

Dr. Nalini Rama Rao, curriculum vitae brevis

INRAE Micalis Domaine de Vilvert 78350 Jouy en Josas, France.
nalini.ramarao@inrae.fr



Personal statement

I am Director of research at INRAE and the head of the PIMs (Pathogen Immunity and Microbiota) team.

<https://www.micalis.ovh/equipe/pims/>

My expertise is in the field of host-pathogen interactions. In my team, we characterize on one hand, the effects of the immune response on pathogenic bacteria, and on the other hand we develop innovative strategies to combat bacterial infections based on our knowledge and expertise on bacterial resistance to the host nitrogen immune response. We mainly focus on bacteria of the ESKAPE group (ie, *S. aureus*, *K. pneumoniae*, *P. aeruginosa*, *E. coli*) for which the WHO has recently pointed an alarming antibio-resistance issue.

My double education as a Biotechnology Engineer and as a researcher ensures the effective implementation of multidisciplinary projects. My work led to 51 international publications, 6 patent applications, over 20 international congresses and various national and international collaborations.

Education:

1996: Master in Cell and Molecular Biology (University of Strasbourg, France)

1996: Engineer Degree (ESBS, France, Germany, Switzerland)

2000: Ph.D. Max Planck Institute (University of Tübingen, Germany)

2010: HDR, Paris 7

2017: DR2, Inra Jouy en Josas

Current position: Team leader: PIMS (Pathogen, Immunity and Microbiota), MICALIS-INRAE

Previous employment:

1997-2000: PhD student, MPI Tübingen, Germany, T. Meyer/ S. Gray-Owen

2001-2003: Post-doctoral fellow, Institut Pasteur, Paris Unité U389, P. Sansonetti

2003-2014: CR1 INRA, Group leader, MICALIS Unit (INRA)

2014-present: DR2, team leader PIMs (Pathogen, Immunity and Microbiota)

Team Management : Supervision of 8 PhD students, 5 postdocs, 6 Masters, 6 under-graduates, 4 technicians, 1 Assistant Engineer, 1 research engineer and 1 senior scientist.

Communications :

-Over 20 oral and poster presentations at International Congresses.

-General public : Multi media comics, <https://bd-bacterie.com/>

Serious game Propag'ation: <https://propagaction.mozello.shop/>

Recent funds as coordinator:

-ANR, NO-ESKAPE (2024-2027, 705 k€)

-AXA Mécénat Santé, Lutter contre le sepsis infantile (2023-2025, 970 k€)

-POCs in Lab, Paris Saclay, DrugInnov. (2022-2023, 70 k€)

-UPSaclay. Oser innovation pédagogique (2022-2023, 12.5 k€)

-Toulouse White Biotechnology (TWB). Development of New Drugs (2019-2024, 250k€).

-Initiative d'excellence Paris Saclay, BBC2, diagnostics (2018-2019, 70k€)

-Initiative d'excellence Paris Saclay, NewMed2.0, new antimicrobials (2018-2019, 80k€)

-POCs in Lab, Paris Saclay, OSCAR, Campylobacter detection (2020-2021, 70k€)

-Hubert Curien Procope, Biologie Médecine Santé (2020-2021)

Publications: 51 publications in peer reviewed journals (h-index 27), 3 patents.
3 cover illustrations.

5 major papers in last 5 years:

-Kavanaugh DW, Glasset B, Dervyn R, Guérin C, Plancade S, Herbin S, Brisabois A, Nicolas P, **Ramarao N***. New genetic biomarkers to differentiate non-pathogenic from clinically relevant *Bacillus cereus* strains. Clin Microbiol Infect. 2022;17(1):e0259386.

-Kavanaugh DW, Porrini C, Dervyn R, **Ramarao N***. The pathogenic biomarker alcohol dehydrogenase protein is involved in *Bacillus cereus* virulence and survival against host innate defence. PLoS One. 2022, 17(1):e0259386.

-Leclerc M*, Bedu-Ferrari C, Etienne-Mesmin L, Mariadassou M, Lebreuilly L, Tran SL, Brazeau L, Mayeur C, Delmas J, Rué O, Denis S, Blanquet-Diot S, **Ramarao N***. Nitric Oxide Impacts Human Gut Microbiota Diversity and Functionalities. mSystems. 2021 Sep 14:e0055821

-Porrini C, Guérin C, Tran SL, Dervyn R, Nicolas P, **Ramarao N***. Implication of a Key Region of Six *Bacillus cereus* Genes Involved in Siroheme Synthesis, Nitrite Reductase Production and Iron Cluster Repair in the Bacterial Response to Nitric Oxide Stress. Int J Mol Sci. 2021 ;22(10):5079.

-Porrini C, **Ramarao N**, Tran SL. Dr. NO and Mr. Toxic - the versatile role of nitric oxide. Biol Chem. 2020
doi: 10.1515/hsz-2019-0368. Review.

Recent patents:

- 1- WO 2017/191184 A1 **Ramarao N**, Lereclus, Rognan. Method of screening antibacterial compounds as inhibitor of Mfd.
- 2- n°EP3868376, 2020 **Ramarao**, Tran, Rognan. Method of treating bacterial infections and pharmaceutical composition for treating bacterial infections
- 3- Vidic, J, Manzano, Chaix and **Ramarao**. 2020. Procédé et système pour la détermination de la présence et/ou de la quantité d'au moins un analyte susceptible d'être contenu dans un échantillon