Translational Medicine: From Bench to Bedside
Mondays and Thursdays
14:50 – 16:10
Location: 1D-509

Instructors
Magnus Bäcklund (MB)
Senior consultant at Christina kliniken in Stockholm (Sophiahemmet Hospital) and Senior researcher at Karolinska Institutet. Trained M.D. and General Oncologist from Karolinska with a PhD in Experimental Pathology on brain tumors. MBA from Stockholm School of Economics. With DIS since 2016.
Email: magnus.backlund@ki.se

Cecilia Österholm Corbascio (CC)
Assistant Professor at the Department of Molecular Medicine and Surgery Karolinska Institutet and Visiting Research Professor at the Cell Therapy Institute/Center for Collaborative Research, Nova Southeastern University, FL, USA. PhD from Lund University in Experimental Surgery (2005) and research background in transplantation, vascular matrix biology, regenerative medicine and atherosclerosis. With DIS since 2016.
Email: Cecilia.Osterholm.Corbascio@ki.se

Copenhagen Guest Instructor
Torben Lykke Sørensen (TS)
M.D. (University of Copenhagen 1999). Doctor of Medical Sciences Degree University of Copenhagen 2004. Associate professor at the University of Copenhagen. Chief physician, Department of Ophthalmology, University of Copenhagen, Roskilde Hospital. Former research fellow at Cleveland Clinic Foundation, Cleveland, Ohio. With DIS since 2005.
Email: torbenls@dadm.net.dk

DIS Science & Health contacts
Lisbeth Borbye, Program Director, lbo@dis.dk
Susana Dietrich, Assistant Program Director, sd@dis.dk, Tel: +45 3376 5442
Stephanie Clemente, Project Manager, scl@dis.dk, Tel: +45 3376 5477

Course Description
This course provides students with insight into state-of-the-art research and research application in the medical field. Students will interact with practitioners, medical researchers and other scientists, who specialize in research in selected acute and chronic diseases. The emphasis is the dynamic relationship between laboratory research and bedside application with the purpose of providing optimal patient therapies. Students will learn how research results guide clinical therapies, and vice versa. Doctors and scientists will provide real-life examples of translational medicine practices and give students exposure to analyzing and developing diagnostic tools and treatment protocols.

During field studies and study tours students will observe the process of translational research as performed by clinicians and scientists at hospitals and biomedical research institutions. In addition, they will learn about the healthcare systems and translational medicine approaches in Sweden and the UK.
Expected Learning Outcomes
Upon successful completion of this course, students will be able to:

- Describe features of selected human diseases and explain the abnormal human biology underlying these diseases
- Differentiate between clinical and laboratory diagnostics and understand the connection
- Describe common diagnostic tools and treatment strategies and explain how these are developed and implemented
- Analyze and interpret translational case studies leading to real-life personalized medicine regimens
- Reflect on the importance of translational medicine and implications to clinical practice and scientific advancement
- Describe future trends in the field of translational medicine

Teaching Methods
Classes may contain a mixture of lecture-based teaching, discussions, critical analysis of readings and research) and group exercises. Students are expected to engage actively in class-room discussions, oral presentations, group work and exercises. In addition to these classes, students will travel on short and long study tours and to field studies (see below). The course does not provide regular medical training corresponding to that of medical students and does not include shadowing of doctors or physical examination of patients.

Evaluation and Grading
To be eligible for a passing grade in this class all of the assigned work must be completed. Late assignments will be accepted, but the grade for the paper will be reduced by half a letter/day. The factors influencing the final grade and the proportional importance of each factor is shown below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
<tr>
<td>2 tests (15 % each)</td>
<td>30%</td>
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<tr>
<td>Study tour assignment</td>
<td>10%</td>
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<tr>
<td>Patient case studies</td>
<td>25%</td>
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<tr>
<td>Final Presentation</td>
<td>25%</td>
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Participation Metrics
- Attendance
- Level of preparation and ability to answer questions asked in class
- Involvement in class and group discussions
- Level of individual research and contribution to discussions and outcome

Field Studies (more information closer to date)
Wednesday, March 15, Duration: 13:00 – 17:00
Location: TBA
Wednesday, May 5, Duration: 13:00 – 17:00
Location: TBA

Expectations of Students & Code of Conduct
- Laptops may be used for note-taking, fact-checking, or assignment in the classroom, but only when indicated by the instructor. At all other times laptops and electronic devices should be put away during class time.
- Reading must be done prior to the class session; a huge part of the class is dependent on discussions in class.
• Students need to be present and participating to receive full credit. The final grade will be affected by unexcused absences and lack of participation. Remember to be in class on time!
• Classroom etiquette includes being respectful of other opinions, listening to others and entering a dialogue in a constructive manner.
• Students are expected to ask relevant questions in regards to the material covered.

