PCCEI research unit, INSERM
Montpellier, FRANCE

Job advertisement
Post-doctoral Researcher

Modelling & Quantitative
Epidemiology division

Open post-doc position in **Biomaths/Biostats** × **AI** for **Pandemic Preparedness**

$$\Phi_t = \left(1 - e^{-g\left(\widehat{\mathcal{R}_0}, \widehat{\theta}\right)} + \frac{1}{g\left(\widehat{\mathcal{R}_0}, \widehat{\theta}\right)}\right) \int_0^a \delta(a)\widehat{\mu}(a)\,da$$
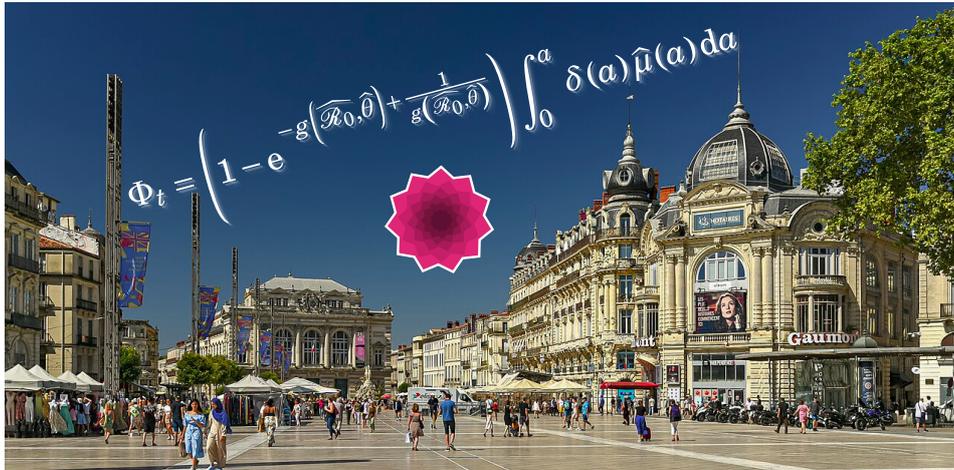
24 months, INSERM Montpellier, south of France

Want your computations to matter before the next pandemic hits ? Build the next-generation methods that can shape public-health decisions in the first weeks of an outbreak — when the data are heterogeneous in nature and quality, noisy, biased, incomplete… and everything depends on getting it right !

We are recruiting a high-potential postdoc to join the PReViX project – *Pandemic Preparedness for Respiratory Virus X* –, a nationally funded flagship program (€1.4M) to help France respond optimally to future respiratory virus threats.

What you'll do : the *Early Risk Assessment* work package

You will help design an evidence-driven, quantitatively calibrated early-risk framework for newly emerging respiratory viruses :

— Analyze a multidisciplinary and multisector expert survey on health crisis - potential pathogen features and related thresholds

— Perform time-aware meta-analysis of parameter estimates across the first 200 days of historical outbreaks, and develop bias-correction procedures for early estimates

— Create an early-risk warning tool blending mathematical epidemiology and machine-learning approaches

Collaboration & travel : funded missions to Bordeaux and Paris are expected to work with consortium partners.

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Who we are looking for

— PhD in biostatistics or quantitative epidemiology or applied mathematics or AI for health & life sciences

— Solid understanding and practical mastery of ML/DL

— R and/or Python (ideally both) at a high level

Infectious-disease modelling experience is a plus, but strong quantitative talent is the priority.

Contract

Position : fixed-term INSERM contract researcher
Duration : 24 months
Salary : ~ €3k gross/month (adjusted with experience)
Work time : full-time, 38h30/week
Leave : 45 days/year
Remote work : 1 day/week (eligible after 6 months)

The research unit

The INSERM *Pathogenesis and Control of Chronic and Emerging Infections* is a highly interdisciplinary (epidemiology, virology, immunology, infectiology, pharmacology, paediatrics, public health), research unit at University of Montpellier, with strong clinical (two university hospitals) and international links.
See website for more details : https://www.pccei.fr/.
Location : 60 rue de Navacelles, 34090 Montpellier, FR.

The research group

Dr Constanze Ciavarella & Dr Mircea T. Sofonea are co-heading the *Modelling & Quantitative Epidemiology* research division currently 1 consisting of 3 researchers, 1 professor, 1 engineer and 2 PhD students.
See more details on M. T. Sofonea's website, and LinkedIn profile.

