



2023 Master internship at University of Split, Medils Institute

TITLE : Internship at Medils, Split, Croatia – Dr Ivana Carev, group leader

LAB & PEOPLE

- Name of the hosting lab: NAOS ILS lab at MedILS, Group leader: Ivana Carev, PhD
- General activities of the lab: NAOS-ILS Croatia group works on skin eco-biology and aging. Eco-biology is a unique approach rooted in biology, with the core value of respecting the nature and homeostasis of the skin. Following the principle of natural skin homeostasis, we aim to achieve a healthy state by helping the skin to strengthen and adapt to its environment. The model of study in our research is primary fibroblasts due to their use in aging and skin care research. We are looking for new targets for cell homeostasis achievement. We focus on biochemical mechanisms, protein protection, cellular recycling mechanisms, and the search for a new biologically active chemical compound. We believe the eco-biology approach to applying the research to the Human Care Domain is better for preserving the skin ecosystem and strengthening its natural mechanism.
- Website: [Skin eco-biology and biochemistry / NAOS-ILS lab \(medils.org\)](http://medils.org)
- Number of staff / PhD: 3/1
- Supervisor name and contact: ivana.carev@medils.hr

TOPIC OF THE INTERSHIP

- Scientific context of the internship (max 20 lines)
- General activities of the lab: NAOS-ILS Croatia group works on skin eco-biology and aging. Eco-biology is a unique approach rooted in biology, with the core value of respecting the nature and homeostasis of the skin. Following the principle of natural skin homeostasis, we aim to achieve a healthy state by helping the skin to strengthen and adapt to its environment. The model of study in our research is primary fibroblasts due to their use in aging and skin care research. We are looking for new targets for cell homeostasis achievement. We focus on biochemical mechanisms, protein protection, cellular recycling mechanisms, and the search for a new biologically active chemical compound. We believe the eco-biology approach to applying the research to the Human Care Domain is better for preserving the skin ecosystem and strengthening its natural mechanism.

Keywords : protein carbonylation, cellular parabiosis, natural product chemistry, skin, aging, biology of aging, rejuvenation, longevity, biochemistry, biology, molecular biology, chemistry, drug discovery,

Bibliography:

- Tasks and duties entrusted to the student: Trainee will be involved in research laboratory work of NAOS ILS lab at MedILS. The trainee will be introduced to lab safety precaution measures, laboratory notebook writing; laboratory calculations using an analytical scale, preparing molecules and solutions related to lab work; highest standards of safety of lab work, cell culture maintenance, monitoring cell growth, observing cell trypsinization, cell lysate, cells seeding, cells feeding, cell counting using the cell counter. Trainee will perform protein quantification method individually, determination of contamination using gel electrophoresis and PCR technique, performed protein damage tests, and biochemistry tests classically used in lab work. Trainee will use spectrophotometry measurement in multi-mode plate reader and do job shadowing in cell culture lab. Trainee will do experimental data analysis using Excel and specialized software. Scientific literature search in scientific databases and use of literature data and bibliography citation manager (Mendeley, Zotero) will be part of daily work. Trainee must participate in weekly lab meetings with progress reports and presentation of results, and contribution to scientific discussion.

- Skills to be acquired or developed:

Trainees will learn about biochemistry methods and tests used in NAOS ILS lab work.

Practical skills acquired:

- measuring pH, weighing laboratory chemicals, laboratory calculations, and solutions related to lab work preparation
- pipetting: how to properly use a pipette — the slender tube used to measure or transfer small amounts of solutions in the lab.
- work due to lab safety precaution measures and the highest standards of safety of lab work
- laboratory calculations, using an analytical scale,
- cell culture maintenance, monitoring cell growth, observing cell trypsinization, cell lysate, cells seeding, cells feeding, cell counting using cell counter, light microscopy
- biochemistry tests classically used in lab work
- spectrophotometry measurement in a multimode plate reader
- scientific literature search in the scientific database
- use of literature data and bibliography citation manager
- experimental data analysis
- every week lab meetings with progress reports following
- lab meeting presentation of results
- laboratory notebook writing

- contribution to scientific discussion
- flexibility, work ethics, creativity, adaptability, communication skills
- teamwork, self-direction, autonomy, responsibility, problem-solving skills
- writing and narrative skills in English.

PROFILE OF THE DESIRED STUDENT

- Minimum level of study required: master level
- Field(s) of study: in Life Sciences, Biotechnology or Biomedicine field (biochemistry, molecular biology, biology, chemistry, biotechnology, pharmacy, drug design and similar).
- Scientific skills: minimum of a month of experience in lab work (can be regular lab work at the study course in the 1st year of BSc studies).
- Language skills required : English

THE INTERNSHIP ASSIGNMENT:

Desired duration of the internship (in months): 2-4 months

Desired Starting date of the mission: *(please indicate the level of flexibility): 1st October 2023 (flexible)*

Indicative weekly schedule: *35h / week 7h/day; 5/7 days, free weekends and national holidays*

Remuneration : currently no

Erasmus grant : yes

Internship agreement: *an internship agreement will be signed.*

To SEA-EU students:

If you're interested please send your CV and letter of motivation to the scientist in charge, ivana.carev@medils.hr before the 01. October 2023).

Note : it takes at least a month to do the administration work after you send me an email till the desired start of the internship. There are a limited number of positions in my lab, filled on principle – first come, first served. Students need to send CV, and motivation letter and do a short (online) interview before the decision on an internship.