in University Exams

2010: Trinity Science Essay Prize — *Size and scale in the low Reynolds number world*

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I expressly consent to the processing of the voluntary (optional) information, including “special categories of personal data”¹ in connection with the DFG’s review and decision-making

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process regarding my proposal. This also includes forwarding my data to the external reviewers, committee members and, where applicable, foreign partner organisations who are involved in the decision-making process. To the extent that these recipients are located in a third country (outside the European Economic Area), I additionally consent to them being granted access to my data for the above-mentioned purposes, even though a level of data protection comparable to EU law may not be guaranteed. For this reason, compliance with the data protection principles of EU law is not guaranteed in such cases. In this respect, there may be a violation of my fundamental rights and freedoms and resulting damages. This may make it more difficult for me to assert my rights under the General Data Protection Regulation (e.g. information, rectification, erasure, compensation) and, if necessary, to enforce these rights with the help of authorities or in court. I may **revoke** my consent in whole or in part at any time – with effect for the future, freely and without giving reasons – vis-à-vis the DFG (postmaster@dfg.de). The lawfulness of the processing carried out up to that point remains unaffected. Insofar as I transmit “special categories of personal data” relating to third parties, I confirm that the necessary legitimisation under data protection law exists (e.g. based on consent).

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