

# **Molecular Probe**

<b>RECOOP HST Research Activity Inventory</b>						
Please complete the template for each selected project your organization would like to share with the partners of the RECOOP HST Consortium and would like to invite other organizations to write FP7 or NIH proposals.						
<b>Organization</b>	University of Debrecen, Medical and Health Science Center					
<b>Area of the Research</b>	Detection, diagnosis, monitoring					
<b>Title of the Research Activity</b>	Isolation of cardiac cells; Measurement of cardiac action potentials on isolated cells; Cellular electrophysiology					
<b>Department (complete address)</b>	<b>Principal Investigator or Head of the Research Group</b>					
University of Debrecen, Medical and Health Science Center, Department of Dental Physiology and Pharmacology  Nagyerdei Krt. 98, Debrecen, 4032-Hungary	Name: Peter Nanasi					
	Title: Full professor					
	Tel: 00 36 52 411 717 /55592					
	Fax: 00 36 52 432 289					
	E-mail: nanasi@phys.dote.hu					
<b>Abstract</b>	Maximum 500 characters					
<ul style="list-style-type: none"> <li>- isolation of cardiac cells;- expression of ion channels in immortalized cell lines;</li> <li>- expression of accessory proteins of ion channels in immortalized cell lines; - cellular electrophysiology; - measurement of cardiac action potentials on isolated cells and on multicellular preparation; - simultaneous measurement of cardiac muscle contraction and action potential; - measurement of intracellular calcium concentration on isolated cardiac cells and on whole heart; - simultaneous measurement of intracellular calcium concentration and mscle shortening on isolated cardiac cells; -measurement of ionic current of single ion channel; -measurement of ionic current of isolated cells</li> <li>- simultaneous measurement of ionic currents and intracellular calcium concentration</li> </ul>						
<b>Methods used</b>	Maximum 300 characters					
<ul style="list-style-type: none"> <li>- We measure the conventional microelectrode technique and the patch-clamp technique to measure the action potential, ionic currents of cardiac muscle cells.</li> <li>- We measure the contractile parameters of multicellular cardiac muscle and skeletal muscle preparations.</li> <li>- We use intracellular fluorescent dyes to measure the alteration of intracellular calcium concentration of isolated cardiomyocytes.</li> <li>- We have experience to carry out measurement on expressed ion channels of immortalized cell lines.</li> </ul>						
<b>Related references (max 3)</b>	Indicate the impact factor of the cited reference					
Szabo G, Szentandrassy N, Biro T, Toth BI, Czifra G, Magyar J, Banyasz T, Varro A, Kovacs L, Nanasi PP. Asymmetrical distribution of ion channels in canine and human left-ventricular wall: epicardium versus midmyocardium. Pflugers Arch. 2005 Aug;450(5):307-16.						
Magyar J, Szentandrassy N, Banyasz T, Kecskemeti V, Nanasi PP. Effects of norfluoxetine on the action potential and transmembrane ion currents in canine ventricular cardiomyocytes. Naunyn Schmiedebergs Arch Pharmacol. 2004, 370(3):203-10.						
Magyar J, Horváth B, Bányász T, Szentandrassy N, Birinyi P, Varró A, Szakonyi Zs, Fülöp F, Nánási PP: L-364,373 fails to activate the slow delayed rectifier K <sup>+</sup> current in canine ventricular cardiomyocytes. Naunyn Schmiedeberg's Arch Pharmacol 2006;373:85-90						
<b>Related Inventions Disclosures and Patents</b>						
Planning grant application (please mark your selection with X)			FP7	X	NIH	X
Only participating in projects (please mark your selection with X)			FP7	X	NIH	X

