



Mohammad El Khatib

Born in Barja - Libano

2020: Ph.D. in Cellular and Molecular Biotechnologies

2016: Master's degree in Chemical and Microbiological Analyses for Water and Food - Faculty of Public Health (I) - Lebanese University.

2014: Bachelor Degree in Laboratory Sciences Faculty of Public Health (I) - Lebanese University.



Valentina Russo

Vet/01: Anatomist

Research field: regenerative medicine and tissue engineering



Matthias Schnabelrauch

Head of the Biomaterials Department at INNOVENT e.V., Germany
Chemist



Francesco Lazzaro

R&D Manager,
Assut Europe SpA
Magliano dei Marsi (AQ)

Company mission: to raise the bar of patient standards of care delivering high quality, cost-effective solutions, to meet the ever changing requirements of modern surgery. As a key partner for clinicians and healthcare professionals, we constantly invest in R&D to helpmaking a positive impact in the life of patients.

Tendinopathies and development of innovative biomimetic materials: towards the new frontiers of regenerative medicine

- In this project, it is intended to develop synthetic and biological scaffolds dedicated to the treatment of tendinopathies, a widespread pathology capable of negatively affecting the quality of life and the costs of the national healthcare system. In this context, the Red Biotech companies offer the opportunity to transform research excellence into innovative technologies and products, thus offering better treatment options and consequently increasing the quality of patients' life.

- The Research products will be enhanced through:
 - 1) dissemination initiatives (scientific publications, initiatives for communicating results to the general public, drafting and public discussion of the doctoral thesis),
 - 2) technology transfer activities (patent, development of prototypes and / or production of medical devices, activation of academic / university spin-offs).

- Co-projecting: Assut has co-projected the research and training conducted during the PhD programme. Assut contributed with its structure and equipment, specialized personnel and its background in the field of medical devices.
- Training: Assut assisted the PhD student's training activities increasing his abilities on technological transfer, in particular on the quality system ISO13485 and on medical device manufacturing according to FDA rules support towards technological transfer of medical device.
- Research: Assut R&D department has actively contributed to the research project by conducting joint experiments with UniTe and Innovent. This collaboration, as a result, allowed to produce several abstracts presented in national and international congresses and to publish two articles on a JCR journal (IF 5.656).
- Technological transfer: The company intends to develop a prototype of the scaffold, designed jointly with UniTe and Innovent. At the same time, in a long-term vision, Assut may have an interest in patenting and in the commercialization of the synthetic scaffolds developed in this research.



Publications



- **M. El Khatib**, A. Mauro, **R. Wyrwa**, M. Di Mattia, M. Turriani, O. Di Giacinto, **B. Kretzschmar**, **T. Seemann**, L. Valbonetti, P. Berardinelli, **M. Schnabelrauch**, B. Barboni and V. Russo. Fabrication and Plasma Surface Activation of Aligned Electrospun PLGA Fiber Fleeces with Improved Adhesion and Infiltration of Amniotic Epithelial Stem Cells Maintaining their Teno-inductive Potential. *Molecules* 2020, 25 (14), 3175. <https://doi.org/10.3390/molecules25143176> (IF: 3.27)
- **M. El Khatib**, A. Mauro, M. Di Mattia, **R. Wyrwa**, **M. Schweder**, M. Ancora, **F. Lazzaro**, P. Berardinelli, L. Valbonetti, O. Di Giacinto, A. Polci, C. Cammà, **M. Schnabelrauch**, B. Barboni and V. Russo. Electrospun PLGA Fiber Diameter and Alignment of Tendon Biomimetic Electrospun Fleece Potentiate Tenogenic Differentiation and Immunomodulatory Function of Ovine Amniotic Epithelial Stem Cells. *Cells* 2020, 9 (5), 1207. <https://doi.org/10.3390/cells9051207> (IF: 4.36)
- V. Russo, **M. El Khatib***, L. Di Marcantonio, M. Ancora, **R. Wyrwa**, Mauro A, **T. Walter** , **J. Weisser**, MR Citeron, **F. Lazzaro**, M. Di Federico, P. Berardinelli, C. Cammà, **M. Schnabelrauch**, B. Barboni. Tendon Biomimetic Electrospun PLGA Fleeces Induce an Early Epithelial-Mesenchymal Transition and Tenogenic Differentiation on Amniotic Epithelial Stem Cells. *Cells*. 2020 Jan 27;9(2). pii: E303. doi:10.3390/cells9020303. PubMed PMID: 32012741. * corresponding author (IF: 4.36)
- M.R. Citeroni, M.C. Ciardulli, V. Russo, G. Della Porta, A. Mauro, **M. El Khatib**, M. Di Mattia, D. Galesso, C. Barbera, N. Forsyth, N. Maffulli, B. Barboni. In vitro innovation of tendon tissue engineering strategies. *International Journal of Molecular Sciences* 2020, 21 (18), 6726. <https://doi.org/10.3390/ijms21186726> (registering DOI) (IF: 4.55)

Scientific meeting



1. Annual meeting of doctoral course in Cellular and Molecular Biotechnologies. *Oral presentation.* Chieti, Italy, February 2020.
2. 1st International Northern-Southern Europe Workshop in Nanomedicine. *Oral and poster presentation.* Chieti, Italy, January 2020.
3. 9° Congresso I.S.Mu.L.T. *Oral and poster presentation.* Verona, Italy, November 2019.
4. ESB 2019 EU (European Society for Biomaterials). *Poster presentation.* Dresden , Germany, September 2019.
5. TERMIS (Tissue Engineering and Regenerative Medicine International Society) EU 2019. *Oral presentation.* Rhodes, Greece, 27 – 31 May May 2019.
6. II INTERREG – 7° TERMIS (Tissue Engineering & Regenerative Medicine International Society) Winterschool 2019. *Poster presentation.* Radstadt, Austria, January 2019.
7. 8° Congresso I.S.Mu.L.T. *Oral and poster presentation.* Salerno, Italy, November 2018.
8. DXXII Congresso della Società Italiana di Anatomia e Istologia. *Oral presentation.* Florence, Italy, September 2018.
9. 7° Congresso I.S.Mu.L.T. *Poster presentation.* Rome, Italy, December 2017.
10. Focus group sul Programma Operativo Nazionale (PON) per la Ricerca e l'innovazione 2014– 2020. *Oral presentation.* Rome, December 2017.



1. **UNITE PhD Awards Giulio Regeni**: Award to the best PhD student in Cellular and Molecular Biotechnologies at the University of Teramo, October 2020.
2. **Post-doctoral fellowship** in charge from October 2020 to September 2022 at Teramo University
3. **Doctor Europeus**: Additional PhD label to the PhD title in Cellular and Molecular Biotechnologies at the University of Teramo, September 2020.
4. **Most Notable Article** (April– August 2020) in *Molecules* Journal. "El Khatib et al., *Molecules* 2020, 25(14), 3175.
5. **Best oral presentation** during the PhD annual meeting of doctoral course in cellular and molecular biotechnologies (session of regenerative medicine) held at the University of Chieti, Chieti, Italy 21 February 2020.
6. **Best poster award** during the 9° I.S.Mu.L.T. Congress (I.S.Mu.L.T. & IBSA Foundation, Award 2019), Verona, Italy, 29 – 30 November 2019.
7. **MUR Italian PhD** testimonial of PON RI Industrial PhD students selected to attend the focus group on the actions of the National Operative Program (PON) for Research and Innovation aimed at human capital engaged in research training 2014 – 2020, Rome 7° December 2017.