How to apply

Position remains open until filled. Send CV, cover letter and reference to :
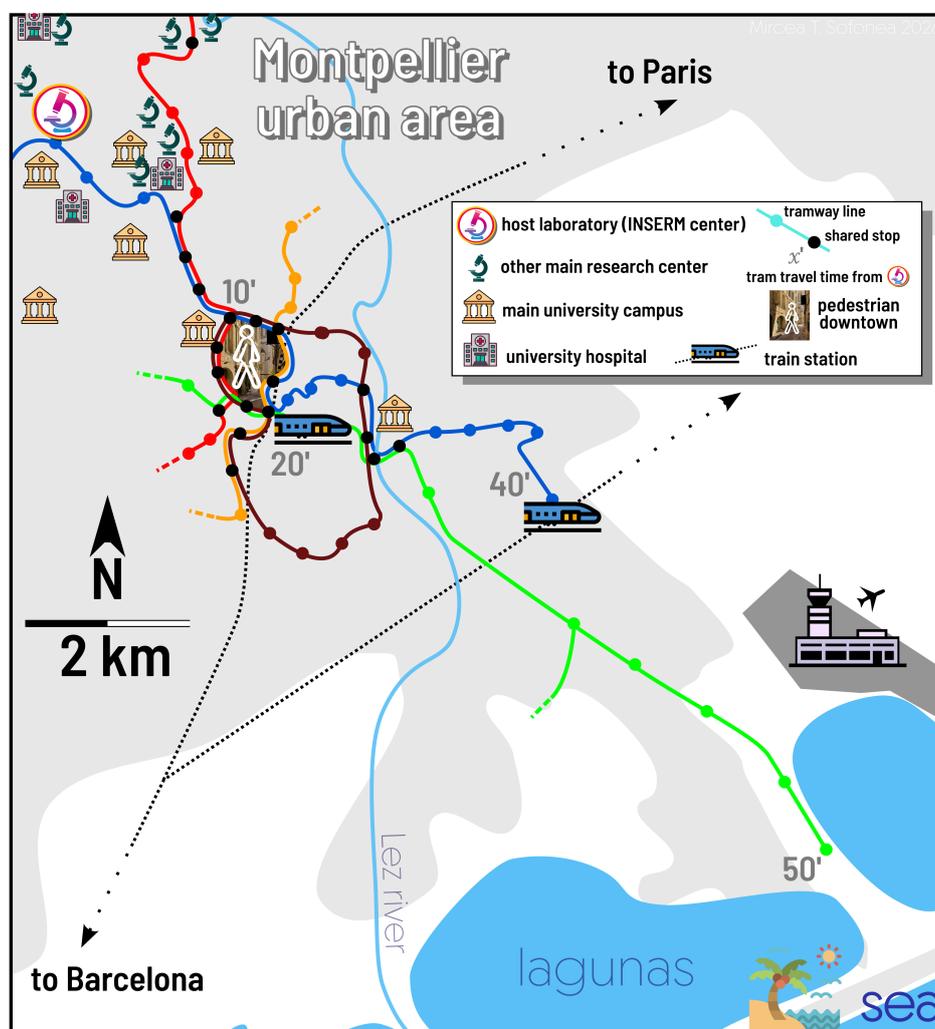mircea.sofonea (at) umontpellier.fr
larissa.girard (at) inserm.fr

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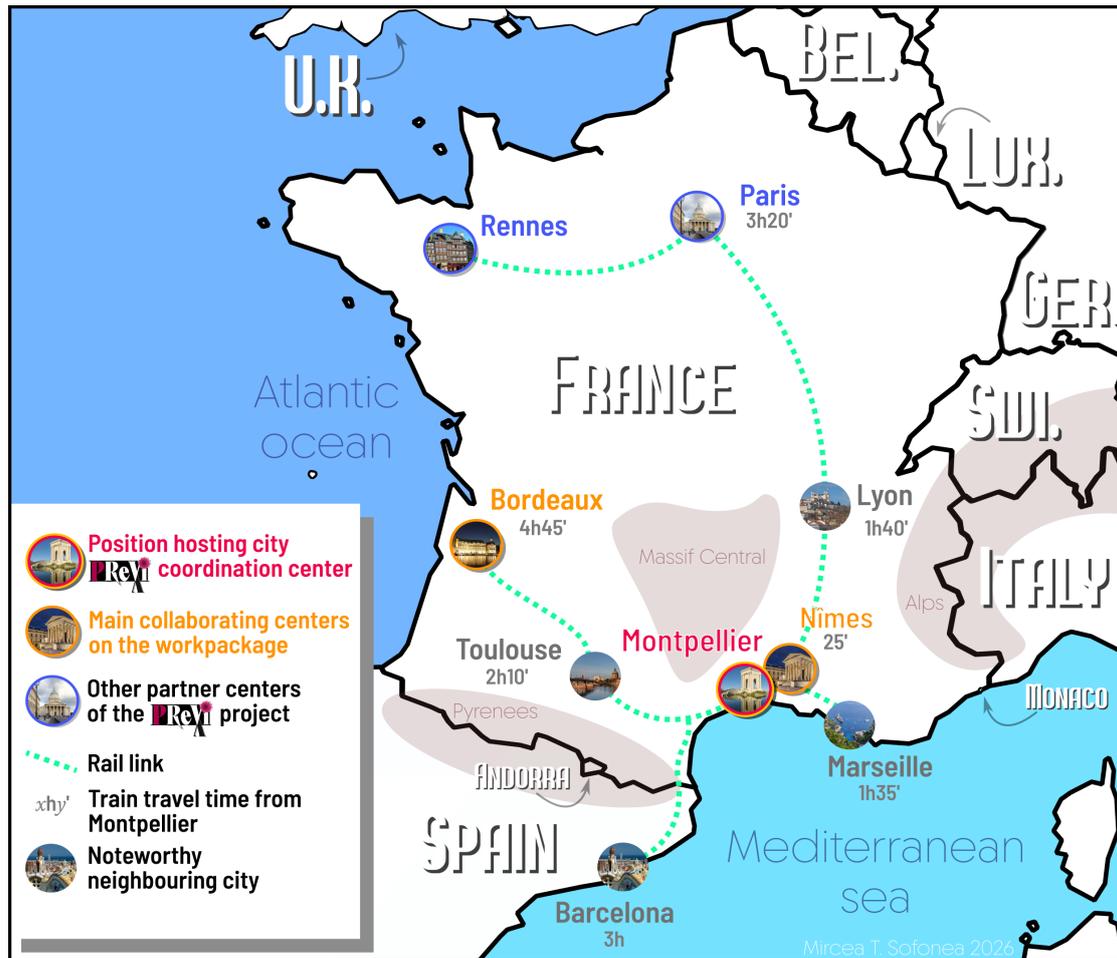Epidemiology division

