

Dr [Florence Vincent](#) (AFMB, Marseille) and [Stéphane Mesnage](#) (University of Sheffield, UK) are pleased to announce an exciting opportunity for a **Postdoctoral Research Assistant** to join a collaborative and multidisciplinary project to explore the molecular mechanisms that underpin peptidoglycan recognition and subcellular targeting of LysM domain proteins in *Enterococcus faecalis*.

The project will combine structural biology, proteomics, microbial genetics and fluorescence microscopy to study the interaction of LysM domains with synthetic peptidoglycan fragments and identify protein partners required for subcellular localization of LysM proteins during cell growth and division.

The strength of this project is that it brings together a consortium with an unprecedented set of skills to explore the binding of LysM domains to peptidoglycan, both *in vitro* (using recombinant proteins and synthetic substrates) and *in vivo* (in live bacteria). The interdisciplinary nature of this project will enable us to address fundamental questions about the mechanisms of cell division and cell envelope dynamics. This project is both ambitious and challenging, offering the potential for significant impact.

The candidate will be mainly working in Marseille, with collaborative visits to Sheffield where the work involving molecular genetics and fluorescence microscopy will be carried out.

The AFMB lab is a dynamic, multinational, and inclusive environment. We prioritize scientific career development and emphasize the quality of life within our laboratory. We boast state-of-the-art [structural biology facilities](#), including protein production and purification facilities, radioactivity facilities for biochemical experiments, X-ray facilities, and a cryo-EM facility equipped with a state-of-the-art 200 kV TEM, Falcon 4i direct electron detector, and Selectris X imaging filter. Our laboratory is located at the Luminy campus, adjacent to the national park of [les calanques](#) and the vibrant city of [Marseille](#).

The University of Sheffield has been consistently ranked in the top 100 of the world's universities. Biosciences at Sheffield was rated 4th in the UK for the quality of research in the last Research Excellence Framework (2021). Our university builds teams of people from different heritages and lifestyles from across the world, whose talent and contributions complement each other to greatest effect. The PDRA will work in the School of Biosciences which has over 130 academic members of staff working on pathogens, health and medicine, food security ageing, energy, and mitigating the biodiversity crisis (<https://www.sheffield.ac.uk/biosciences>). The University of Sheffield offers state of the art equipment and facilities critical for this project (Microscopy, X-ray crystallography, macromolecular interaction suite).

We are actively seeking candidates with a Ph.D. in biochemistry or structural biology with experience in protein expression and purification. Ideally, candidates will have experience in cryoEM or X-ray crystallography. The contract is for a period of two and a half years and is funded by the ANR project PEPLYS.

References:

- Mesnage, S. *et al.* Molecular basis for bacterial peptidoglycan recognition by LysM domains. *Nat Commun* **5**, 4269 (2014).
- Salamaga, B. *et al.* A moonlighting role for LysM peptidoglycan binding domains underpins *Enterococcus faecalis* daughter cell separation. *Commun Biol* **6**, 428 (2023).
- Roig-Zamboni, V. *et al.* Molecular basis for substrate recognition and septum cleavage by AtIA, the major N-acetylglucosaminidase of *Enterococcus faecalis*. *Journal of Biological Chemistry* **298**, 101915 (2022).

Interested candidates are invited to submit their CV and motivation letter to fvincent.cnrs@univ-amu.fr or s.mesnage@sheffield.ac.uk

Thank you for considering this opportunity, and we look forward to welcoming a motivated and talented individual to our team.

Sincerely,

Florence Vincent and Stéphane Mesnage