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Author: Neshati, Zeinab Title: Cellular models and viral vectors for skeletal and cardiac muscle research Issue Date: 2014-12-23

# **List of Publications**

#### **Full papers**

**Neshati Z**, Liu J, Zhou G, Schalij MJ, de Vries AAF. Development of a lentivirus vector-based assay for non-destructive monitoring of cell fusion activity. PLoS One. 2014;9:e102433.

Bingen BO\*, Engels MC\*, Schalij MJ, Jangsangthong W, **Neshati Z**, Feola I, Ypey DL, Askar SFA, Panfilov AV, Pijnappels DA\*, de Vries AAF\*. Light-induced termination of spiral wave arrhythmias by optogenetic engineering of atrial cardiomyocytes. Cardiovasc Res. 2014;104:194-205. \**Equal contribution* 

Bijkerk R\*, van Solingen C\*, de Boer HC, van der Pol P, Khairoun M, de Bruin RG, van Oeveren-Rietdijk AM, Lievers E, Schlagwein N, van Gijlswijk DJ, Roeten MK, **Neshati Z**, de Vries AAF, Rodijk M, Pike-Overzet K, van den Berg YW, van der Veer EP, Versteeg HH, Reinders MEJ, Staal FJT, van Kooten C, Rabelink TJ, van Zonneveld AJ. Hematopoietic microRNA-126 protects against renal ischemia/reperfusion injury by promoting vascular integrity. J Am Soc Nephrol. 2014;25:1710-1722. \**Equal contribution* 

Bingen BO, **Neshati Z**, Askar SFA, Kazbanov IV, Ypey DL, Panfilov AV, Schalij MJ, de Vries AAF, Pijnappels DA. Atrium-specific Kir3.x determines inducibility, dynamics, and termination of fibrillation by regulating restitution-driven alternans. Circulation. 2013;128:2732-2744.

Ahmadiankia N, Neshati V, **Neshati Z**, Swildens J, de Vries AAF. Generation of Helper Plasmids Encoding Mutant Adeno-associated Virus Type 2 Capsid Proteins with Increased Resistance against Proteasomal Degradation. Iran J Basic Med Sci. 2013;16:813-821.

**Neshati Z**, Bahrami AR, Eshtiagh-Hosseini H, Matin MM, Housaindokht MR, Tabari T, Edalatmanesh MA. Evaluating the biodegradability of Gelatin/Siloxane/Hydroxyapatite (GS-Hyd) complex in vivo and its ability for adhesion and proliferation of rat bone marrow mesenchymal stem cells. Cytotechnology. 2012;64:485-495.

Ahmadian Kia N, Bahrami AR, Ebrahimi M, Matin MM, **Neshati Z**, Almohaddesin MR, Aghdami N, Bidkhori HR. Comparative analysis of chemokine receptor's expression in mesenchymal stem cells derived from human bone marrow and adipose tissue. J Mol Neurosci. 2011;44:178-185.

**Neshati Z**, Matin MM, Bahrami AR, Moghimi A. Differentiation of mesenchymal stem cells to insulin-producing cells and their impact on type 1 diabetic rats. J Physiol Biochem. 2010;66:181-187.

Edalatmanesh MA, Matin MM, **Neshati Z**, Bahrami AR, Kheirabadi M. Systemic transplantation of mesenchymal stem cells can reduce cognitive and motor deficits in rats with unilateral lesions of the neostriatum. Neurol Res. 2010;32:166-172.

Behnam Rassouli F, Matin MM, Iranshahi M, Bahrami AR, Neshati V, Mollazadeh S, **Neshati Z**. Mogoltacin enhances vincristine cytotoxicity in human transitional cell carcinoma (TCC) cell line. Phytomedicine. 2009;16:181-187.

Edalatmanesh MA, Bahrami AR, Behnam Rasuli M, Matin MM, Moghimi A, **Neshati Z**. Microanatomical evidences for potential of mesenchymal stem cells in amelioration of striatal degeneration. Neurol Res. 2008;30:1086-1090.

**Neshati Z**, Bingen BO, Askar SFA, Schalij MJ, Pijnappels DA, de Vries AAF. Investigation of the pro-arrhythmic features of pathological cardiac hypertrophy in neonatal rat ventricular cardiomyocyte cultures. To be submitted.

