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Areas of scientific interest

- **Research in allergic diseases and development of innovative immunotherapies**

The main research topics in the field are: (1) human dendritic cells response to pulsing with aeroallergens and pro-inflammatory mediators; (2) mechanisms of in vivo and in vitro allergic reactions in respiratory diseases; (3) assessment of bronchial remodelling. The topics were developed within the first national study on the efficiency of prevention to exposure to aeroallergens in Romania (PREVALERG, 41-011/2007-2010). Based on the achieved results, I've started the study of allergic response to Ambrosia pollen in cooperation with the Medical University Vienna, which led to the INSPIRED research project, aiming to develop innovative diagnostic kits based on recombinant allergens.

- **Research in stem cell use for advanced therapies**

One focus in research is the development of advanced therapies based on adult human stem cells, with emphasis on bone repair. Within the EU funded projects GENOSTEM (FP6 - LSHB 1.1./503161/2003-2007) and CASCADE (FP7 - 223236/2009), the focus was on stem cell use for cell therapies in soft tissue defects. In REBORNE (FP7-241879/2009) we were involved in the development of clinical trials with human MSC for advanced therapies for bone regeneration in orthopaedics and traumatology. Our team was involved in the multinational multicentre clinical trial ORTHO2 - with clinical-grade bone marrow mesenchymal stromal/stem cells for bone regeneration, in partnership with universities and research centres from France, Italy, Germany and Spain.

- **Medical research ethics**

In the framework of CASCADE and REBORNE projects, our team has also conducted research on ethical, legal and regulatory issues in the field of stem cell use, particularly for advanced therapies. Moreover, our university was appointed leader of the respective workpackages dealing with medical research ethics in the aforementioned projects.

Relevant publications

1. Bousquet J., **Panaitescu Bunu C** et all (2016), *ARIA 2016: Care pathways implementing emerging technologies for predictive medicine in rhinitis and asthma across the life cycle* CTAL-D-16-00048, Clinical and Translational Allergy - in press
2. Bousquet J., Berwick M., **Bunu C** et all (2016), *Building bridges for innovation in ageing: synergies between action groups of the EIP on AHA*, J Nutr Health Aging, 1-13, doi:10.1007/s12603-016-0803-1

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4. Gómez-Barrena E, Sola A. C., **Panaiteescu Bunu C** (2014), *Regulatory authorities and orthopaedic clinical trials on expanded mesenchymal stem cells*, International Orthopaedics (SICOT), DOI 10.1007/s00264-014-2332-z
5. Veronesi E, Murgia A, Caselli A, Grisendi G, Piccinno MS, Rasini V, Giordano R, Montemurro T, Bourin P, Sensebé L, Rojewski MT, Schrezenmeier H, Layrolle P, Ginebra MP, **Panaiteescu Bunu C**, Gómez-Barrena E, Catani F, Paolucci P, Burns JS, Dominici M. (2013) *Transportation Conditions for Prompt Use of Ex Vivo Expanded and Freshly Harvested Clinical-Grade Bone Marrow Mesenchymal Stromal/Stem Cells for Bone Regeneration*, Tissue Eng Part C Methods, DOI: 10.1089/ten.tec.2013.0250, (Medline, Index Medicus, PubMed)
6. Ianovici N, **Panaiteescu Bunu C**, Brudiu I. (2013) *Analysis of airborne allergenic pollen spectrum for 2009 in Timișoara, Romania*, Aerobiologia, 29:95–111 doi: 10.1007/s10453-012-9266-y,
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8. Bojin FM, Gavriiliuc OI, Cristea MI, Tanasie G, Tatu CS, **Panaiteescu C**, Paunescu V., (2011), *Telocytes within human skeletal muscle stem cell niche*, J Cell Mol Med., 15(10):2269-72. doi: 10.1111/j.1582-4934.2011.01386.x.
9. Tanasie G, Bojin F, Ordodi V, Gruia A, Gavriiliuc O, Cristea M, Galuscan A, Dehelean C, Vintila R, Tatu C, **Bunu Panaiteescu C**, Paunescu V. (2011) *Epithelization of skin lesions in animal model treated with mesenchymal stem cells and derivatives*. Romanian Biotechnological Letters 16; 2:6073
10. Bojin F, Ordodi V, Anghel, S, Gruia A, Gavriiliuc O, Georgescu R, Galuscanu A, Vintila R, Tatu CA, **Bunu C**, Tatu C, Tanasie G, Paunescu V. (2011) *Mesenchymal stem cells admix with biological scaffold heal bone defects in rat model*. Romanian Biotechnological Letters 16; 3:6219. IDS Number: 786CK
11. Gómez-Barrena, E., Rosset, P., Müller, I., Giordano, R., **Bunu C.**, Layrolle, P., Konttinen, YT., Luyten, FP., (2011), *Bone regeneration: stem cell therapies and clinical studies in orthopaedics and traumatology*, J Cell Mol Med. 15(6), 1266-1286
12. Păunescu V, Bojin FM, Tatu CA, Gavriiliuc OI, Rosca A, Gruia AT, Tanasie G, **Bunu C**, Crisnic D, Gherghiceanu M, Tatu FR, Tatu CS, Vermesan S. (2010), *Tumor-associated fibroblasts and mesenchymal stem cells: more similarities than differences*, J Cell Mol Med., 20:1-12, ISI Journal Citation Reports © Ranking: 2009: 9/92 (Medicine Research & Experimental); 41/161 (Cell Biology)
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