PhD Course

Why do we age?
- Molecular and cellular mechanisms of ageing

18 - 22 November 2019
Panum

Deadline for registration:
21 October 2019
# What it is about

This course offers a mix of hands-on laboratory classes covering relevant and advanced experimental methods used to study ageing processes as well as in-depth lectures from international renowned experts on molecular and cellular processes in ageing.

**Topics covered:**

- Animal models and advanced cell models for ageing studies
- Energy metabolism
- Senescence, apoptosis and necrosis
- Stem cell exhaustion
- DNA methylation accumulation during life
- Telomere shortening and DNA damage accumulation during life
- Inflammation as hallmarks of ageing
- ... and more

By completing this course, you will gain insight into the current concepts and theories of molecular and cellular ageing and have a collection of laboratory methods that you immediately can use to study ageing in your project.

The PhD course is intended for students who has an age focus in their PhD project or has an interest in the field.

Participation in the course will be rewarded with 4 ECTS points upon completion.

# Programme

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
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<tbody>
<tr>
<td>18th of Nov</td>
<td>19th of Nov</td>
<td>20th of Nov</td>
<td>21st of Nov</td>
<td>22nd of Nov</td>
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<tr>
<td>9:00 - 9:15</td>
<td>Introduction to the course</td>
<td>Round up. Exercise 1</td>
<td>Round up. Exercise 2</td>
<td>Round up. Exercise 3</td>
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<td>9:15 - 10:30</td>
<td>Senescence and apoptosis in ageing and cancer</td>
<td>Telomere shortening and DNA damage accumulation</td>
<td>Organoids and other advanced cell models of ageing</td>
<td>DNA methylation as a biomarker of biological age</td>
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<td>10:30 - 10:45</td>
<td>Break and coffee</td>
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<td>10:45 - 12:15</td>
<td>Mitochondria in ageing and disease</td>
<td>Stem cell exhaustion in ageing</td>
<td>Zebrafish in ageing research</td>
<td>Inflammation hallmarks of ageing</td>
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<td>12:15 - 13:00</td>
<td>Lunch</td>
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<td>13:00 - 17:00</td>
<td>Exercise: Determination of energy metabolism</td>
<td>Exercise: Determination of apoptosis, necrosis and senescence</td>
<td>Exercise: Health and life span determination of <em>C. elegans</em> / Energy metabolism of zebrafish</td>
<td>Exercise: Measurements of DNA methylation as bioindicator of ageing</td>
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# Want to know more?

**Course director:**
Claus Desler, Associate professor, CESA / ICMM  
cdesler@sund.ku.dk

# Link to course

[phdcourses.ku.dk](http://phdcourses.ku.dk)