



# Next Generation Leaders in Biology of Ageing

**EU-sponsored 2-week Intensive Programme  
for Master and PhD students**

2 to 14 June, 2014  
RIMINI (Italy)



The 2-week programme is aimed both at Master and PhD students, and at researchers interested in deepening their knowledge in the science of ageing.

Course completion will award 4 credits to students coming from the institutions that recognize the European Credit Transfer and Accumulation System (ECTS).

Ageing is one of the most challenging issues of our society. Next generation researchers should be guided to tap into the potential offered by the demographic change and the accompanying economic and social developments in the future. Understanding of ageing mechanisms is of utmost importance and should tightly be connected to the clinical needs. Next generation researchers in the field of ageing should be equipped with state of the art knowledge about the biology of ageing, insights into the clinical ageing phenotype and leadership expertise. By bringing together experts of these fields, Europe invests in the next generation leaders in biology of ageing, building the base to extend healthy lifespan.



Students of a previous IP, organized by the proponent, in a computer classroom of the Rimini Campus of Bologna University.

## Teachers from EU Partner Institutions

**Antonello Lorenzini, Italy (IP coordinator)**  
**Andrea B. Maier, Netherlands (co-coordinator)**  
**Suresh Rattan, Denmark (output coordinator)**  
**Johannes J. (Hans) Meij, Netherlands**  
**Aurel Popa-Wagner, Germany**  
**Ana-Maria Buga, Romania**  
**Günter Lepperdinger, Austria**  
**Marie-Christine Pardon, United Kingdom**  
**Alexander Burkle, Germany**

Teachers from EU Partner Institutions have tutoring responsibility and will stay for the entire duration of the programme.

## Invited experts

**Claudio Franceschi, Italy**  
**Thomas E. Johnson, USA**  
**Silvana Hrelia, Italy**  
**Maria Luisa Genova, Italy**  
**Christian Sell, USA**  
**Claudio Torres, USA**

