

Research Engineer

Deformable Microparticles, Microfluidics & Cell Biophysics

ANR-funded HECTOR project | CNRS / INSERM | Marseille, France

12 months + extension

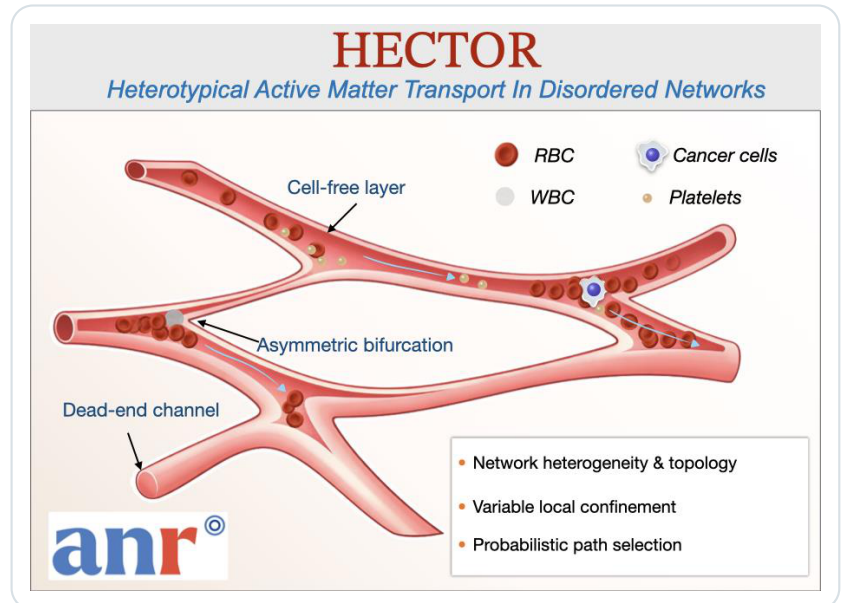
Start: Nov 2026 (flexible)

Deadline: 1 Oct 2026

The role

HECTOR investigates how the mechanical properties of cells and particles influence their transport in microvascular-like flows.

The Research Engineer will develop and support experimental platforms at the interface of soft matter, microfluidics and cell biophysics, working closely with PhD students and researchers across the project.



Main activities

01 Particle fabrication

Develop reproducible methods for micron-scale deformable particles with controlled size, stiffness, shell properties and internal composition, including solid/filled and hollow/capsule-like particles.

02 Mechanical characterization

Characterize particle mechanics, principally using Atomic Force Microscopy (AFM), complemented where relevant by microfluidic deformability measurements or other approaches.

03 Microfluidic systems

Contribute to the design and fabrication of biological microfluidic devices containing constrictions, bifurcations and microvascular-like networks.

04 Cell culture & experimental support

Support mammalian cell-culture activities and help maintain shared experimental platforms used by the project.

Candidate profile & application

Research Engineer - ANR HECTOR project | Marseille, France

Candidate profile

We are looking for a candidate with a strong experimental background in physics, engineering, materials science, soft matter, microfluidics, biophysics or a related discipline. Candidates should hold an engineering degree, Master's degree, PhD or equivalent qualification and demonstrate strong hands-on experimental skills, autonomy in developing and troubleshooting protocols, and an ability to work within a multidisciplinary team.

Desired experience

- hydrogel, microparticle or microcapsule fabrication
- soft materials and polymer physics
- optical microscopy and quantitative image/data analysis
- droplet microfluidics, photolithography or soft lithography
- AFM or mechanical characterization
- mammalian cell culture and cell mechanics (a plus)

Position details

LOCATION	STARTING DATE
Marseille, France	November 2026 (flexible)
CONTRACT	APPLICATION DEADLINE
12 months, with possibility of extension for up to an additional 24 months	1 October 2026

How to apply

Applications should be sent by email and include a CV and a 1-page motivation letter describing relevant experimental experience.

Contact information

Ankur BORDOLOI	Project coordinator	ankur-deep.BORDOLOI@univ-amu.fr
Pierre-Henri PUECH	Scientific adviser	pierre-henri.puech@univ-amu.fr
Emmanuèle HELFER	Scientific adviser	emmanuelle.helfer@univ-amu.fr

The engineer will work closely with PhD students and researchers involved in the HECTOR project.

Selected references

- Girardo, S. et al. (2018). Standardized microgel beads as elastic cell mechanical probes. J. Mater. Chem. B 6, 6245-6261. DOI: 10.1039/C8TB01421C
- Vorselen, D. et al. (2020). Microparticle traction force microscopy reveals subcellular force exertion patterns in immune cell-target interactions. Nat. Commun. 11, 20. DOI: 10.1038/s41467-019-13804-z
- Mali, A. et al. (2026). Using tunable hydrogel microparticles to measure cellular forces. Nat. Protoc. 21, 2301-2327. DOI: 10.1038/s41596-025-01281-2