Valyaev Alexandr, Nano Res Appl 2018, Volume 4
DOI: 10.21767/2471-9838-C5-020

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Ways to accelerate nanotechnologies implementation in the health care system

Commercialization of nanotechnologies in Russian Health Care System RHCS requires detail analysis of all obstacles. Here we discuss 3 problems: Prof. Ilizarov's apparatus; 'Perftorun', known as 'blue blood' therapy of Russian prof. Beloyartsev; 'Litar' and artificial bone technology of Prof. Krasnov, used to replace bones defects. We look into challenges of Russian nanotechnology clusters and education. Prof. Petrov, coauthor of our communication, has his own rich experience in implementing new nanotechnologies, used to treat injured military personnel in Russian armed conflicts, such as Chechen war. Russian technology innovations require 30 - 40 years for commercialization, 5 - 10 years in USA . Substantial investment capital significant stringent requirements and high chance of technology failure in preclinical or clinical trials hinder this development in developed countries. Stringent regulatory approval state process further increases time and cost its moving to the market. Patent protection is often key strategy to attract multimillion investment required for early stage transition of medical technology into commercial product. Our proposal is to enhance commercial translation of 3 above mentioned organizations. Then enable treatment of severe bone fractures and injuries, where patient's own tissues cannot be employed. These technologies were validated through surgical procedure performed in military. RHCS authorities are evaluated based on how efficiently they conduct certification and regulatory approval of new medical technologies.

Recent Publications

1. A.N. Valyaev, S.V. Kazakov, A.A. H. D. Passell et. al . "Assessments of Risks and Possible Ecological and Economic Damages from Large-Scale Natural and Man-Induced Catastrophes in Ecology-Hazard Regions of Central Asia and the Caucasus." In NATO Science for Peace and Security Series -C: Environmental Security, Proc. of NATO Advanced Research Workshop: "Prevention, Detection and Response to Nuclear and Radiological Threat", May 2-7, 2007 Yerevan, Armenia, Editors: S. Apikyan et. al. Published House: Springer, Netherlands, 2008, pp. 281-299
2. G.M. Aleksanyan, A.N .Valyaev, K I. Pyuskyulyan. "Several approaches to the solution of water contamination problems in transboundary rivers, crossing the territory of Armenia" in NATO Science Series: Proc. of NATO Advanced Research Workshop: "Nuclear Risk in Central Asia", Kazakhstan, Almaty, June 20-22, 2006. Editors: B. Salbu and L. Skipperud, Published House: Springer Science +Business Media B.V. 2008, Netherlands, pp. 201-211.
3. A.N. Valyaev, S.V. Kazakov, A.A. H. D. Passell et. al . "Assessments of Risks and Possible Ecological and Economic Damages from Large-Scale Natural and Man-Induced Catastrophes in Ecology-Hazard Regions of Central Asia and the Caucasus." in NATO Science for Peace and Security Series -C: Environmental Security, Proc. of NATO Advanced Research Workshop: "Nuclear Risk in Central Asia", Kazakhstan, Almaty, June 20-22, 2006. Editors: B. Salbu and L. Skipperud, Published House: Springer Science +Business Media B.V. 2008, Netherlands, pp. 133-149.

Biography

Valyaev Alexander Nikiforovich was born on May 15, 1949. He graduated from the high school in 1966 and began studying at the Tomsk Polytechnic University (THU), Siberian Tomsk city. He graduated TPU with honors in 1972 as an electromechanical engineer. He studied in doctoral studies in the Pedagogical University in Kazakhstan Almaty city. In 1998 he successfully defended the doctoral dissertation “Radiation Induced and Mechanical Effects in Solids as a Result of High Intensity Electron and Ion Beams” Then he continued the work as EKSTU professor. From 2000 till present my family live in Moscow. At first he worked as a leading researcher in the Department of Applied Engineering in “Conversion" plant in Balashikha city, Moscow Region. From 2001 to the present time he is the Leading Researcher, Professor, Doctor of Sciences in the Division of Ecological Safety and Radiation Risk of Nuclear Safety Institute of Russian Academy of Sciences in Moscow.

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