## Possible locations:



**Ascot Hotel,**

A 4 stars hotel in Rimini, a beautiful sea town 120Km from Bologna

For additional information, please contact

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# Preliminary Programme

<b>DAY 1 (02-06-14, Monday)</b>	ARRIVAL (Welcome dinner)
<b>DAY 2 (03-06 Tue) First day of the course</b>	<p>Welcome and programme introduction (Antonello Lorenzini and Andrea Maier, 0.5h).</p> <p><b>MAIN TOPIC: Ageing and the heterogeneity of clinical phenotype</b></p> <ul style="list-style-type: none"> <li>-From mice to humans and human ageing trajectories (Andrea Maier, 3h*)</li> <li>-Biomarkers of human ageing (Alexander Bürkle, 3h*)</li> </ul> <p>Student working group creation (1.5h)</p>
<b>DAY 3 (04-06, Wed)</b>	<p><b>MAIN TOPIC: Ageing and the heterogeneity of clinical phenotype</b></p> <ul style="list-style-type: none"> <li>-From Biogerontology to Geriatric Medicine and the need of cost effectiveness (Andrea Maier and Hans Meij, 3h*)</li> <li>-Neurocognitive ageing: Overview of the cognitive domains that are affected as a function of age and underlying mechanisms, Magnetic Resonance Imaging (MRI) biomarkers of cognitive decline associated with ageing, Neuro-epidemiology of cognitive ageing, Distinction between normal and pathological ageing (Marie-Christine Pardon, 3h*)</li> </ul> <p>Student work (2h)</p>
<b>DAY 4 (05-06, Thu)</b>	<p><b>MAIN TOPIC: Ageing and the heterogeneity of clinical phenotype</b></p> <ul style="list-style-type: none"> <li>-The response of the old brain to injuries. Cellular and molecular mechanisms (Aurel Popa-Wagner, 3h*)</li> <li>-Genomic and proteomic responses of the aged brain to cerebral ischemia (Ana-Maria Buga, 3h*)</li> </ul> <p>Student work (2h)</p>
<b>DAY 5 (06-06, Fri)</b>	<p><b>MAIN TOPIC: Theories of Ageing</b></p> <ul style="list-style-type: none"> <li>-Overview of the major evolutionary and physiological theories attempting to explain why and how brain cells age, including evolutionary, programmed and stochastic theories of ageing (Marie-Christine Pardon, 1h:30min*)</li> <li>-Failure of homeodynamics: genes, proteins and chance (Suresh Rattan, 3h*)</li> <li>-How cell and model organisms helped testing ageing theories? (Marie-Christine Pardon, 1h:30min*)</li> </ul> <p>Student work (2h)</p>
<b>DAY 6 (07-06, Sat)</b>	<p><b>MAIN TOPIC: Processes of Ageing</b></p> <ul style="list-style-type: none"> <li>-Mitochondrial oxidative stress and ageing (invited expert Maria Luisa Genova, 2h)</li> <li>-Ageing of the immune system (Guenter Lepperdinger, 3h*)</li> <li>-Replicative senescence and ageing: astrocyte senescence, and neurodegenerative disease (invited expert Claudio Torres, 2h)</li> </ul> <p>Student work (1h)</p>
<b>DAY 7 (08-06, Sun)</b>	<b>FREE DAY / INDIVIDUAL STUDY TIME</b>
<b>DAY 8 (09-06, Mon)</b>	<p><b>MAIN TOPIC: Longevity assuring mechanisms</b></p> <ul style="list-style-type: none"> <li>-Comparative biology of longevity (Antonello Lorenzini, 2h*)</li> <li>-DNA damage and repair in ageing (Alexander Bürkle, 3h*)</li> <li>-Comparative biology of genomic stability (Antonello Lorenzini, 1h*)</li> </ul> <p>Student work (2h)</p>
<b>DAY 9 (10-06, Tue)</b>	<p><b>MAIN TOPIC: Longevity assuring mechanisms</b></p> <ul style="list-style-type: none"> <li>- Somatic maintenance by tissue resident stem cells (Guenter Lepperdinger, 3h*)</li> </ul> <p><b>MAIN TOPIC: Ageing interventions</b></p> <ul style="list-style-type: none"> <li>-Ageing treatment, prevention or delay? (Suresh Rattan, 3h*)</li> <li>-Oxidative stress and nutraceutical compounds as key modulators in the process of ageing (invited expert Silvana Hrelia, 2h)</li> </ul>
<b>DAY 10 (11-06, Wed)</b>	<p><b>MAIN TOPIC: Models of ageing</b></p> <ul style="list-style-type: none"> <li>-Caenorhabditis elegans: from demographic profiles to determining the underlying molecular mechanisms of ageing (invited expert Thomas E. Johnson, 2h)</li> <li>-Mice with reduced Insulin/IGF signalling (invited expert Christian Sell, 2h)</li> <li>-Human successful ageing: centenarians (invited expert Claudio Franceschi, 2h)</li> </ul> <p>Student work (2h)</p>
<b>DAY 11 (12-06, Thu)</b>	<p><b>MAIN TOPIC: Leadership expertise: behind smart ideas</b></p> <ul style="list-style-type: none"> <li>-Supervision, time management, project control (Hans Meij, 3h*)</li> <li>-How to become the next generation leader in research, the boss insightsq skills in time management, supervision, leadership, valorisation (all teachers, round table, 2h)</li> </ul> <p>Student work (3h)</p>
<b>DAY 12 (13-06, Fri)</b>	<p>Student work (3h)</p> <p><b>MAIN TOPIC: Translation of biogerontology to geriatrics and general science: opportunities and hurdles</b></p> <ul style="list-style-type: none"> <li>-Students presentations (students groups, 3h*)</li> <li>-Round table discussion, (all teachers, 2h)</li> </ul>
<b>DAY 13 (14-06, Sat)</b>	DEPARTURE

\*Please note that teacher lectures time may include time for selected student presentations in related topics

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