



PhD fellowship in “Exploring UV-Induced Elastin Damage in the Context of Skin Aging and Disease” at Department of Pharmacy

We are offering a three-year PhD fellowship commencing 1 October 2025 or as soon as possible thereafter.

Project description

Elastin is a crucial protein that provides elasticity and resilience to the skin, allowing it to stretch and return to its original shape, thus maintaining its functionality. Since elastin is not renewed to significant extent throughout life, it becomes vulnerable to cumulative damage from oxidative stress, glycation, and enzymatic breakdown. UV-induced oxidative stress contributes to pathological conditions including dermatoporosis (chronic skin fragility), which weakens skin function and protective mechanisms, and solar elastosis, marked by coarse wrinkles and thickened skin with aggregated, dysfunctional elastin. However, the exact mechanisms by which UV radiation alters elastin's structure remain unclear. In this PhD project, we will address this knowledge gap and investigate how UV-induced oxidative stress affects mature skin elastin and its monomeric precursor, tropoelastin. We hypothesize that oxidative modifications, particularly to tyrosine and cysteine residues, disrupt elastin's structure, accelerating its degradation and leading to the formation of dysfunctional fibers. Using cutting-edge techniques such as liquid chromatography-mass spectrometry and bioinformatics methods for data analysis, we will examine how these oxidative changes impact elastin's structure and mechanical properties. Ultimately, our project has the potential to aid the development of targeted therapeutic interventions for dermatoporosis, solar elastosis and other elastin-associated skin conditions.

Principal supervisor

Associate Professor Andrea Heinz, Department of Pharmacy

Primary co-supervisor

Professor Michael Davies, Biomedical Institute

Start

1 October 2025

Duration

3 years as a PhD student

Our group and research

The PhD project will be carried at the LEO Foundation Center for Cutaneous Drug Delivery (LFCCDD) at the Institute of Pharmacy in collaboration with the Biomedical Institute (BMI), both at the University of Copenhagen. The LFCCDD has around 10 members and the group at BMI 8 members (without master students), and we offer creative and stimulating working conditions in dynamic and international research environment. Our research facilities include modern laboratories, enabling us to conduct protein analysis and characterization (including mass spectrometry, bioinformatics methods, gel electrophoresis, coacervation studies, UV VIS spectroscopy, and protein extraction from skin biopsies and enzymatic degradation before proteomics analysis).

Our department

The mission of Department of Pharmacy is to advance the pharmaceutical sciences by performing drug-related research and research-based teaching in topics including pharmaceutical technology and formulation, drug delivery, advanced drug analysis, and clinical and social pharmacy.

Information about the Department can be found at <https://pharmacy.ku.dk/>

Job description

Your key tasks as a PhD student at the Faculty of Health and Medical Sciences are:

- Carrying through an independent research project under supervision
- Completing PhD courses or other equivalent education corresponding to approximately 30 ECTS points
- Participating in active research environments including a stay at another research team, preferably abroad
- Obtaining experience with teaching or other types of dissemination related to your PhD project
- Teaching of undergraduate students in pharmaceutical sciences
- Writing a PhD thesis on the grounds of your project

Key criteria for the assessment of applicants

Applicants must have qualifications corresponding to a master's degree related to the subject area of the project, e.g. biochemistry, biology or pharmacy. Please note that your master's degree must be equivalent to a Danish master's degree (two years).

Other important criteria are:

- Professional qualifications relevant to the PhD project
- Relevant work experience

- Previous publications
- The grade point average achieved
- Other professional activities
- A curious mind-set with a strong interest in protein analysis, extracellular matrix biology, mass spectrometry and other biochemical methods
- Language skills

Place of employment

The place of employment is at the Department of Pharmacy, Faculty of Health and Medical Sciences, University of Copenhagen. We offer creative and stimulating working conditions in a dynamic and international research environment. Our research facilities include modern laboratories.

