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3 Hebrew U. professors win prestigious science prize

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Senior faculty members are recipients of Kaye Innovation Awards for multi-year research projects; will receive prizes June 21.

Three senior Hebrew University of Jerusalem faculty members have been named winners of this year's Kaye Innovation Awards for their multi-year research efforts resulting in a variety of commercial applications worldwide – from the development of garlic and tomato breeding, to regeneration of bone tissue from adult stem cells.

The Kaye Awards are presented each year during HU's Board of Governors meeting, and will be given this year on June 21.

The prizes were established in 1994 by Isaac Kaye – a prominent industrialist in the British pharmaceutical industry – to encourage HU faculty, staff and students to develop innovative methods and inventions with good commercial potential, that will benefit the university and society.

Prof. Haim Rabinowitch of the university's Robert H. Smith Faculty of Agriculture, Food and Environment has been named winner of the first prize. Rabinowitch, a former rector, is being recognized for his long-term innovations in genetic and breeding technologies.

Over the last 25 years, his team's novel breeding results have created a lucrative local seed industry. Indeed, the export of tomato, onion and shallot seeds Rabinowitch developed brings in about \$50 million annually, with additional royalties going to the university.

Today, he is leading the development of a unique garlic-breeding project and plant improvement technology that allows seed producers to easily adapt any plant variety to changing situations. Both projects were recently licensed by Yissum, the HU's technology transfer company, to start-up companies that were established on the basis of these technologies.

The second-prize winner among the faculty is **Prof. Dan Gazit**, head of the Skeletal Biotechnology Laboratory in Jerusalem's Ein Kerem, for his team's nearly 20-year research that has led to a breakthrough in the field of stem cell-based tissue engineering. TheraCell Inc., a California-based biotech start-up company, has licensed the bone tissue regeneration technology from Yissum.

Dr. Raanan Fattal of the Benin School of Computer Science and Engineering, will be receiving the third prize for the development of second-generation wavelet-based image enhancement, which enhances sharpness of images. Fattal's invention was licensed by Adobe and is already incorporated in the company's leading software, Photoshop.

Meanwhile, a method for increasing solubility developed by a graduate student at HU's Casali Institute of Applied Chemistry has yielded promising commercial benefits for industry – particularly in pharmaceuticals, cosmetics and agriculture.

The method, created by **Katy Margulis-Goshen**, a doctoral student of **Prof. Shlomo Magdassi**, produces a rapid conversion of oil-in-water microemulsions containing an insoluble substance into a dry powder composed of nanoparticles, which can easily be dissolved in water or other biological fluids.

For her work, Marguis-Goshen, who immigrated to Israel from the Ukraine 21 years ago, has been chosen as another Kaye Award winner.

The process she developed is of unique industrial importance, the university said, as it leads to a significant increase in solubility and dissolution properties of almost any active ingredient, without a high energy investment.

Enhancing solubility is especially important in pharmaceuticals, where nearly half of the newly discovered drugs can't be administered, or are very poorly absorbed, due to their low solubility. Increasing solubility is also important in agriculture, since most insecticides are highly hydrophobic (resistant to mixing with water), and their regular application therefore requires the use of organic solvents, which are harmful to the farmer and the environment.

The new process can also be applied to many other fields, such as nutrition and paint and printing-ink manufacture.

Finally, **Yftah Tal-Gan**, a student of **Prof. Chaim Gilon** and **Prof. Alexander Levitzki** at the Institute of Chemistry, will receive a Kaye Award for the inhibition of protein kinase B (PKB, also called Akt). Since the activation of PKB is associated with tumors, selective inhibition of this protein becomes a promising strategy for targeted cancer therapy.