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I. Scientific Unit (Department, Direction, Institute, Division, Laboratory)

Name - Institute of Medical Biotechnology

1.2. Head of Scientific Unit - Director Teimuraz Topuria, The Chairman of the Board is Professor Ia Pantsulaia

1. scientific unit staff consists of - 29 scientific worker

Scientific-research works to be planned and Carried out in 2013 under the financing of the state budget of Georgia

№	Job Title	Work Supervisor	Work performers
1	The Study of the local medications: (lazecri i, kamelini, margali”)	Boris Korsantia	Paghava Karaman Akhvlediani Manana Kavaratskhelia is Eka Gagnidze Tsitsino
Results of the completed research work (phase)			
<p>Continues to study on the cycle: specifically-studied clinical, antiviral (herpes) dysonotrophilic effects cranny papodontistis. Clinical examination of patients with paconodontynty 40 patients. Patients from the treatment of the disease. 2 groups: 15 patients in the treatment of the modern, commonly-researched group (25 patients) in which the use of the drug "lasoxex" was made of ointment.</p> <p>Observation has shown that "lasoxex" involves the treatment of the drug in the procedure. Specifically: 3-5 procedures of acute insufficiency - significantly reduced the characteristics of the organisms, the alteration, the hyperemia, the decrease of the disease from the bone, the patient's risk of the treatment of the chronic lymphocytes, the pain of the pain is removed; Decreased parodontalgia digestion, as well as reducing the turbidity of the breast.</p> <p>It is well known that the immune system is directly involved in the parodontic acid disorders in the pathogenesis. That's why the lasoxe on the drug was conducted immunological research: the parameters were examined in the blood and saliva of these patients.</p> <p>Immunomodulating effects in pre-experimental experiments, neutralizing the immunopathological condition accompanying parodontist and the obvious advantage compared to traditional methods of treatment. Clinical and immunosuppressive properties of the camelnay new form are also studied, cholesterol generalized parodontics on apoptosis and redox system. In the example of this preparation, once more reliable advantages are compared with traditional methods.</p> <p>For the first time the researches were conducted for patients with patriarchal drugs, animals and patients with hepatitis. In high doses, the drug is characterized by toxic, allergic, pyrrogenic action on animals; The pearl has caused increased immunity levels such as interferon, phagocytosis and lysocycle. Against this backdrop, clinical,</p>			

	biochemical and immunological indicators in hepatitis patients were improved.		
2	Work Title	Head of work	Work performers
	Bee moth (Gallery melonela) extract on phagocytosis.	Ivane Kharischairishvi	Pantsulaia Nato.Atamashili Tsitsino
3	Work Title	Head of work	Work performers
4	Study of antioxidant affect of various bioactive active compounds	Tamar Sanikidze	M.Enukidze, M. Machavariani, T.,Mchedlishvili, C.Sharashenidze
5	Comparative study of antioxidant activity of various varieties of Georgian varieties.	M.gognadze	N. Gogia, Found. Chkhikvishvili M. Esaiashvili H Bukia Meladze G
6	The extensive study of polyphonic compounds of Georgian apple	Chkhikvishvili I.	N. Gogia, M. Gongadze M.Esaiashvili, Bukisa Z Meladze T
7	Study of the dynamics of accumulation of bioactive compounds during the period of Georgian apple	Bukisa Z	N. Gogia, M. Gongadze M.Esaiashvili,Bukisa Z Meladze T
8	Prophylactic and healing significance for tract during diabetes and Thyroid glands diseases.	M.Esaiashvili,	Chkhikvishvili I.
Chkhikvishvili studied the number of polyphenols and other antioxidant activity of various commercial types of “ ketura, antonovka, bananas, golten, brooch, synapse”( and other varieties of skin, softness and juice Number of polyphonoyses and antidepressant activity. It is established that the Georgian apple variety Kekurauri is the largest number of polyphenols and the highest antioxidant activity. It is shown that a large number of polyphenols in the waste are important antioxidants and in the perspective of their preparations will have a positive impact on the maintenance of human health and treatment of chronic diseases.			