Terms of employment

The average weekly working hours are 37 hours per week.

The position is a fixed-term position limited to a period of 3 years.

The employment is conditioned upon the applicant's successful enrolment as a PhD student at the Graduate School at the Faculty of Health and Medical Sciences, University of Copenhagen. This requires submission and acceptance of an application for the specific project to the Graduate School of Health and Medical Sciences.

The PhD study must be completed in accordance with The Ministerial Order on the PhD programme (2013) and the [Faculty's rules](#) on achieving the degree.

The PhD student is expected to be affiliated to the graduate programme in pharmaceutical sciences, [Drug Research Academy](#).

Salary, pension, and terms of employment are in accordance with the agreement between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State. Depending on seniority, the monthly salary starts at approximately 30,800 DKK/Roughly 4,100 EUR (April 2025 level) plus pension.

Application procedure

Your application, in English, must be submitted electronically by clicking "Apply now" below and must include the following documents in PDF format:

1. Motivated letter of application (max. one page)
2. CV incl. education, experience, language skills and other skills relevant for the position
3. Certified copy of original Master of Science diploma and transcript of records in the original language, including an authorized English translation if issued in other language than English or Danish. If not completed, a certified/signed copy of a recent transcript of records or a written statement from the institution or supervisor is accepted. As a prerequisite for a PhD fellowship employment, your master's degree

must be equivalent to a Danish master's degree. We encourage you to read more in the assessment database: <https://ufm.dk/en/education/recognition-and-transparency/find-assessments/assessment-database>. Please note that we might ask you to obtain an assessment of your education performed by the Ministry of Higher Education and Science. Applicants with a Master's degree from abroad should also enclose a short description of the grading scale used

4. Publication list (if possible)

5. Other information to consider: References and recommendations (if possible)

The deadline for applications is 1 August 2025, 23.59pm CET

We reserve the right not to consider material received after the deadline, and not to consider applications that do not live up to the abovementioned requirements.

The further process

After the expiry of the deadline for applications, the authorised recruitment manager selects applicants for assessment on the advice of the hiring committee. All applicants are then immediately notified whether their application has been passed for assessment by an unbiased assessor.

The assessor makes a non-prioritized assessment of the academic qualifications and experience with respect to the above-mentioned area of research, techniques, skills and other requirements listed in the advertisement.

Once the assessment work has been completed each applicant has the opportunity to comment on the part of the assessment that relates to the applicant.

The applicant will be assessed according to the Ministerial Order no. 242 of 13 March 2012 on the Appointment of Academic Staff at Universities.

Interviews are expected to be held in September 2025.

You can read about the recruitment process at <https://employment.ku.dk/faculty/recruitment-process/>

Questions

For further information, applicants may contact the principal supervisor, Andrea Heinz, e-mail: andrea.heinz@sund.ku.dk, phone: +45 3533 7783 or PhD coordinator Marianne W. Jørgensen, e-mail: marianne.joergensen@sund.ku.dk, phone: +45 3533 6449.

General information about PhD studies at the Faculty of Health and Medical Sciences is available at the Graduate School's website: <https://healthsciences.ku.dk/phd/guidelines/>

For more information on working and living in Denmark visit <http://ism.ku.dk> (International staff mobility) and <https://www.workindenmark.dk>

The University of Copenhagen wish to reflect the diversity of society and encourage

all qualified candidates to apply regardless of personal background.

APPLY NOW

Part of the International Alliance of Research Universities (IARU), and among Europe's top-ranking universities, the University of Copenhagen promotes research and teaching of the highest international standard. Rich in tradition and modern in outlook, the University gives students and staff the opportunity to cultivate their talent in an ambitious and informal environment. An effective organisation – with good working conditions and a collaborative work culture – creates the ideal framework for a successful academic career.

Info

Application deadline: 01-08-2025

Employment start: 01-10-2025

Working hours: Full time

Department/Location: Institut for Farmaci

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