LiU hereby advertises a Postdoctoral Scholarship in Human Pain Neurophysiology and Plasticity

Research environment

The Nagi Lab at the Center for Social and Affective Neuroscience (CSAN), Linköping University, investigates how peripheral sensory neurons encode pain in humans, how their function changes under different physiological and pathological conditions, and how these changes contribute to pain hypersensitivity.

Our research combines recordings from individual sensory nerve fibers in awake humans with insights from single-cell molecular profiling, quantitative sensory testing, and targeted pharmacological approaches. This molecularly informed approach allows us to connect the molecular identity of human sensory neurons with their function in the living nervous system.

Our discoveries include a previously unrecognized system of fast pain-sensing neurons and the identification and functional characterization of molecularly distinct human sensory neuron populations. Our recent work has also revealed how inflammation can rapidly alter the function of peripheral sensory neurons, challenging established views of how pain hypersensitivity develops.

We offer a collaborative, internationally connected research environment with specialized facilities for human neurophysiology.

Research project

Can we stop pain before it becomes persistent?

Pain hypersensitivity can arise when the functional properties of sensory neurons change in response to inflammation, injury, or other pathological conditions. Yet the mechanisms underlying this peripheral sensory plasticity in humans, and how these changes might be prevented or reversed, remain poorly understood.

Building on our discoveries of molecularly distinct human nociceptors and inflammation-induced changes in sensory neuron function, we aim to uncover how peripheral pain sensitization develops, including the relative contributions of direct and indirect mechanisms, and identify ways to prevent or reverse these changes.

The successful candidate will use microneurography to record directly from individual sensory nerve fibers in awake human participants, integrating these measurements with molecular insights and targeted experimental interventions. The research will extend our recent findings to additional experimental models and explore the mechanisms underlying nociceptor excitability and plasticity.

This fellowship offers an opportunity to address fundamental questions about human nociceptor function and pain signaling using an experimental approach (i.e., microneurography) available in very few laboratories worldwide. The successful candidate will receive specialized training in human microneurography, scientific mentorship, with opportunities to develop their own research ideas and build an independent scientific profile.

The fellowship includes dedicated research funding and opportunities for international collaboration, research visits, and scientific mobility.

Qualifications and requirements

You must have been awarded a doctoral degree or have a foreign degree that is deemed to be equivalent to a doctoral degree. Your doctoral degree must be awarded by a higher education institution other than Linköping University.
If you have not finished your degree, the degree must have been awarded at the latest by the point at which a decision to award you the fellowship is taken.

Your doctoral degree must have been awarded no more than three years before the application deadline for this fellowship. If there are special grounds, applicants who were awarded their doctoral degree earlier may also be considered, for example due to medical internship or specialist medical training, or various types of statutory leave.

The research funded by this scholarship must begin in 2027.

We are looking for an ambitious and highly motivated experimental neuroscientist with a strong background in electrophysiology and an interest in understanding the neural mechanisms of pain in humans.

Applicants should hold a PhD in neuroscience, neurophysiology, physiology, biomedical sciences, or a related discipline relevant to the project.

The applicant must have:

- Substantial hands-on experience with electrophysiological recording techniques and the ability to learn and master new experimental approaches.
- A demonstrated ability to design and conduct rigorous experiments, analyze complex data, and solve experimental problems independently.
- A strong research track record relative to career stage, with evidence of scientific initiative and contributions to peer-reviewed publications.
- Excellent communication skills in English and the ability to work effectively both independently and within a collaborative research environment.
- A strong interest in pain neurophysiology and the motivation to learn microneurography and conduct research involving human participants.

Additional merits:

- Experience with single-cell or single-unit electrophysiology, extracellular neural recordings, patch-clamp electrophysiology, or related approaches.
- Research experience in somatosensory neurophysiology, nociception, sensory neuron function, or neuronal excitability and plasticity.
- Experience with electrophysiological signal processing, quantitative data analysis, and programming.
- Familiarity with molecular neuroscience, sensory neuron classification, or single-cell transcriptomic datasets.
- Experience with pharmacological manipulation of neuronal function or experimental models of inflammation and pain hypersensitivity.

Previous experience with microneurography or human participant research is not essential. We welcome applicants from diverse experimental neuroscience backgrounds whose electrophysiological expertise is transferable to human single-fiber recordings.

We particularly value scientific curiosity, experimental ingenuity, technical independence, and the ambition to develop into an independent research leader.

Appointment and Conditions

This fellowship position is funded by The Catharina Högbom & Michael Cocozza Research Foundation and will provide you a tax-free scholarship of SEK 550,000 per year (appx $ 56,000) which will be paid directly to the postdoctoral fellow.

In addition, your research is supported by an operating grant of SEK 450,000 per year paid to the research environment at the department.

Before the third year, the postdoctoral researcher may apply to the foundation for an individual operating grant of approximately SEK 500,000, intended for those who have the ambition and, in the foundation's assessment, the ability to establish their own research environment. Any operating grant awarded is paid to the department and made available to the research environment for use in the postdoctoral researcher's research project.

Essential information about healthcare, insurances etc. can be found here.
Questions are welcome to lisa.dobrosch@liu.se

Application procedure

The following documents (in pdf-format) must be submitted when applying for the scholarship

- Cover letter, max 2 pages, describing your background, research interests in general and in relation to the project, and what makes you interested in the fellowship.
- Qualification plan, max 2 pages, describing clearly what qualifications you want to obtain during the scholarship period.
- Publication list, max 5 pages. List the publications in reverse chronological order under 1) The most important publications 2) Relevant publications from the last years.
- CV, max 4 pages, including contact details to three reference persons.
- The protocol from the defense of the thesis or the PhD degree diploma. Where the defense has not yet taken place, the defense application must be submitted and a copy attached to the application.
- Copy of passport and MSc transcripts with grades.

The format for the cover letter, qualification plan and publication list is A4 pages in Arial, font size 11, single line spacing. All documents not issued in Swedish or English must be officially translated into English.

The application should be sent electronically to lisa.dobrosch@liu.se. Mark the email with “Högbom-Cocozza Foundation Postdoc - Dnr. BKV-2026-00933 - Nagi” on subject line.

Applications deadline

January 8, 2027