**Neshati Z**, Jangsangthong W, Liu J, Bingen BO, Feola I, Ypey DL, Schalij MJ, Pijnappels DA, de Vries AAF. Forced NFAT3 expression in hypertrophic myocardial cultures prevents focal tachyarrhythmias by inhibiting triggered activity through reverse L-type calcium channel remodeling. To be submitted.

Askar SFA<sup>\*</sup>, **Neshati Z**<sup>\*</sup>, Bingen BO, Piers SRD, Zeppenfeld K, Schalij MJ, de Vries AAF, Pijnappels DA. An *in vitro* model of early- or no-reperfusion scars to explain how clinical reentrant arrhythmia characteristics may relate to therapeutic efficacy. To be submitted. \**Equal contribution* 

Engels MC\*, Askar SFA\*, Jangsangthong W, Bingen BO, **Neshati Z**, Feola I, Liu J, Braun J, Klautz RJM, Ypey DL, Schalij MJ, de Vries AAF\*, Pijnappels DA\*. Fusion of cultured human ventricular scar cells with cardiomyocytes reduces arrhythmogenicity by preventing early afterdepolarizations through increased repolarization force. To be submitted. *\*Equal contribution* 

### **Peer-reviewed abstracts**

**Neshati Z**, Bingen BO, Pijnappels DA, Schalij MJ, de Vries AAF. NFAT3 gene transfer to counteract the pro-arrhythmic electrophysiological changes accompanying pathological cardiac hypertrophy. Eur Heart J. 2014;31:183-184.

Bingen BO, Askar SFA, **Neshati Z**, Feola I, Ypey DL, Schalij MJ, de Vries AAF, Pijnappels DA. Acetylcholine-dependent potassium current determines atrial defibrillation threshold by regulating post-shock refibrillation. Eur Heart J. 2014;31:259.

Engels MC, Askar SFA, Jangsangthong W, **Neshati Z**, Feola I, Ypey DL, Klautz RJM, Schalij MJ, de Vries AAF, Pijnappels DA. Heterocellular fusion of human

ventricular scar cells with neonatal rat cardiomyocytes ameliorates pro-arrhythmia through APD shortening and MDP lowering by enhanced outward potassium current. Eur Heart J. 2014;31:184.

**Neshati Z**, Bingen BO, Askar SFA, Schalij MJ, Pijnappels DA, de Vries AAF. Development of a new model of cardiac hypertrophy with pro-arrhythmic features to study the role of hypertrophy in arrhythmogenesis. Eur Heart J. 2013;34:916.

Askar SFA, Bingen BO, Schalij MJ, **Neshati Z**, Klautz RJM, de Vries AAF, Pijnappels DA. Forced cellular fusion of human ventricular scar cells with neonatal rat cardiomyocytes ameliorates their arrhythmicity. Europace. 2013;15:S1-S2.

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## **Curriculum Vitae**

Zeinab Neshati was born on April 5<sup>th</sup> 1982 in Mashhad, Iran. She graduated from high school in 2000 and afterwards she obtained her bachelor's degree in general biology in 2004. She started her mastership in 2005 in the field of animal physiology at Ferdowsi University of Mashhad (FUM), Mashhad, Iran. Her thesis was about the differentiation of stem cells to insulin producing cells and their transplantation impact on animal model of type 1 diabetes. She could publish a paper based on this project in Journal of physiology and biochemistry. She obtained her master's degree in 2008. During her studies (2005-2008) she was involved in diverse research projects. She also worked as a demonstrator and teacher-assistant in the Tissue and Cell Culture, Cellular Biology, Molecular Cell Biology and Biotechnology labs of faculty of science of FUM. She also took out a patent entitled "Synthesis and characterization of organic-mineral hybrid gelatin/siloxan/hydroxy apatite". In 2009 she was awarded a scholarship for postgraduate studies from Ministry of Science, Research and Technology of Iran, Tehran, Iran. She was the top candidate for this scholarship. With an invitation of Dr. Antoine A.F. de Vries, she started her PhD training at the Virus and Stem Cell Biology Section of the Molecular Cell Biology Department of the Leiden University Medical Center (LUMC), Leiden, the Netherlands for 1.5 years and then she moved to the Department of Cardiology of LUMC for the last 3 years of her PhD. The work performed during this period is presented here.