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<b>Organization</b>	University of Debrecen, Medical and Health Science Center			
<b>Area of the Research</b>	Detection, diagnosis, monitoring; Molecular diagnostics			
<b>Title of the Research Activity</b>	Platelet activation Prognostic and diagnostic markers in leukemias Workflow analysis in clinical laboratories			
<b>Department (complete address)</b>	<b>Principal Investigator or Head of the Research Group</b>			
University of Debrecen, Medical and Health Science Center, Clinical Biochemistry and Molecular Pathology Department, Nagyerdei Krt. 98, Debrecen, 4032-Hungary	Name: Janos Kappelmayer			
	Title: Associate Professor			
	Tel: 00 36 52 340 006			
	Fax: 00 36 52 417 631			
				E-mail: <a href="mailto:kappelmayer@dote.hu">kappelmayer@dote.hu</a>
<b>Abstract</b>	Maximum 500 characters			
<u>Platelet activation:</u> - Investigation of platelet activation prothrombotic disorders - Investigation of Factor XIII-A expression in activated platelets - Association of kinase and phosphatase activities and platelet activation markers <u>Prognostic and diagnostic markers in leukemias:</u> - Aberrant marker expression in acute leukemias - Prognostic markers and L-selectin expression in chronic lymphocytic leukemias - Optimization of multidrug resistance assays in leukemias <u>Workflow analysis in clinical laboratories</u>				
<b>Methods used</b>	Maximum 300 characters			
- In the area of laboratory medicine - aside from microbiology - all methodological areas are available the carry out basic and applied scientific measurements.; - Photometry, turbidimetry, nephelometry; - Luminescent and I-125 labeled immunoassays; - Flow cytometric methods - DNA and RNA based assays (PCR, RFLP. sequencing)				
<b>Related references (max 3)</b>	Indicate the impact factor of the cited reference			
Kappelmayer J, Kiss A, Karázi É, Veszprémi A, Jakó J, Kiss C. Identification of P selectin Glycoprotein Ligand-1 as a useful marker in acute myeloid leukaemias. <i>British Journal of Haematology</i> 115:903-909, 2001				
Karázi É, Jakab K, Homolya L, Szakács G, Holló Zs, Telek B, Kiss A, Rejtő, L, Nahajevszky S, Sarkadi B, <b>Kappelmayer J</b> . Calcein assay for multidrug resistance reliably predicts therapy response and survival rate in acute myeloid leukaemia. <i>British Journal of Haematology</i> 112: 308-314, 2001				
Kappelmayer J, Bacskó Gy., Birinyi L., Zákány R., Kelemen E., Ádány R.: Consecutive appearance of factor XIII subunit A in macrophages, megakaryocytes and liver cells in early human development <i>Blood</i> 86: 2191-2197, 1995				
<b>Related Inventions Disclosures and Patents</b>				
Edgington TS, Colman RW, <b>Kappelmayer J</b> , Edmunds LH, Bernabei A: Method of inhibiting blood coagulation in extracorporal circulation by inhibiting human tissue factor <i>United States Patent no. 5,437,864</i> August 1, 1995				
Planning grant application (please mark your selection with X)	FP7	X	NIH	X
Only participating in projects (please mark your selection with X)	FP7	X	NIH	X

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<b>Organization</b>	University of Debrecen, Medical and Health Science Center			
<b>Area of the Research</b>	Detection, diagnosis, monitoring; Molecular diagnostics			
<b>Title of the Research Activity</b>	Blood coagulation factor XIII (FXIII) and its role in vascular diseases; The molecular analysis of rare inherited and acquired haemorrhagic diatheses; The development of new laboratory methods for the diagnosis of thrombosis			
<b>Department (complete address)</b>	<b>Principal Investigator or Head of the Research Group</b>			
University of Debrecen, Medical and Health Science Center, Clinical Research Center Nagyerdei Krt. 98, Debrecen, 4032-Hungary	Name: Laszlo Muszbek			
	Title: Full Professor			
	Tel: 00 36 52 431 956			
	Fax: 00 36 52 340 011			
E-mail: muszbek@med.unideb.hu				
<b>Abstract</b>	Maximum 500 characters			
<p><u>I.</u> Blood coagulation factor XIII (FXIII) and its role in vascular diseases: <u>A/</u> Structure, function and regulation of FXIII; <u>B/</u> FXIII levels and FXIII-A V34L polymorphism in vascular-thrombotic diseases.</p> <p><u>II.</u> The molecular analysis of rare inherited and acquired haemorrhagic diatheses: <u>A/</u> Research in the area of platelet function disorders; <u>B/</u> Research in the area of coagulopathies</p> <p><u>III.</u> The development of new laboratory methods for the diagnosis of thrombosis</p>				
<b>Methods used</b>	Maximum 300 characters			
<ul style="list-style-type: none"> <li>- DNA sequencing; - MALDI-TOF measurements of proteins and peptides;</li> <li>- Development of immunoassays; - Real-time PCR with fluorescence resonance energy transfer detection and melting point analysis; - Tandem MS determination of metabolites</li> </ul>				
<b>Related references (max 3)</b>	Indicate the impact factor of the cited reference			
Shemirani AH, Haramura G, Bagoly Z, <b>Muszbek L.</b> The combined effect of fibrin formation and factor XIII A subunit Val34Leu polymorphism on the activation of factor XIII in whole plasma. <b>Biochim Biophys Acta.</b> 2006 Aug;1764(8):1420-3.				
Katona E, Nagy B, Kappelmayer J, Baktai G, Kovacs L, Marialigeti T, Dezso B, <b>Muszbek L.</b> Factor XIII in bronchoalveolar lavage fluid from children with chronic bronchoalveolar inflammation. <b>J Thromb Haemost.</b> 2005 Jul;3(7):1407-13.				
Ajzner E, Balogh I, Szabo T, Marosi A, Haramura G, <b>Muszbek L.</b> Severe coagulation factor V deficiency caused by 2 novel frameshift mutations: 2952delT in exon 13 and 5493insG in exon 16 of factor 5 gene. <b>Blood.</b> 2002 Jan 15;99(2):702-5.				
<b>Related Inventions Disclosures and Patents</b>				
<b>963/81;</b> Process for producing 2,3,4-trinor -interphenilidene-PGI-1 down derivatives.				
<b>1255/82</b> New process for the determination of the activated partial thromboplastin time.				
<b>3060/83</b> Process for the preparation of a reagent for the simultaneous determination of thrombocyte and leukocyte counts with a normal optical microscope.				
<b>17366/89</b> Diagnostic set and method for detecting blood coagulation factor XIII.				
Planning grant application (please mark your selection with X)	FP7	X	NIH	X
Only participating in projects (please mark your selection with X)	FP7	X	NIH	X

