

Selected research topics in Biomedical Engineering: Developments in Dental Research

Location: Kleiner Hörsaal, Universitäres Zentrum für Zahnmedizin Basel (UZB)

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Biological and technological platforms in dental research

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Abstract: Human teeth have a limited capacity to regenerate and thus biological reconstruction of damaged or lost dental tissues remains a significant challenge in dental research. Modern efforts focus on alternative therapies for partial or whole tooth regeneration that complement traditional dental treatments using sophisticated materials and innovative technological platforms. These multidisciplinary approaches are based on the combination of stem cells with advanced tissue engineer products, holding a great promise for future applications in dentistry. The administration to patients of dynamic biological agents composed by stem cells and scaffolds will certainly increase the regenerative capacity of dental pathological tissues. The design of new materials for restorations, diagnostics, imaging and targeted pharmaceutical treatments will significantly improve the quality of dental care and will have a major societal impact, leading to enlarged possibilities for novel and successful therapeutic applications in the near future.

Curriculum: In 1994 Prof. Orsini obtained the Degree in Dentistry from the University of L'Aquila, Italy and she then continued her studies with a Certification in Esthetic Dentistry at the UCLA, USA (1996). In 2000 she received a MSc in Biomedical Sciences from the University of Montreal, Canada and, in 2005, she finished her PhD in Stomatology and Oral Sciences at the University of Chieti-Pescara, Italy. Currently, Dr. Orsini is an Associate Professor of Dental Materials and Restorative Dentistry at the Medical Faculty of the Polytechnic University of Marche, Italy.

Dr. Orsini's research interests focus on clinical trials, aesthetic dentistry, oral calcified tissues, biomaterials, nanotechnology, dental stem cells and tissue engineering. She has received several research awards and has authored or co-authored over 105 papers published in international peer-reviewed journals and 9 book chapters. Dr. Orsini is the Italian Representative of the Management Committee of the European COST Action 16234, Member of the Scientific Committee of the Italian Society of Operative Dentistry, Associate Editor for Craniofacial Biology and Dental Research, Frontiers in Physiology and for Stem Cells Research, Frontiers in Genetics.