

Preface

The social and economic development attained over the last decades turned possible a complete change in terms of life style and life expectancy in developed countries. The scientific knowledge brought unprecedented capacities of diagnosis and health treatment. However, the current healthcare systems are essentially based on the identification of signs and symptoms of pathologies, which in most cases (e.g., cancer, diabetes, cardiovascular diseases) results in impossibility of finding effective solutions for the patients because it is already too late, and the progress/complications of the disease are already established. The change of mentalities and philosophies in the healthcare sector driven by the desire to address the mentioned problems that certainly will improve the life-quality and decrease the mortality is crucial. On this matter, since 2009, the European Association for Predictive, Preventive and Personalised (EPMA) (www.epmanet.eu) has done a pioneering work regarding the change of the actual paradigm and aiming to establish the platform for the medicine of future. This challenging task can only be accomplished with a strong and clear coordination of multidisciplinary networking areas involving: patients, healthcare institutions, physicians, researchers, pharmaceuticals and governmental institutions. The management of the massive information available and its rapid dissemination is of outmost importance to create the basis for sustainable development and correct implementation of the preventive, predictive and personalized medicine (PPPM). The EPMA has strong commitment on the wide spread of updated information regarding the most relevant emerging innovations and developments on PPPM. On this matter, *The EPMA Journal* constitutes the platform of excellence to consolidate different professional groups in the concept of PPPM. The vision to excel in consolidation of the PPPM area is now witnessed by the publication of a series of books on advances in PPPM. This book belongs to that series and it is devoted to the “Drug delivery systems: advanced technologies potentially applicable in personalised treatments”. This book intends to elucidate about essential topics involving the development and preparation of effective drug delivery systems, such as, polymers available, self-assembly, nanotechnology, pharmaceutical formulations, three dimensional structures, molecular modeling, tailor-made solutions, and technological tendencies. The scientific understanding

of these areas constitutes a paramount route to establish personalized and effective solutions for specific diseases and individuals.

I would like to express my deepest thanks to all contributors that turned the preparation of this book into an enjoyable and exciting task, and accepted to share the excellence of their research involving in most cases, completely different areas that are essential to join in order to achieve the main goal of any part involved: the improvement of the patient's quality of life.

At the end of the day, the patients are and will be always the most important part in this complex network.



Prof. Dr. Jorge F. J. Coelho
Editor

Dr. Jorge F. J. Coelho was born in Figueira da Foz (Portugal) in 1978. He graduated in Chemical Engineering at the Faculty of Science and Technology of the University of Coimbra (FCTUC) in 2002. He received his Ph.D. in 2006 from the same University, in a project related to the development and industrial implementation of a new living radical polymerization method, which was awarded with CUF Prize 2007 (to distinguish the best Ph.D. project defended by a Portuguese citizen in the areas of Chemical Engineering, Environmental Engineering, Biological Engineering and Agriculture Engineering).

Since 2009, Dr. Coelho is Assistant Professor at the Chemical Engineering Department of FCTUC. He is involved in teaching different classes in the areas of polymer science and chemical engineering at undergraduate, postgraduate and doctoral programs in Chemical, Mechanical and Biomedical Engineering. His research interests involve the synthesis of tailor-made polymers (controlled/"living" radical polymerization), synthesis of biodegradable polymers (step-growth polymerization), self-assembly, nanotechnology, biomaterials and polymer characterization. His research activities have been supported by the Portuguese Science Foundation, National Strategic Reference Framework (NSRF), FP7 European program and private funds. He is co-author of 50 papers published in international peer-reviewed journals and several book chapters. He belongs to the editorial board of *The EPMA Journal* and he is an *ad hoc* reviewer for several scientific journals. He is the National Representative of EPMA in Portugal.

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