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Please complete the template for each selected project your organization would like to share with the partners of the RECOOP HST	
<b>Organization</b>	<b>Lviv Medical University</b>
<b>Area of the Research</b>	
<b>Title of the Research Activity</b>	Search for the New Lectins of Rare Carbohydrate Specificity, their Application in Biology and Medicine
<b>Department (complete address)</b>	<b>Principal Investigator or Head of the Research Group</b>
Alexander Lutsyk, MD, PhD Chair of Histology & Embryology Dept. Lviv Medical University 69 Pekarska str. Lviv 79010, Ukraine	Alexander Lutsyk, MD, PhD
	Title: Vice-Rector, Lviv Medical University
	Tel: 380-322-755947
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	E-mail: <a href="mailto:lutsyk@meduniv.lviv.ua">lutsyk@meduniv.lviv.ua</a>
<b>Abstract</b>	Maximum 500 characters
Search for the new lectins of rare carbohydrate specificity from plants, snails, fish and mushrooms of Carpathian region, their purification, characterization and application in biology and medicine.	
<ol style="list-style-type: none"> <li>1. 17 new lectins were purified and characerized;</li> <li>2. 14 new possibilities of selective labelling of distinct cell types and their subpopulations were established;</li> <li>3. Redistribution of lectin receptor sites in experimental and diagnostic histopathology has been investigated.</li> </ol>	
<b>Methods used</b>	Maximum 300 characters
Affinity chromatography, disc-electrophoresis, affinity electrophoresis, RBC agglutination test and its sugar-specific inhibition; histochemical labelling using horseradish peroxidase diaminobenzidine visualization or colloidal gold silver intensification protocol.	
<b>Related references (max 3)</b>	Indicate the impact factor of the cited reference
Smolkova OV, Zavadka AY, Bankston PW, Lutsyk AD. Cellular heterogeneity of rat vascular endothelium as detected by HPA and GS I lectin-gold probes. Med Sci Monit 2001, v.7(4): 659-668	
Bilyy RO, Antonyuk VO, Stoika RS. Cytochemical study of role of aD-mannose and bD-galactose-containing glycoproteins in apoptosis. J Mol Histol 2004, v.35: 829-838	
<b>Related Inventions Disclosures and Patents</b>	

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Please complete the template for each selected project your organization would like to share with the partners of the RECOOP HST Consortium and would like to invite other organizations to write FP7 or NIH proposals.			
<b>Organization</b>	Palladin Institute of Biochemistry NAS of Ukraine		
<b>Area of the Research</b>	DETECTION, DIAGNOSIS AND MONITORING, BIOTECHNOLOGY, GENERIC TOOLS AND MEDICAL TECHNOLOGIES FOR HUMAN HEALTH		
<b>Title of the Research Activity</b>	Obtaining single chain fragment variable as molecular probe		
<b>Department (complete address)</b>	<b>Principal Investigator or Head of the Research Group</b>		
9, Leontovicha str., Kyiv, 01601, Ukraine Palladin Institute of Biochemistry NAS Ukraine, Molecular Immunology Department	Name: Denis Kolibo		
	Title: PhD		
	Tel: 380-44-234-33-54		
	Fax: 380-44-279-63-65		
	E-mail: <a href="mailto:kolibo@biochem.kiev.ua">kolibo@biochem.kiev.ua</a>		
<b>Abstract</b>	Maximum 500 characters		
Single chain fragment variable (scFv) is a fusion of the variable regions of the heavy and light chains of immunoglobulin, linked together with a short linker. Presently it becomes powerful alternative to monoclonal antibodies. Advantages of scFv over whole antibodies are now explored. Relatively small molecular weight predetermines potentially easily handling with scFv than whole molecule of monoclonal antibodies for numerous purposes. One of the most important advantages is possibility to obtain scFv as a fusion with different proteins that allow us to construct scFv with needed functionality. Now the most promising is using of scFv as a tool for drug delivery, diagnostic of different diseases, visualization in immunohistochemistry and cytofluorimetry.			
<b>Methods used</b>	Maximum 300 characters		
Phage display, scFv, gene engineering techniques, such as DNA manipulation, PCR, molecular cloning, protein expression in E.coli and its purification. Some immunochemistry methods: ELISA, western blotting.			
<b>Related references (max 3)</b>	Indicate the impact factor of the cited reference		
<b>Related Inventions Disclosures and Patents</b>			
Planning grant application (please mark your selection with X)	FP7		NIH
Only participating in projects (please mark your selection with X)	FP7	X	NIH