### III. Scientific-research projects developed by grant financing

Project title	Financing organization	Project manager	Project executives
1. 1. Possible connections of endogenous inhibitors and genetic factors of sodium pump in the development of salt-sensitive hypertension.	SCOPES, 2010-2013	Prof. Gaiane Simonia	Ia Pantsulaia (Project Manager); Tinatin Chikovani, Nino Kikodze Manana Iobadze Nino Kantaria

323 volunteer individuals (123 families, 127 males and 196 females, age 19-78) were examined in accordance with the goals set out in the project in 2010-2013; These individuals have been studied about the salt sensitivity, the level of electrolytes, marinubhogenous and yaabine in the plasma and urine, as well as the partner organization in the Center of Lithuania State Scientific Innovative Medicine. According to the results obtained, the level of marinubhagen is 2 times more in saline patients than in saltsitantan. From other parameters only cholesterol levels are high, which confirms high risk of cardiovascular disease in saline senses. Results of genetic analysis research are in process.

Project title	Financing organization	Project manager	Project executives
2. Phase of clinical research for the safety of usage of oligonucleotides for the normalization of serum albumin and bilirubin and liver function in patients with hepatic impairment	MiNA Therapeutics Limited (2013–2015)	Prof. Malkhaz Mizandari	Malkhaz Mizandari Tinatin Chikovani Manana Iobadze

Clinical research is carried out on patients with hypo-fluorinemia and hyperbilirubinemia. The research aims to determine the optimal healing dose and inspection of the safety of the drug.

Project title	Financing organization	Project manager	Project executives
3. From various sources 4. CD34 + CFrom different sourcesD45 + Identification and Quantitative Evaluation of Stem Cells	LLC "Expressproduction	Tinatin Chikovani,	Nino Kikodze (Project manager) a Pantsulaia Nino Kukuladze Manana Iobadze Ramaz Ghambashidze

Receiving and identification of stem cells from various of sources (peripheral blood, gland) is one of the most important issues in the study of stem cells. We examined both the peripheral blood of the adult donor (the Gori Military Hospital Base) and the Blood of the Tipperary (Medical Center "Medula").In the peripheral blood the pedophilia of pediatric cells was carried out before the mobilization of the donors and the mobilization of the BD FACS Array Bioinformers. The research found that the peripheral blood stem cells in the phenotype CD34 + CD45 + are very few, and its number increases 100 times as a result of migraiding. As for CD34 + CD45 + stem cells in samples of blood bank, it varies within 0.3% - 2.5%. The research continues in this direction.

Project title	Financing organization	Project manager	Project executives
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4. Find out a new bacterial drug of cancer immune system	Ukrainian Science and Technology Center	Prof. Ketevan Ghambashidze	Ia Pantsulaia Manana Iobadze
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Several organizations are involved in the research. They performed immunological part of the research and studied the immune cells (CD3CD4, CD3CD8, CD4CD25Foxp3, NK) and cytokines (IL-17, TGF, INF, IL-12). The study revealed that cytokine level changes as a result of tumor transplantation and different treatment modes (chemotherapy, bacterial immunotherapy, combined treatment) cytokines balance determines clinical solution. Developed results and complete analyzes are being continued.

Nº	Project title	Financing organization	Project manager	Project executives
5	Genetic factors and salt consumption in the development of arterial hypertension in Georgia's ethnically homogeneous (Svaneti) population	<ul style="list-style-type: none"> <li>• Ukrainian Scientific Technological Center (STCU);</li> <li>• • Rustaveli st. National Scientific Foundation (Fund)</li> </ul>	Irina Andronikashvili	1. Gaiane Simonia 2. Natela Basishvili 3. Teimuraz Petriashvili 4. Nato Pantsulaia

Results of completed project (annotation)

At this stage of the study 74 persons were examined (24 Proband and 50 members of the family). Saline-sensitive and saline-resistant individuals were detected during high- and low-dose diet (based on Weir's method) based on moderate blood pressure changes. The test resulted in salt sensitivity in 18 probe and 33 family members). In parallel the study of the following biochemical indicators were: lipid spectrum (cholesterol and fractions), creatinine blood, glucose fasting, and epidemiological clearing. At present there is a study of the polymorphism of genes associated with hypertension.

