

## Russian regional scientists project proposals for participation in FP7

### THEME 1: Health

[FP7-HEALTH-2010-single-stage](#)

[FP7-HEALTH-2010-two-stage](#)

[2.4. TRANSLATIONAL RESEARCH IN OTHER MAJOR DISEASES](#)

[3.5. SPECIFIC INTERNATIONAL COOPERATION ACTIONS FOR HEALTH SYSTEM RESEARCH](#)

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*Is interested in participation in a project that will be prepared and submitted in the following topics:  
Investigation of biochemical criteria providing man immunity and establishing of microorganisms  
biomolecules functional role in forming of carriage infection of reproductive system of man*

**Call identifier:** FP7-HEALTH-2010-single-stage

**Topic number:** HEALTH.2010.2.1.2-3: Developing new and improving existing mathematical algorithms for systems biology

#### **Short description of the organization:**

The Microwave radiophysics dept. has been organised at radio physical faculty of Yerevan State University about 30 years ago. At the present time on department are carried out interdisciplinary studies of bioeffects of low intensity (athermal) millimeter electromagnetic waves (the action millimeter waves on Bacterium, DNA, Blood system, Erythrogenesis, Tumors, Brain activity and so on). Results of researches have been presented at the international conferences and published in the Russian and foreign scientific journals.

The department possesses generators of millimeter and centimeter ranges, high-sensitivity radiometers, spectrum analyzers, frequency and power measure devices, femtosecond Terahertz range laser (USA). Head of the department is Academician R. M. Martirosyan, President of the National Academy Sciences of Armenia.

#### **Proposal/Expertise:**

As low-intensity (athermal) millimeter electromagnetic radiation possesses immunomodulation effect that has been confirmed by experiments on animals, it is possible to assume that application of millimeter waves (MMW) will probably promote the decision of the given problem. Therefore we suggest to provide at project performance also application MMW in different updatings of experiment (continuous waves, amplitude or frequency modulation, bioeffective frequencies, etc).

#### **Publications on the topic (other references):**

- H. Tadevosyan, V. Kalantaryan, A. Trchounian. Extremely High Frequency Electromagnetic Radiation Enforces Bacterial Effects of Inhibitors and Antibiotics. Cell Biochemistry & Biophysics 2008, 51(2-3), 97-103, July
- V. P. Kalantaryan, Yu. S. Babayan, A. Tadevosyan. Investigation of the binding of antitumour compounds of Mitoxantrone and Amentantrone with the DNA-irradiated millimeter electromagnetic waves. Abstracts Book, UICC World Cancer Congress, 27-31 August 2008, Geneva, Switzerland, p.82 (POS- A288)

<http://www.ric.vsu.ru>

- V. P. Kalantaryan, Yu. S. Babayan, J. V. Garibyan Combine influence of Doxorubicin antitumor drug and millimeter electromagnetic waves on structure of tumor DNA. Abstracts Book, UICC World Cancer Congress, 27-31 August 2008, Geneva, Switzerland (PUB-306)
- S.M. Minasyan, G.Yu. Grigoryan, S.G. Saakyan, A.A. Akhumyan, V.P. Kalantaryan. Effects of the Action of Microwave-Frequency Electromagnetic Radiation on the Spike Activity of Neurons in the Supraoptic Nucleus of the Hypothalamus in Rats.-Neuroscience and Behavioral Physiology (USA), 2007, vol.37, No.2, pp.175-180.
- H. Tadevosyan, V. Kalantaryan, A. Trchounia. Influence of Low Intensity Millimeter Range Coherent Electromagnetic Radiation on E.coli Growth Rate and Role of pH of Environment. Biophysica, 2007, v.52, N5, p.893-898
- Yu. S. Babayan, V. P. Kalantaryan, R. S. Kazaryan, P. O. Vardevanyan, A. Sh. Markaryan, M. A. Parsadanyan. Effect of Low-Energy Microwaves on DNA Stability in Solution. Biophysics, 2007, vol. 52, Number 2 p 259.
- Tadevosyan H., Kalantaryan V., Trchounian A. Direct and Mediated Effects of the Extremely High Frequency Coherent Electromagnetic Radiation (Millimeter Waves') With Low Intensity on Bacteria, Proceedings 4th Workshop on Biological Effects of EMFs, Crete, Greece, 2006, pp.1307-1314
- Yu. S. Babayan, V. P. Kalantaryan, R. S. Kazaryan, P. O. Vardevanyan and et al. Physico-chemical Properties of DNA Irradiated by Low Intensity Coherent Millimeter Electromagnetic Waves. Biomeditsinskie tehnologii i radioelektronika (Biomedical Technologies and Radioelectronics), 2006, N11, p64-68
- S.M. Minasyan, G.Yu. Grigoryan, S.G. Saakyan, A.A. Hakhumyan, V.P. Kalantaryan. Effects of Combine Action of Electromagnetic Radiation and Vibration on the Activity of Neurons in the Supraoptic Nucleus of the Hypothalamus. Biomeditsinskie tehnologii i radioelektronika (Biomedical Technologies and Radioelectronics), 2006, N5-6, p70-76
- H.H. Hovhanisyan, V.P. Kalantaryan, A.A. Hakhumyan, S.M. Minasyan, K.R. Hovhanesyan. Blood Catalase Activity Change under Influence of Microwave-Frequency Electromagnetic Radiation. Biomeditsinskie tehnologii i radioelektronika, (Biomedical Technologies and Radioelectronics), 2005, N8, p.66-69.
- Babayan Yu. S., Tadevosyan A.A., Kanaryan G. L., Kalantaryan V. P., Babayan S.Yu., Vardevanyan P.H. The Influence of Coherent Electromagnetic Waves of Millimeter Range on the Properties of the DNA Solutions. Biomeditsinskaya radioelektronika (Biomedical Radioelectronics), 2009, N2, p.52-57.
- V.P. Kalantaryan, Ts.I. Adamyan, E.S. Gevorgyan, S.M. Minasyan, H.H. Hovhanisyan, A.A. Hakhumian. Influence on Erythropoiesis and Blood Catalase Activity Low Intensity Electromagnetic Millimeter Radiation. Abstracts of Medical Physics and Biomedical Engineering World Congress 2009, 7-12 September, Munich, Germany
- Ts.I. Adamyan, E.S. Gevorgyan, S.M. Minasyan, V.P. Kalantaryan, A.A. Hakhumian. Low Intensity Millimeter-Wave Electromagnetic Radiation (EMR) Effect on Erythropoiesis. Abstracts of BioEM 2009, 15-19 June, Davos, Switzerland
- V.P. Kalantaryan, Yu.S. Babayan. Bioeffects of low intensity coherent millimeter waves. Abstracts of V International Congress "Week and extraweek fields and radiations in Biology and Medicine". 2009, 29.06.-02.07, S-Peterburg, Russia
- V.P. Kalantaryan. Blood catalase activity change under influence of Extra-High Frequency electromagnetic radiation. Proceedings 5th International Workshop on Biological Effects of Electromagnetic Fields, 2008, September 28-October 2, Citta del Mare, Terrasini, Palermo, Italy