

Editorial

The Institute of Macromolecular Chemistry of the Czech Academy of Sciences (IMC) is an academic institution whose research is aimed at the design, development and synthesis of novel polymer materials, polymer physics and physical chemistry of polymers. Since its founding in 1959 by Professor Otto Wichterle, the research has been focused on study and development of new polymer materials for various contemporary technologies as well as for biomedical application.

With the aim to keep pace with worldwide enormous development the IMC has recently founded two Otto Wichterle Innovation Centres, i.e. Otto Wichterle Centre of Polymer Materials and Technologies and Centre of Biomedicinal Polymers, and became partner in the newly established research center BIOCEV (Biotechnology and Biomedicine Center of the Academy of Sciences and Charles University in Vestec). Research centers mentioned above and participation in the project Biocev were established in order to gather researchers with diverse specialization to form a multi-disciplinary team solving highly innovative projects within the technological and biomedical field.

The present special issue of Physiological Research intends to demonstrate the extensive impact of polymer science and nanotechnology on biomedical research, and describes the current trends in the field of polymers for biomedical applications, mainly polymer-based biomaterials for tissue engineering and polymer systems for drug delivery and diagnostics within the IMC. Moreover, the current issue emphasizes increased interdisciplinarity in the present biomedical research.

The biomedical research within our institute focused on modern polymer-based biomaterials aims to create highly complex macromolecular materials that are able to interact actively with biological environment or interfaces (i.e. tissues and cells) or controllably release biologically active compounds (e.g. therapeutic substances) in target tissues. These novel macromolecular materials offer tremendous possibilities in the treatment of various disorders (neoplastic, inflammatory or degenerative diseases), in tissue-engineering and also in accurate medical diagnostics.

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