

Nanoscale systems for early diagnosis

July 14 2005

A partnership of scientists from the College of Engineering at UC Santa Barbara, Washington University in St. Louis and UC Berkeley have been awarded \$12.5 million to develop nanoscale agents to provide early diagnosis and treatment of acute pulmonary and systemic vascular injury over the next five years. The organizations were selected as a collaborative "Program of Excellence in Nanotechnology" (PEN) by the National Heart Lung and Blood Institute of the National Institutes of Health (NIH).

The team, led at UCSB by Professor Craig Hawker, Director of the Materials Research Laboratory, and coordinated by Professor Karen Wooley at Washington University in St. Louis will use nanoscale materials as carriers for diagnostic systems and to deliver therapeutic agents. Hawker and Wooley working with Professor Jean Frechet, PhD, at the University of California, Berkeley, will be developing a way to trigger a breakdown of the nanoparticles after a payload, such as a drug or antiviral agent, is delivered directly to a diseased zone. Targeted nanoparticles will search out arteries that are under stress or are diseased.

The nanoscale designs are based on the concept that advanced nanotechnologies can help overcome inherent limitations of molecular imaging and therapeutic gene transfer.

"I think part of the reason we received this grant was due to UCSB's excellence in soft materials and in engineering," said Hawker. Acute vascular injury and inflammation have been chosen as general targets since they affect tissues broadly, including those of the lung and

cardiovascular system.

Source: University of California - Santa Barbara

Citation: Nanoscale systems for early diagnosis (2005, July 14) retrieved 3 May 2024 from <https://phys.org/news/2005-07-nanoscale-early-diagnosis.html>

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