

Doctoral School of Information and Biomedical Technologies
Polish Academy of Sciences (TIB PAN)

SUBJECT:

Injectable polymer hydrogels for the post-infarction myocardium regeneration
(the detailed title will be clarified as a result of the PhD student-promoter interaction)

SUPERVISOR:

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DESCRIPTION:

Myocardial infarction is one of the leading causes of heart failure. The lack of blood supply to the cardiac tissues leads to the massive death of cardiomyocytes. The rapid wound healing process in the infarcted area forms fibrosis instead of functional cardiac tissue, ventricular remodeling and a loss of contractility follow the wound healing. These processes cause the loss of heart function, which can lead to end-stage heart failure. One of the very promising procedures for the myocardium post-infarction regeneration is based on the use of injectable hydrogels. The subject of the work deals with the research related to the possibility of post-infarction myocardium regeneration with the use of polymer thermo-sensitive hydrogels, the cross-linking of which occurs after injection into the damaged area. Such hydrogels may additionally constitute an effective carrier of stem cells, which should differentiate into myocytes in situ under appropriate conditions.