6	Project title	Financing organization	Project manager	Project executives
	Proximal reabsorption of sodium and the role of cardiotonic steroids in the development of salt sensitivity and salt sensitive hypertension	<ul style="list-style-type: none"> <li>• Rustaveli st. National Scientific Foundation</li> </ul>	Gaiane Simonia	1. Irina Andronikashvili 2. Zviad Kirtava 3. Nato Pantsulaia 4. Aakaki Sepashvili

Results of completed project (annotation)

At this stage of the study 125 patients (50 with normal blood pressure and 75 - hypertension), saline and saline-resistant healthy and hypertensive patients were diagnosed with high blood pressure and moderate levels of dietary supplementation (Weir method).

According to the testing result, people with severe and saline-resistant health and hypertension have been identified. Ambulatory monitoring of blood pressure and diagnosis of serum rhythm was being performed. The quantity of eggabin and marinobufenine content was determined in the blood plasma and urine in the period of high-grade and low-grade diets. The cardiovascular steroids and other substance contents were evaluated by the protocols and antibodies provided by foreign collaborators (Capture Antibodies, NIH, Baltimore Center for Cardiovascular Research, USA). Plasma renin activity was determined by immunoferrimatic method (Labs.systems, Finland). Natriumis proqsimaluri reabsorbacia ganisazRvreboda specialuri formuliT (filtrirebulbis natrireburi natriumis sxvaobiT). Ongoing Working procedures the databasis is being held for this time.

Note: Students and doctoral students are actively involved in the working procedures of all the grant projects

#### IV. Publications: 1) in Georgia

##### A) monographs

Nº	Author / authors	The title of the manual	the place of publication the publishing house	the number of pages
1	Bukia Z.	Selection of some plants, nutritional and medical effects	Tbilisi, publishing house "Merani",	382

##### B) Manuals/ references

Nº	Author / authors	The title of the manual	the place of publication the publishing house	The number of pages

##### c) selected works

##### D) articles

Nº	Author / authors	The title of the journals	Nº of The Journals	the place of publication the publishing house	the number of pages
1	Rekhviashvili Kh., Iobadze M., Pantsulaia N., Kikodze N., Bikashvili N., Metreveli	Cytokines (IL-6,IL-10, TNF-alpha, INF-gamma) in Pathogenesis of Type 1 Diabetes Mellitus	Collection of Scientific Works. Tbilisi State Medical	Tbilisi	77-80

	D., Pantsulaia I., Chikovani T.		University, 2012, XLVI, 77-80		
2	Kikodze N., Pantsulaia I., Rekhviashvili Kh., Iobadze M., Jakhutashvili N., Pantsulaia N., Bikashvili N., Metreveli D., Chikovani T.	Cytokines and T regulatory cells in the pathogenesis of Type 1 Diabetes	Georgian Medical News, 2013, No9 (222):	Tbilisi	29-35
<p>The research showed that in patients with type I diabetes, a slight decrease in the frequency changes in the frequency of the TRG cells occurs in plasma IL-6, NF, IL-10 and IL-4- levels (respectively, 1.197-, 1.188-, 1.504 - and 1.840 times) and the IL-17 level increase (2.311 times). C D4 + C D25 + Trag Cells Frequency In patients with type I diabetes does not correlate with duration of the disease and is positive correlation with the patient's age and IL-4 concentration. The decrease in IL-4 and IL-10 levels may be the suppression of functional activity of regulating cells. It is probable that the deviation of TH17 / TRA balance between IL-17 generating cells and lowering cytokines (IL-4 and IL-10) plays a crucial role in the development of I type diabetes.</p>					
3	Topuria T., Barnabishvili N., Chubinishvili O., Topuria M., Guledani., Maisuradze E.	The role parvovirus in the etiology of somatic pathology.	Georgian Medical News, No 10 (223) October 2013,	თბილისი	56 -60;
4	Gogebashvili N. Jashi L. Machavariani M. Enukidze M.	Immunomodulating Effects of Phenovine and Uno DT Gato in Cell Cultures Tbilisi State University, Georgia	Experimental & Clinical Medicine No 2 Tbilisi, Georgia 2013	Tbilisi, Georgia 2013	3
5	Lomsadze G, Enukidze M, Machavariani M, Kiparoidze S, Gogebashvili N, <b>Sanikidze T.</b>	“β2-ADRENERGIC REGULATION OF T LYMPHOCITES FUNCTION (IN VITRO STUDY).” <i>Georgian Med News</i>	2013 Oct;(223):60- 4.	Georgia	4
6	Todua F, Ormotsadze G, Nadareishvili D, <b>Sanikidze T</b> , Mardaleisvili K.	„Functional state of red blood system as a possible predictor of individual radiosensitivity and carcinogenesis“. <i>Georgian Med News</i>	2013 Sep;(222):13- 7	Georgia	4
7	Parkosadze G, Burkadze G, Mizandari M, Sulakvelidze M, <b>Sanikidze T</b>	„Role of proapoptotic p-53 factor in pathogenesis of nonalcoholic hepatosteatosis.“ <i>Georgian Med News</i>	2013 Feb;(215):55- 60.	Georgia	5
8	Tortladze M, Kintraia N, Parkauli M, <b>Sanikidze</b>	[Blood antioxidant enzyme activity during	2013 Feb;(215):12-	Georgia	4

