



11TH EUROPEAN INTERMEDIATE FILAMENT MEETING EUROIF AND COST EUROCELLNET MEETING 2019

CYTOSKELETAL AND MECHANICAL PROPERTIES OF INTERMEDIATE FILAMENTS FOR HEALTH

9th – 11th June 2019

VENUE: Radisson Blu Marina Palace Hotel, Linnankatu 32, 20100 Turku, Finland

ORGANIZING COMMITTEE

Diana Toivola (Chair), Åbo Akademi University, Turku, Finland

Pekka Taimen (Co-chair), University of Turku, Turku, Finland

Rose (Fang) Cheng (Co-chair) Åbo Akademi University, Turku and Sun Yat-sen University, Guangzhou, China

John Eriksson, Turku Bioscience Center, Turku, Finland

Cecilia Sahlgren, Åbo Akademi University and Eindhoven University of Technology, The Netherlands

Annika Meinander, Åbo Akademi University, Turku, Finland

Emilia Peuhu, University of Turku, Turku, Finland

Oscar Stassen, Åbo Akademi University, Turku, Finland

Catharina Alam, Åbo Akademi University, Turku, Finland

Gun West, University of Turku, Turku, Finland

Helping hands by many postdocs, PhD students, and summer students in the Turku IF community

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PROGRAM

Saturday June 8

- 18:00-21:00** **Registration**, Radisson Blu Hotel Lobby area
19:00-21:00 **Arrival get-together** with a light ceasar salad, and bubbles by City of Turku. Welcome by organizers and City of Turku, Chief Physician Dr. Kari Koskela, Radisson Blu Lounge area 1st floor
15:00-22:00 **Sauna Brahe** at Radisson Blu available for all participants (contact hotel front desk)

DAY 1 – Sunday June 9

- 07:00-08:45** Poster setup
07:00-10:30 Exhibition setup
08:00-09:00 **Registration**, Crystal Room second floor

- 09:00-09:10** **Opening remarks Diana Toivola**

SESSION 1: IFs and mechanobiology: proliferation, migration and shape

(EuroCellNet Work group (WG) 1, 4 focus)

Chairs/discussion leaders: Nicole Schwarz and Diana Toivola

- 09:10-09:40** **Keynote address: Pierre Coulombe** (University of Michigan Medical School, USA): Keratins regulate the balance between proliferation and differentiation in skin epithelia
09:40-10:00 **John Eriksson** (Turku Bioscience Center, Finland): Vimentin at the helm of migratory processes
10:00-10:20 **Ernest Latorre** (Institute for Bioengineering Catalonia, Spain): Active superelasticity in three-dimensional epithelia of controlled shape
10:20-10:35 **Sabrina Batonnet-Pichon** (Paris Diderot University, France): Desmin is involved in muscle cell adhesion and migration
10:35-11:05 **EXHIBITION // COFFEE**

SESSION 2: IF structure and modifications

(EuroCellnet WG2 focus)

Chairs/discussion leaders: Linda Sandblad and Alexander Minin

- 11:05-11:35** **Keynote address: Ohad Medalia** (University of Zurich, Switzerland): Structural and mechanical properties of lamin filaments
11:35-11:55 **Dolores Pérez-Sala** CSIC, Spain): Electrophilic and oxidative modifications of vimentin in physiology and pathophysiology
11:55-13:15 **Joe Swift** (University of Manchester, UK): Nuclear decoupling is part of a rapid protein-level cellular response to high-intensity mechanical loading
13:15-13:35 **Linda Sandblad** (Umeå University, Sweden): Visualization of intermediate filament like bacterial cytoskeleton by electron microscopy

12:35-13:05 POSTER FLASH TALKS 1

Chair: Oscar Stassen

- 13:05-14:00** **LUNCH**

14:00-15:00 POSTER SESSION 1 AND EXHIBITION WITH LUNCH COFFEE

SESSION 3: IFs in muscular diseases

(EuroCellNet WG4 focus)

Chairs/discussion leaders: Pekka Taimen and Giulio Agnetti

- 15:30-16:00** **Keynote address: Gisèle Bonne** (Sorbonne University-INSERM, France): Exploring pathomechanisms of striated muscle laminopathies
- 16:00-16:20** **Ali J. Marian** (University of Texas Health Science Center Houston, USA): Genomic-based identification of the pathogenic pathways for therapeutic targeting in laminopathies
- 16:20-16:40** **Tiina Heliö and Pekka Taimen:**
Heliö (Helsinki University Hospital, Finland): *LMNA* and cardiomyopathy in Finnish patients - a cardiologist's view
Taimen (University of Turku, Finland): What have we learned about the p.S143P *LMNA* mutation?
- 16:40-17:10** **COFFEE AND REFRESHMENTS // EXHIBITION // POSTERS**
- 17:10-17:30** **Giulio Agnetti** (Johns Hopkins University, USA): To the heart of IFs function: Do they aggregate on purpose?
- 17:30-17:50** **Stelios Psarras** (Biomedical Research Foundation Academy of Athens, Greece): Desmin deficiency in the mouse creates a platform to identify crucial pathways and markers of cardiac inflammation, fibrosis and failure
- 17:50-18:05** **Astrid Brull** (Center for Research in Myology, France): miRNA-processing pathway is impaired in skeletal muscle laminopathies
- 18:05-18:20** **Karla Garcia-Pelagio** (National Autonomous University of Mexico, Mexico): Synemin: More than we thought
- 18:20-18:50** **General Discussion:** Roy Quinlan (University of Durham, UK) and discussion leaders of the day
- 18:50-19:05** **Image competition prize ceremony**
- 19:15** **NETWORKING DINNER at Radisson Blu Marina Palace**
21:00-23:00 **Small group discussion opportunities**

DAY 2 – Monday June 10

- 07:15-08:30** Turku run and walks with guides. Meet in Radisson Lobby.

SESSION 4: IFs in epithelial biology

(EuroCellNet WG4 focus)

Chairs/discussion leaders: Reinhard Windoffer and Catharina Alam

- 09:15-9:45** **Keynote address: Pavel Strnad** (RWTH Aachen University, Germany): The role of keratin-desmosome system in digestive epithelia: disease markers and modifiers
- 09:45-10:05** **Florian Geisler** (RTWH Aachen University, Germany): Controlling and being controlled: intermediate filaments in the *C. elegans* intestine

- 10:05-10:25** **Birgit Lane** (A*STAR, Singapore): Phosphorylation of barrier keratins and implications for keratin tissue specificity
- 10:25-10:40** **Roman David Bülow** (RTWH Aachen University, Germany): Keratin 18 – a novel biomarker of tubular cell injury in kidney diseases
- 10:40-10:55** **Carl-Gustaf Stenvall** (Åbo Akademi University, Finland): Keratin 8 protects colon health – Intestinal epithelial-specific K8 deletion with the Cre/loxP system causes colonic hyperproliferation and colitis
- 10:55-11:25** **COFFEE AND REFRESHMENTS // EXHIBITION // POSTERS**
- SESSION 5: IFs in immunobiology**
(EuroCellNet WG4 focus)
Chairs/discussion leaders: Rose (Fang) Cheng and Annika Meinander
- 11:25-11:55** **Keynote address: Karen Ridge** (Northwestern University, USA): Vimentin alters the transcriptional architecture in monocyte-derived macrophages during influenza virus infection
- 11:55-12:15** **Franziska Lautenschläger** (Saarland University and Leibniz Institute for New Materials, Germany): Vimentin in mechanics and migration of immune cells
- 12:15-12:30** **Jose Gonzalez-Granado** (LamImSys Lab, Spain): Lamin A/C in dendritic cells potentiates T-cell adaptive response against virus
- 12:30-13:00** **POSTER FLASH TALKS 2**
Chair: Oscar Stassen
- 13:00-14:00** **LUNCH**
- 14:00-15:00** **POSTER SESSION 2 AND EXHIBITION WITH LUNCH COFFEE**
- SESSION 6: Nuclear functions of IFs**
(EuroCellNet WG1, 2, 4 focus)
Chairs/discussion leaders: Gun West and Joe Swift
- 15:00-15:30** **Keynote address: Robert Goldman** (Northwestern University, USA): The roles of intermediate filament networks in regulating cell mechanics and motility
- 15:30-15:50** **Jukka Westermarck** (Turku Bioscience Center, Finland): Phosphatase-mediated regulation of nuclear lamina
- 15:50-16:20** **COFFEE AND REFRESHMENTS // EXHIBITION // POSTERS**
- 16:20-16:40** **Pavel Hozak** (CAS, Czech Republic): Contribution of nuclear lipids - lamin interactions to DNA transcription
- 16:40-16:55** **Ryszard Rzepecki** (University of Wrocklaw, Poland): The role of LEM domain protein - emerin and lamins in nuclear assembly and laminopathies
- 16:55-17:20** **General Discussion:** Roy Quinlan and discussion leaders of the day
- 17:30** **Photograph at River side**
17:45 **Walk to the boat Lily**

18:00-19:45 Conference Networking Cruise in Turku archipelago
19:45-23:30 Conference Networking and Dinner at Ruissalo Telakka (Turku Boatyard)
23:45 Busses back to Turku

DAY 3 – Tuesday June 11

08:30-09:00 **EURO IF 2021, 2023 “World Society for Intermediate Filaments” Discussion**
Milos Pekny and John Eriksson

SESSION 7: Mechanical forces and IFs – Technical approaches and mechanistic insights

(EuroCellNet WG1, 3, 4 focus)

Chairs/discussion leaders: Emilia Peuhu and Stephanie Portet

09:00-09:30 **Keynote address: Jan Lammerding** (Cornell University, USA): Mutant lamins cause nuclear envelope rupture and DNA damage in skeletal muscle cells

09:30-09:50 **Sarah Köster** (University of Göttingen, Germany): Cytoskeletal IFs: From molecular interactions to filament and cell mechanics

09:50-10:10 **Gregory Weber** (Rutgers University-Newark, USA): Design, development and implementation of novel photoactivatable tools for investigating intermediate filaments

10:10-10:25 **Julia Kraxner** (Georg-August-University Göttingen, Germany): Recovery behavior of single vimentin filaments

COFFEE AND REFRESHMENTS // EXHIBITION // POSTERS

11:00-11:20 **Cecilia Sahlgren** (Åbo Akademi University, Finland; Eindhoven University of Technology, The Netherlands): Vimentin and matrix remodeling under hemodynamic load

11:20-11:40 **Sandrine Etienne-Manneville** (Institut Pasteur CNRS, France): Cytoskeletal crosstalks during astrocyte migration

11:40-12:00 **Amnon Buxboim** (The Hebrew University of Jerusalem, Israel): Mechanical characterization of the cell nucleus reveals a step-wise response to applied forces in mammalian cells and within live nematodes

12:00-12:15 **Chikashi Nakamura** (AIST, Japan): Detection and analysis of intermediate filament in a living cell using antibody functionalized nanoneedle and AFM

LUNCH

SESSION 8: IFs in neurological disease and intervention

(EuroCellNet WG4 focus)

Chairs/discussion leaders: Ulrika Wilhelmsson and Sandrine Etienne-Manneville

13:15-13:45 **Keynote address: Milos Pekny** (University of Gothenburg, Sweden): Yin and yang of intermediate filaments of astrocytes - from understanding (patho)physiology to designing therapeutical interventions

13:45-14:05 **Elly Hol** (UMC Utrecht, The Netherlands): GFAP in Glioma

- 14:05-14:25** **Pascale Bomont** (INM-INSERM U1051, France): Investigation of neurofilament dynamics in zebrafish
- 14:25-14:55** **COFFEE AND REFRESHMENTS // EXHIBITION // POSTERS**
- 14:55-15:15** **Joel Eyer** (INSERM, France): New biological and structural properties of the NFL peptide
- 15:15-15:45** **General Discussion:** Roy Quinlan and discussion leaders of the day
- 15:45-16** **Diana Toivola:** Concluding words and farewell
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- 16:30-19:00** **COST Action EuroCellNet Management Committee meeting**
- 19:30 -** **COST MC Dinner**