

UCLA-industry partnership to develop, commercialize new nanotechnology

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The California NanoSystems Institute (CNSI) at UCLA and NanoPacific Holdings Inc. have announced a partnership to commercialize a mechanized, nanoparticle-based technology that could lead to prolonged lives of enhanced quality for millions of cancer sufferers.

Under the terms of the partnership, NanoPacific will receive exclusive license to key intellectual property owned by UCLA and developed at the CNSI's Nano Machine Center. The newly formed company will provide funding for further research at the center to broaden the scope of the technology for a diverse range of applications.

"This partnership is a prime example of how the CNSI will fulfill its mission," said UCLA Chancellor Gene Block. "Working with industry to bring new developments in technology and biotechnology into the marketplace for the benefit of the people of California is exactly why the CNSI was established."

The first application under the new partnership will involve the use of the technology for the targeted delivery of Food and Drug Administration-approved chemotherapeutic agents to cancer cells. Because of their unique properties, the mechanized nanoparticles can be preprogrammed to seek out cancer cells specifically while avoiding the body's other rapidly growing cells. In addition, the robot-like nanoparticles allow for the triggered release of cancer drugs that are currently difficult to administer intravenously because of their low solubilities in the blood stream.

The delivery mechanism consists of porous nanoparticles that are capable of storing and selectively releasing small drug molecules via nanoscale gates that can be opened and closed at will on the particles' surfaces. In this way, drugs can be loaded and unloaded in a selective manner in different environments. By equipping the nanoparticle surfaces with specific tags to preferentially target cancer cells, diseased cells can be destroyed selectively without affecting healthy ones, reducing drug toxicity dramatically and sparing patients many of the highly undesirable side effects of chemotherapy, including hair loss and chronic diarrhea.

The concept is a simple one that is open to infinite variation, and significant applications of the new technology are anticipated in other major commercial areas, including scents and cosmetics, food products, environmental remediation, construction materials, and defense.

The California NanoSystems Institute fosters interdisciplinary collaborations in nanoscience and nanotechnology research and facilitates partnerships with private industry, fueling economic development and ensuring the social well-being of California, the United States and the world.

"This collaboration underscores many key objectives of the CNSI," said Leonard H. Rome, CNSI interim director and senior associate dean of research at the David Geffen School of Medicine at UCLA. "The faculty members involved in the Nano Machine Center at CNSI are developing exciting technologies which have the potential to generate major advances in healthcare and medical treatment."

"We are looking forward to launching this collaboration and working in a seamless fashion with UCLA and the world-class scientific team at the CNSI to develop and commercialize nanotechnology," said Joseph A. Boystak, chairman and co-chief executive officer of NanoPacific

Holdings. "We intend to prioritize and aggressively pursue multiple applications in the medical, consumer, environmental and industrial sectors, and in doing so, we envision spawning a series of companies and partnerships with important commercial partners to accelerate the roll-out of this technology."

"I am delighted to be part of the team that provides a bridge from the cutting-edge research being done at the CNSI to industry," said Michael B. Flesch, vice chairman and co-CEO of NanoPacific. "This step is a profound one for NanoPacific Holdings and UCLA as we move forward in the dynamic world of nanotechnology. This collaboration also underscores the value and importance of academic-commercial partnerships."

"The breadth of commercial applications for technologies arising from university nanotechnology research is enormous, and UCLA is excited to be working with the team of business and scientific talent at NanoPacific to bring nanotech-enabled products to market to benefit patients and society at large," said Earl Weinstein, assistant director of technology transfer at UCLA. "This startup is part of a growing number of high-tech companies resulting from research at UCLA that have chosen to establish themselves locally, which also benefits the burgeoning Los Angeles tech cluster."

"We look forward to a long and productive relationship with them," he said.

Source: University of California - Los Angeles

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