	Т.	physiological and preeclampsia syndrome complicated pregnancy]. <i>Georgian Med News</i>	6		
9	Ivane Gudichirishvili	Влияние элементного статуса на минерализацию твердых тканей зубов у детей младшего возраста// GMN, 2013,	№223, 21-24		3
10	И.КАЧКАЧИШВИЛИ, Ц.ГАГНИДЗЕ, Б.КОРСАНТИЯ	ИММУНОЛОГИЧЕСКИЕ АСПЕКТЫ ЛЕЧЕБНОГО ЭФФЕКТА РАЗЛИЧНЫХ ФОРМ КАМЕЛИНА ПРИ ХРОНИЧЕСКОМ ПАРОДОНТИТЕ// Ж.Эксперим. Клин. Мед., 2013	№5, 36-41	Tbilisi	5
11	Н. АЛАВИДЗЕ, М. ГОГОТИШВИЛИ, Ц. ГАГНИДЗЕ, Б. КОРСАНТИЯ	Изучение противогерпетических свойств препарата Лазолекс в различных экспериментальных моделях// Ж. Эксперим. Клин. Мед., 2013	№5, 48-52		4
12	M.Akhvlediani, M.Balavadze, D.Gachechiladze, M Emukhvari, M. Martiashvili, N.Beckaia	Metabolism peculiarities in postmenopausal-use period after hypolipidemic therapy//Bull. Georg. Natl. Acad. Sci., 2013	vol. 7, # 165-69	Tbilisi	5
13	M.Akhvlediani, E Vorobiova, D. Gachechiladze, M. Emkhvari, N. Tskhovrebadze.	Information on some parameters of metabolism and hemostasis in diagnostic diabetic angiopathy// the Herald of Radiology and Roentgenology, 2013	N3		გადაცემულია დასაბუთებულად
14	M.Akhvlediani, M. Martiashvili, N.Beckaia	The medical team of laboratories and laboratories 2nd sermon. Conf. "Natural and synthetic biologically active substances". 25-26 November 2013, Tbilisi. materials			
15	Z. Bukia, I. Chkhikvishvili, N. Gogia, Ts. Atamashvili	orphological and biological characteristics of some vegetable and	N 32, 2013.; 55-60	Tbilisi, the Bulletin of the	5

		vegetable spices		Academy of Agricultural Sciences of Georgia,	
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2) abroad

