

Report for "Mechanobiology of cells and tissues in health and disease", a EuroCellNet GP3 networking meeting, 8th and 9th November 2018

Host:

- Mirjana Liović, Faculty of Medicine, University of Ljubljana, Slovenia

Scientific Committee:

- Pavle Andjus, Faculty of Biology, University of Belgrade, Serbia
- Andreja Ambriović-Ristov, Rudjer Bošković Institute, Croatia
- Rui Travasso, Center for Computational Physics, University of Coimbra, Portugal
- Nuno Saraiva, Health Sciences and Technology School , Universidade Lusófona, Lisbon, Portugal
- Mirjana Liović, Faculty of Medicine, University of Ljubljana, Slovenia

Technical help, organization and logistics:

- AdriaBio doo, Postojna, Slovenia

Venue:

- City Hotel, Dalmatinova ulica 15, SI-1000 Ljubljana, Slovenia

Participants:

1. Andreja Ambriović-Ristov, Rudjer Bošković Institute, Croatia
2. Pavle Andjus, Faculty of Biology, University of Belgrade, Serbia
3. Serap Arbak, Acibadem University, Turkey
4. Beata Čunderlikova, Comenius University, Slovakia
5. Mara Grube, University of Latvia, Latvia
6. Duško Ilić, Kings College London, London UK
7. Yannis Missirlis, University of Patra, Greece
8. Melek Özturk, Istanbul University, Turkey
9. Juan Carlos Rodríguez-Manzanares, University of Granada, Spain
10. Nuno Saraiva, Health Sciences and Technology School , Universidade Lusófona, Lisbon, Portugal
11. Selma Yilmazer, Altinbas University, Turkey
12. Rui Travasso, Center for Computational Physics, University of Coimbra, Portugal

13. Ramunas Valiokas, Center for Physical Sciences and Technology, Lithuania
14. Špela Zemljič-Jokhadar, Faculty of Medicine, University of Ljubljana, Slovenia
15. Mirjana Liović, Faculty of Medicine, University of Ljubljana, Slovenia
16. Marija Rogar, Faculty of Medicine, University of Ljubljana, Slovenia
17. Pieter-Jan Vermeire, University of Leuven, Belgium
18. Jure Derganc, Faculty of Medicine, University of Ljubljana, Slovenia

Meeting description:

The objective of the meeting was for each participant to present the current state and future directions of their research, with a particular emphasis on interdisciplinarity so to allow the identification of topics of interest amongst meeting participants. The meeting spanned a variety of topics pertaining the EuroCellNet WG1/WG2/WG3/WG4 interests, and included 16 oral presentations, each with a duration of 30 minutes and followed by a 15 minutes long discussion. The discussions were extensive and challenging, also extending into coffee, lunch and dinner breaks. Regardless the small size of the meeting, the participants found this meeting quite enriching. Although a variety of approaches and fields may be considered a limitation factor, nevertheless the presentations were addressed to a broad audience and comprehensive. To conclude, during the two-day meeting the participants recognized great potential and points of interest, which may extend into full collaborations in the future. Some more specific details on the latter subject are provided below.

- Pavle Andjus, University of Belgrade, Serbia:

- 1) An STSM to Mara Grube (and/or Ramunas Valiokas) on tissue FTIR microscopy.
- 2) An STSM to Nuno Saraiva on ROS imaging and collaboration on experimental therapy with SOD1 mimetics in ALS.
- 3) Collaboration with Mirjana Liović and Duško Ilić on dental stem cell characterization.
- 4) Collaboration with Rui Travasso on modeling angiogenesis in ALS.

- Andreja Ambriović Ristov, Rudjer Bošković Institute, Croatia:

Potential collaborators: Mirjana Liović, Nuno Saraiva, Rui Travasso, Juan Carlos Rodriguez Manzaneque, Čunderliková Beata, Ramunas Valiokas.

- Rui Travasso, University of Coimbra, Portugal:

Ongoing and extending collaborations with Mirjana Liović, Špela Zemljič-Jokhadar and Juan Carlos Rodriguez Manzaneque and new collaborations with: Nuno Saraiva, Ramunas Valiokas, Andreja Ambriović – Ristov, Yannis Missirlis and Pavle Andjus.

- Mara Grube, University of Latvia, Latvia:

Collaboration on using FTIR spectroscopy analyses of different bio-samples discussed with Mirjana Liović, Pavle Andjus, Ramunas Valiokas, Serap Arbak and Duško Ilić.

- Beata Čunderliková, Comenius University, Slovakia:

Collaboration with Andreja Ambriović-Ristov on expression of integrins in 3D cell cultures, an application for a short technical stay in her lab is possible as well. Potential collaboration with Ramunas Valiokas (or research stay of our expert in 2PP in his lab).

- Nuno Saraiva, Universidade Lusófona, Lisbon, Portugal:

Collaboration with Pavle Andjus - SODm impact in ALS - redox biology analysis; Andreja Ambriović – Ristov on adhesome analysis from hGAAP o/e and KD cells and impact of redox biology in integrins expression and activation regulation; Rui Travasso on redox biology and cell migration modeling.

- Duško Ilić, Kings College London, UK:

Collaboration with Mirjana Liović, Ramunas Valiokas, Mara Grube, Andreja Ambriović-Ristov, Pavle Andjus.

- Serap Arbak, Acibadem University, Turkey:

Collaboration with Mara Grube on FTIR spectroscopy and through the Acibadem University Rare Diseases Group-ACURARE also with Mirjana Liović, Duško Ilić.

- Melek Özturk, Istanbul University, Turkey:

Collaboration with Mirjana Liović, Mara Grube, Andreja Ambriović-Ristov.

- Juan Carlos Manzanque, University of Granada, Spain:

Ongoing collaboration with Rui Travasso on vasculature, angiogenesis and sprouting mechanisms; New collaboration with Ramunas Valiokas and Rui Travasso on generating modules for sprouting of endothelial cells, using gradients and combinations of ECM matrices and specific growth factors; Andreja Ambriović-Ristov on the “extracellular side” of their integrin-adhesome datasets; Mirjana Liović on the bad prognosis that human melanomas with a “keratin” transcriptomic signature have, in combination with the models of Andreja Ambriović Ristov; Yannis Missirlis and his models, sharing some material to approach gene expression; Projects by Duško Ilić and Pavle Andjus, the integration of vascular data in their models would be very valuable.

- Mirjana Liović, Faculty of Medicine, University of Ljubljana:

The extension of ongoing collaboration with Rui Travasso and Špela Zemljič Jokhadar (manuscript submitted to *Biophysical Journal* and under review); Ongoing collaboration with Duško Ilić on skin tissue engineering; a new collaboration with Andreja Ambriović Ristov, Nuno Saraiva and Duško Ilić on the adhesome in keratin 5 and 14, and collagen 7 deficient tissues, testing of plant extracts on *in vitro* skin models for wound healing. A grant proposal outline is being drafted.

On behalf of the Ljubljana EuroCellNet networking meeting, I would like to thank COST for making this meeting possible.

Mirjana Liović