Why Montpellier (beyond the science)

With >520k inhabitants in its urban area, Montpellier is one of France's major cities. Located close to the Mediterranean Sea, it enjoys plenty of sunshine and a pleasant climate all year round. Public transport is free for residents, and the high-speed train provides quick access to other major French cities and beyond.
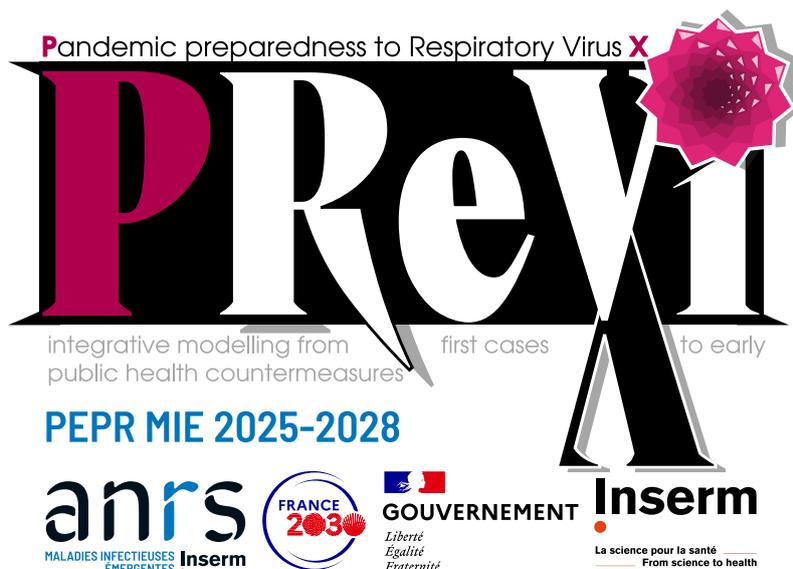
With a long academic tradition, including the oldest medical school still in operation in the world (founded in 1220), the city has more than 80,000 students and benefits from an exceptional concentration of public research with more than 100 laboratories. For the past decade, it has been recognised as a global leader in population biology.

See more advantages of living in Montpellier and nearby on this website.

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Appendix

Pandemic preparedness to Respiratory Virus X

integrative modelling from public health countermeasures — first cases — to early

PEPR MIE 2025-2028

funders:

coordinating institution:

collaborators: Samuel Alizon, François Blanquart, Paolo Bosetti, Sonia Burrel, Simon Cauchemez, François Chevenet, Constanze Ciavarella, Vittoria Colizza, Pascal Crépey, Larissa Da Rocha Girard, Sebastian Duchêne, Ilka Engelmann, Vincent Foulongne, Jérémie Guedj, Loïc Guérin, Laurent Jacob, Éric Jéziorski, Didier Laureillard, Renaud Mabire-Yon, Paul Petit, Mélanie Prague, Jocelyn Raude, Bastien Reyné, Étienne Simon-Lorière, Nicolas Sirven, Rodolphe Thiébaut, Édouard Tuaillon, Anna Zhukova

employers:

research units:

other parent institutions:

supports: