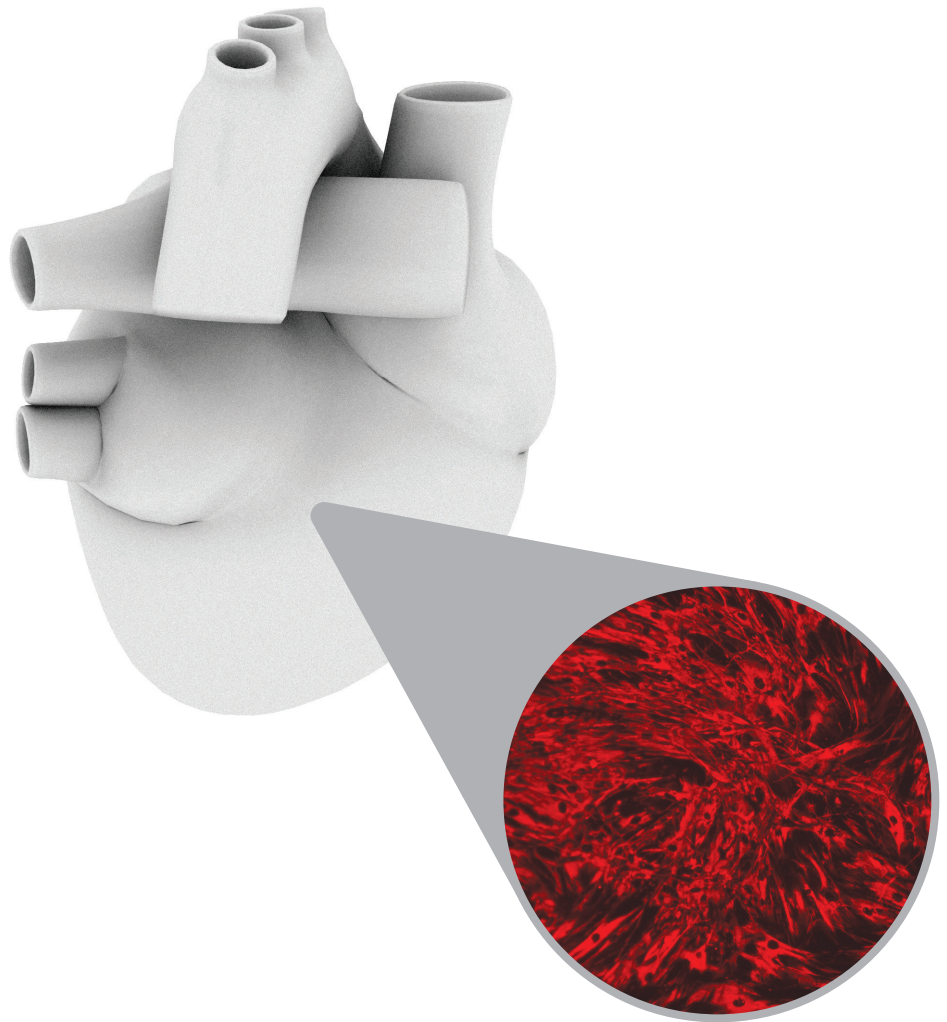


Initiation

P O L O N A T R A T N I K





Initiation, 2012

POLONA TRATNIK ET AL. (SLOVENIA)

Initiation conducts regeneration of functional human heart muscle developing the capacity of autonomous pulsation. Cardiac tissue engineering comprises stem cells research in order to re-constitute a heart-form engineered human heart tissue in vitro. Regeneration involves the implantation of a resorbable organic matrix, i.e. decellularized heart organ, with cardio-myocytes differentiated from human adipose derived stem cells. The pulsative flow enhances the seeded cell attachment and alignment of the cells within the matrix. The technology of implantation and dynamic conditioning enable the engineering of the proliferated cells into a strong fibrin-based tissue stimulated to develop the functional ability of the heart muscle cells, i.e. to perform the muscle contraction. Initiation accelerates the maturation of the tissue and aims to gain its muscle response – it performs the initiation of the cells into functional i.e. contractive tissue and initiates the pulsation of in vitro engineered organ. The degree of tissue formation and cardiac myocyte differentiation in vitro, contractile function, and electrophysiological properties are the factors upon which the suitability of such tissue for both in vitro and in vivo application will depend on.

PRODUCTION: HORIZONTI, CO-PRODUCTION: BIOBANKA D.O.O., EDUCELL D.O.O.

CONCEPT: POLONA TRATNIK (PROJECT LEADER), TISSUE ENGINEERING: BIOBANKA D.O.O., EDUCELL D.O.O. (MIOMIR KNEŽEVIČ, MARKO STRBAD, AJDA MARIČ, JANJA DOBRAVC, PETRA KONENČNIK ET AL.), ELECTRICAL ENGINEERING: UNIVERSITY OF LJUBLJANA, FACULTY OF ELECTRICAL ENGINEERING (DAMIJAN MIKLAVČIČ ET AL.), PHOTOGRAPHY: DAMJAN ŠVARC, VIDEO: MARKO CAFNIK (SNAUT), DESIGN: MIHA TURŠIČ. SUPPORT: THE SLOVENIAN MINISTRY OF CULTURE, EUROPEAN CAPITAL OF CULTURE MARIBOR 2012. SPECIAL THANKS TO: PRIMOŽ ROŽMAN, MOJCA JEŽ, BLOOD TRANSFUSION CENTER SLOVENIA, TEHNOOPTIKA SMOLNIKAR D.O.O., ISKRA PIO D.O.O.

Iniciacija, 2012

POLONA TRATNIK ET AL. (SLOVENIJA)

Iniciacija izvaja regeneracijo funkcionalne mišice človeškega srca z razvijanjem sposobnosti samostojnega pulziranja. Regeneracija vključuje poselitev vpojne organske matrice, t.j. decelulariziranega srčnega organa, s kardiomiociti, diferenciranimi iz matičnih celic, pridobljenih iz človeškega maščobnega tkiva. Iniciacija pospeši zorenje tkiva ter stremi k dosegu mišičnega odziva - izvaja iniciacijo celic v funkcionalno, t.j. krčljivo tkivo ter iniciira pulziranje in vitro konstruiranega organa.

PRODUKCIJA: HORIZONTI, KOPRODUKCIJA: BIOBANKA D.O.O., EDUCELL D.O.O.

KONCEPT: POLONA TRATNIK (VODJA PROJEKTA), TKIVNI INŽENIRING: BIOBANKA D.O.O., EDUCELL D.O.O. (MIOMIR KNEŽEVIČ, MARKO STRBAD, AJDA MARIČ, JANJA DOBRAVC, PETRA KONENČNIK ET AL.), ELEKTRIČNI INŽENIRING: UNIVERZA V LJUBLJANI, FAKULTETA ZA ELEKTROTEHNIKO (DAMIJAN MIKLAVČIČ ET AL.), FOTOGRAFIJA: DAMJAN ŠVARC, VIDEO: MARKO CAFNIK (SNAUT), OBLIKOVANJE: MIHA TURŠIČ. PODPORA: MINISTRSTVO ZA KULTURO REPUBLIKE SLOVENIJE, EVROPSKA PRESTOLNICA KULTURE MARIBOR 2012. ZAHVALA: PRIMOŽ ROŽMAN, MOJCA JEŽ, ZAVOD ZA TRANSFUZIJSKO MEDICINO RS, TEHNOOPTIKA SMOLNIKAR D.O.O., ISKRA PIO D.O.O.