



Introduction to Methods in Translational Research and Cardiovascular Medicine

Oslo University Hospital, Ullevål, IEMF, building 7

Course administration:

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UNIVERSITY
OF OSLO



Institute for
Experimental
Medical Research



NORHEART
THE NORWEGIAN SCHOOL OF HEART RESEARCH



Oslo
University Hospital

Day 1 – Monday 23 rd of March	
08:30-08:45	Introductory remarks
08:45-09:00	Cardiac translational research – from bedside to bench Mathis Korseberg Stokke
CLINICAL RESEARCH AND LARGE ANIMAL MODELS	
09:05-09:20	Electrocardiograms in cardiac research Mathis Korseberg Stokke
09:25-09:45	Large animals in cardiovascular research Mathis Korseberg Stokke
09:50-10:00	Break
10:00-10:30	How does MRI really work, and how can we use it in translational research? Emil Knut Stenersen Espe
10:35-11:05	Imaging modalities – pros and cons Lili Zhang
11:10-12:00	Lunch
CARDIAC FUNCTION AND PHENOTYPING IN SMALL ANIMALS	
12:00-12:15	The isolated perfused heart: Langendorff preparation Kåre-Olav Stensløkken
12:20-12:55	Genetically modified mice in heart research Knut Tomas Dalen
13:00-13:15	Break
13:15-13:30	Surgical methods in small animals Kristin Jenssen
METHODS IN CARDIAC CELLULAR BIOLOGY	
13:35-13:50	Investigating effects of mechanical stretch on isolated cardiomyocytes Jia Li
13:55-14:35	Imaging techniques for assessment of cardiomyocyte structure and function Michael Frisk
14:40-14:55	Break
14:55-16:00	Student presentations

Day 2 – Tuesday 24 th of March	
08:30-08:35	Daily introduction and questions
08:35-09:35	Practical demonstration: Methods in Cardiac Cellular Biology <ul style="list-style-type: none"> - Microscopy (Nishani Mabotuwana, Michael Frisk, Andreas Romanie) - Isolation of cardiomyocytes (Anna Bergan Dahl)
09:35-10:35	Practical demonstration: Assessment of Cardiac Function in Large and Small Animals <ul style="list-style-type: none"> - Pig model (Mathis Korseberg Stokke) - Echocardiography and MRI in rodents (Lili Zhang)
10:35-10:45	Break
10:45-11:30	Student presentations
11:30-12:15	Lunch
	METHODS IN MOLECULAR BIOLOGY
12:15-12:30	Cell cultures in cardiac research Pugazendhi Murugan Erusappan
12:35-12:50	Gene expression in the heart: Quantitative PCR and RNA sequencing Athiramol Sasi
12:55-13:10	Proteins: Separation, purification and quantification Marianne Lunde
13:15-13:30	Protein-protein interactions Thea Parsberg Støle
13:35-13:50	Break
13:50-14:05	Protein-localization: Flowcytometry and ELISA Andreas Romaine
14:10-14:25	Detection of cyclic nucleotides and protein-protein interactions: FRET in cardiac research Kjetil Wessel Andressen
14:30-16:00	Student presentation

Day 3 – Wednesday 25th of March

08:30-08:35	Daily introduction and questions
08:35-09:35	Practical demonstration: Methods in Molecular Biology <ul style="list-style-type: none">- Western Blot (Marianne Lunde)- PCR (Almira Hasic)- Cell work (Pugazendhi Murugan Erusappan)
09:35-09:50	Break
09:50-11:00	Sum-up & article-workshop
11:00-11:45	Lunch
11:45-13:00	Sum-up & article-workshop
13:00-13:15	Break
13:15-13:30	Cardiac translational research – from bedside to bench Kristine Mørk Kindberg
13:35-16:00	Multiple Choice Questionnaire (as a plenary session)