B) Manuals

C) compilations

D) articles

Nº	Author / authors	The title of the journals	Nº of The Journals	the place of publication the publishing house	the number of pages
1	D.P. Museridze, I.K. Svanidze, Ts. S. Tsaishvili, T.V. Sanikidze, E.V. Didimova, Z. Khanaeva, L.G. Gegenava, N.N. Gvinadze,	“Influence of Toluene on Postnatal Neurogenesis of Limbic and Motor Systems, Metabolism and Behavior of Animals and Correction of Disturbance by Antioxidants”	2013, p.125-150	NOVA Publisher	5
2	I. Chkhikvishvili, T. Sanikidze, N. Gogia, T. Mchedlishvili, M. Enukidze, M. Machavariani, Y. Vinokur, V. Rodov	„Rosmarinic Acid-Rich Extracts of Summer Savory ( <i>Satureja hortensis</i> L.) Protect Jurkat T Cells against Oxidative Stress“ <i>Oxidative Medicine and Cellular Longevity</i>	Volume 2013 (2013),	Hindawi	9
3	Sanikidze TV, Beridze M, Mitagvaria N, Bakhtadze S, Khan N.	Neuroprotective treatment of cerebral infarction: an experimental study. <i>Int J Neurosci.</i>	2013 Feb;123(2): 104-13.	Informa Healthcare	9
4	I. Svanidze, D. Museridze, E. Didimova, T. Sanikidze, L.	“Disturbances in neurogenesis of the rat brain cortical and subcortical limbic	2012 Dec., 12, #4, pp. 138–144	Basel	6



	Gegenava and N.Gvinadze	structures during foetal alcohol syndrome development and their correction with zinc" <i>Journal of Biological Physics and Chemistry</i>			
5	Т.В. Саникидзе, Д.П. Мусеридзе, И.К. Сванидзе, Е.В. Дидимова, Л.Г. Гегенава, Н.Н. Гвинадзе.	Изучение влияния толуола на нейрогенез в структурах лимбической системы и коррекция выявленных изменений с помощью Мирадола <i>Современные проблемы токсикологии.</i>	2013, №4.	Украина	3

## V. Participation in scientific workshops

### 1) in Georgia

№	Rapporteur	The title of Report	The time and place of the forum
1	Tinatin Chikovani	Immune system in the 21st century	Conference dedicated to Immunology Day, April 14, Batumi University
The report emphasized the introduction of discoveries made in immunology in recent years in practical medicine, the modern vision of immunogenetic mechanisms.			
2	Khatuna Rekhviashvili (PhD student)	The role of cytokines and regulatory T cells in type I diabetes pathogenesis	Physiology Congress, Institute of Physiology, Tbilisi, 2013
The results of the work (project 223) implemented with the support of the Georgian National Science Foundation were reported. In the Type 1 diabetes, there is a slight decrease in plasma cytokines - IL-6, TNF- $\alpha$ and IL-10 da IL-4 level and IL-17 levels in the background of a slight change in the frequency of Treg cells. The type of CD4 + CD25 + Treg cells in the Type 1 diabetes does not correlate with the duration of the disease. It is positive correlation with the patient's age and IL-4 concentration.			
3	Beso Lasareishvili (Doctorate)	Age norms of certain immunological parameters of Tbilisi residents	5th International Conference on "Health and Ecology", 13-15 September, 2013, Akhalkalaki, Rabat,

			Georgia
4	Malkhaz Mizandari, Tinatin Chikovani	New Approaches in Inoperable Hepatocellular Carcinoma Management - Interventional Radiology and RNA-Therapy	Seminar "New Horizons in Therapeutic, Interventional and Surgical Hepatology", Tbilisi, TSMU, 11 November 2013
The report included new approaches in inoperative hepatocellular carcinoma management, such as pediatric vein recurrence and endocrine radiofrequency ablation, RNA therapy and others, which allow us to bring inoperable cancer to the operative stage.			

## 2) Abroad

Nº	Rapporteur	The title of Report	The time and place of the forum
1	Kvaratskhelia E.	CFTR interacts with metabotropic glutamate receptor and modulates IL-8 production in cystic fibrosis T Lymphocytes;	European Human Genetics Conference 2013; 06.08-06.11; Paris, France
2	M. Akhvlediani	Relationship between glycemic control, microalbuminuria, lipids and trombocyte aggregation in patients with coronary athero-sclerosis.	81st EAS Congress 2013. Lion , abstract. p333.