Academic Excellence Award:
Each semester we recognize one outstanding student from the Medical Practice & Policy Program with an Award of Academic Excellence. It is reserved for a student who has distinguished him- or herself through diligence, commitment, academic performance, and ideally a student who contributes to a good, collaborative learning environment in class.

Policies
• Disability and Resource concerns: Any student who has a need for accommodation based on the impact of a disability should contact Mark Peters (mpe@disstockholm@se) to coordinate this. In order to receive accommodations, students should inform the instructor of approved DIS accommodations within the first two weeks of classes.

• Attendance: Students are expected to attend all DIS classes when scheduled. If multiple classes are missed the Office of Academic Support will be notified and will follow-up to make sure, that all is well. Absences will jeopardize grades and academic standing at DIS. Allowances will be made in cases of illness, but in the case of multiple absences a doctor's note is required.

• Academic Honesty: Plagiarism and Violating the Rules of an Assignment
DIS expects that students abide by the highest standards of intellectual honesty in all academic work. DIS assumes that all students do their own work and credit all work or thought by others. Academic dishonesty will result in a final course grade of ’F’ and can result in dismissal. The students’ home universities will be notified. In such cases, DIS reserves the right to request that written student assignments be turned in electronically for subjection to plagiarism detection software. See the Academic Handbook for more information, or ask your instructor if you have questions.

Core Course Week and Study Tours
Core course week and study tours are integral parts of the core course. The classroom is “on the road” and theory presented in the classroom is applied in the field. Students will travel with classmates and DIS faculty/staff on two study tours: a short study tour during the core course week and a long study tour to relevant European destinations.
Students are expected to
• participate in all activities
• engage in discussions, ask questions, and contribute to achieving the learning objectives
• be respectful to the destination/location, the speakers, DIS staff, and fellow classmates
• represent self, home university and DIS in a positive light

While on a program study tour DIS will provide hostel/hotel accommodation, transportation to/from the destination(s), approx. 2 meals per day and entrances, guides, and visits relevant to your area of study or the destination. You will receive a more detailed itinerary prior to departure.
Travel policies:
You are required to travel with your group to the destination. If you have to deviate from the group travel plans, you need approval from the program director and the study tours office.

**Core Course Week:**
Short Tour, Linköping: Monday, February 6 – Wednesday, February 8 (Part of Core Course Week)
Stockholm Portion: Thursday, February 9 – Friday, Friday February 9

**Long Study Tour:**
UK (London and Oxford): Sunday March 19 – Friday March 24

**Textbook and readings**
- *Principles of Translational Science in Medicine. From Bench to Bedside, 2nd ed.* Martin Wehling (2015) – selected chapters will be announced on Canvas prior to classes.
- Additional readings will be announced (and potentially posted) on Canvas prior to classes.

**Canvas**
Canvas is a web-based system that allows students to access course resources and communicate with classmates and faculty. To access Canvas, go to the DIS homepage and click the 'Canvas' link on the bottom of the website, or go to: [https://canvas.disabroad.org/login/canvas](https://canvas.disabroad.org/login/canvas). Students can also download the Canvas App (By: Instructure) on iPhone and Android mobile smart phones.
## Course Schedule Overview (subject to change)

**Please Note:** Reading instructions for each lecture will be posted on Canvas at least a week before due.

<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Lecture Topic / Theme</th>
<th>Lecturer</th>
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</table>
| **Wed Jan 18** 10.00 – 14.30 | Medical Practice & Policy Program Orientation  
- Welcome to DIS Stockholm, by Mark Peters  
- Welcome to the course, including lunch together with CC and MB | CC, MB |
| **Thurs Jan 19** 14.50 – 16.10 | Introduction  
History of Medical research and Translational medicine, where are we and where are we going? | MB 1 |
| **Mon Jan 23** 14.50 – 16.10 | Human physiology, anatomy and general disease mechanisms | MB 2 |
| **Thurs Jan 26** 14.50 – 16.10 | Tools in Translational Medicine - OMICS  
Election of Class Representatives | MB 3 |
| **Mon Jan 30** 14.50 – 16.10 | Tools in Translational Medicine  
Imaging and Biobanking  
Core Course Week Orientation | MB 4 |
| **Thurs Feb 2** 14.50 – 16.10 | Clinical practice – How is health care organized | MB 5 |

