Third Laureate Applied Research

**Project Title:** Design and implementation of gamma probe and small filed gamma camera for usingin sentinel lymph nodes surgery

Executive Organizations: Research Center for Molecular and Cellular Imaging and Parto Neghar Persia Co., Tehran University of Medical Sciences Researcher: Mohammad Reza Ay (Ph.D.)

Collaborators: M. H. Farahani, S. Sarkar, M. E. Akbari, N. Zeratkar, S. Sajedi, B. Teymorian, N. Naderi, N. Zanjani, V. Moji, P. Ghafarian and A.Akbarzadeh Collaborators Organization: Presidential Center for Innovation and Technology Cooperation & Cancer Research Center, ShoahaeTajrish Hospital & Technology Incubation Center of Alzahra University & Persian DaroAlborz Research and Technology Fund.



## Abstract:

27<sup>th</sup> Khwarizmi International Award

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The cancer metastasis, originating from the tumors, usually begins from the nearest lymph nodes. So, mapping and removal of cancerous lymph nodes especially the sentinel lymph node is of importance in cancer surgeries. The novel techniques in this field include Radio-Guided Surgeries in which the location of high concentration of the administered radiopharmaceutical in the patient body corresponds to the cancerous lymph nodes. After the injection of radiopharmaceutical, the surgeon first looks for presence or absence and the position of the cancerous lymph nodes using small-field-of-view gamma camera in the operation room. Then for precisely finding and removal of the lymph nodes, he/she uses gamma probe during the operation.

In this project, all steps of design and implementation of Hand-Held Gamma Camera and Gamma Probe performed in Iran. The systems passed clinical investigations together with getting ISO13485, ISO9001, IEC1-60601, and Manufacturing License. In addition, the innovation used in Hand-Held Gamma Camera was registered as US Patent.