### Core Course Week

**Short Study Tour:** Mon Feb 6 – Wed Feb 8  
Stockholm Portion: Thurs Feb 9 & Fri Feb 10

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<th>Date and Time</th>
<th>Lecture Topic / Theme</th>
<th>Lecturer</th>
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<tr>
<td><strong>Mon Feb 13</strong> 14.50 – 16.10</td>
<td>Symptoms and signs</td>
<td>MB 6</td>
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<tr>
<td><strong>Thurs Feb 16</strong> 14.50 – 16.10</td>
<td>Drug Discovery</td>
<td>MB 7</td>
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<tr>
<td><strong>Mon Feb 20</strong> 14.50 – 16.10</td>
<td>Clinical trials, regulation and ethics</td>
<td>MB 8</td>
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<tr>
<td><strong>Thurs Feb 23</strong> 14.50 – 16.10</td>
<td>Test and Patient Case</td>
<td>MB 9</td>
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Break: Mon Feb 27 – Fri Mar 3

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<tr>
<th>Date and Time</th>
<th>Lecture Topic / Theme</th>
<th>Lecturer</th>
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<tr>
<td><strong>Mon Mar 6</strong> 14.50 – 16.10</td>
<td>Introduction to the Cardiovascular System and to Cardiovascular Disease</td>
<td>CC (MB) 10</td>
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<tr>
<td><strong>Thurs Mar 9</strong> 14.50 – 16.10</td>
<td>Heart Transplantation and Immune Tolerance</td>
<td>MC (MB) 11</td>
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<tr>
<td><strong>Mon Mar 13</strong> 14.50 – 16.10</td>
<td>Cardiovascular Disease from an extracellular matrix perspective</td>
<td>CC (MB) 12</td>
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**Long Study Tour Orientation**
<table>
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<tr>
<th>Date</th>
<th>Time</th>
<th>Event Description</th>
<th>Time</th>
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<tbody>
<tr>
<td>Wed Mar 15</td>
<td>13.00-17.00</td>
<td>Field Study (TBA)</td>
<td>TBA</td>
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<tr>
<td>Thurs Mar 16</td>
<td>14.50 – 16.10</td>
<td>Test and Cardiovascular Patient Case</td>
<td>CC (MB) 13</td>
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<tr>
<td>Long Study Tour</td>
<td></td>
<td>Sunday March 19 – Friday March 24 London, UK</td>
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<tr>
<td>Mon Mar 27</td>
<td>14.50 – 16.10</td>
<td>Rheumatoid Arthritis overview</td>
<td>MB 14</td>
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<tr>
<td>Thurs Mar 30</td>
<td>14.50 – 16.10</td>
<td>Rheumatoid Arthritis and Translational medicine, with reference to the lab and to patient registries</td>
<td>TBA (MB) 15</td>
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<tr>
<td>Mon Apr 3</td>
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<td>No Class, Reserved for Make Up</td>
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<td>Copenhagen Portion (subject to change)</td>
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<td>Classroom: TBA</td>
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<td>More information provided approximately a week before.</td>
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<tr>
<td>Mon Apr 10</td>
<td>15.30 – 17.30</td>
<td>Translational Ophthalmology Medicine Introduction to Theoretical Patient Case</td>
<td>TS (MB) 16</td>
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<td>Break: Apr 12 – 17</td>
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<tr>
<td>Thurs Apr 20</td>
<td>15.30 – 17.30</td>
<td>Evidence Based Medicine and Imaging</td>
<td>TS (MB) 17</td>
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<tr>
<td>Mon Apr 24</td>
<td>16.00 – 19.30</td>
<td>Test and Patient Case Day</td>
<td>TS (MB) 18</td>
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<tr>
<td>Thurs Apr 27</td>
<td>15.30 – 17.30</td>
<td>Preparation with Final Presentations</td>
<td>MB 19</td>
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<tr>
<td>Wed May 3</td>
<td>13.00-17.00</td>
<td>Final Presentations and Concluding Social</td>
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