Purdue Scientists Treat Cancer With RNA Nanotechnology (sciencedaily)

WEST LAFAYETTE, Ind. – Using strands of genetic material, Purdue University scientists have constructed tiny delivery vehicles that can carry anticancer therapeutic agents directly to infected cells, offering a potential wealth of new treatments for chronic diseases.

The vehicles look nothing like delivery trucks, though that is their function once inside the body. Instead, these so-called nanoparticles, which are assembled from three short pieces of ribonucleic acid, resemble miniature triangles. The microscopic particles possess both the right size to gain entry into cells and also the right structure to carry other therapeutic strands of RNA inside with them, where they are able to halt viral growth or cancer's progress. The team has already tested the nanoparticles successfully against cancer growth in mice and lab-grown human cells.

"RNA has immense promise as a therapeutic agent against cancer, but until now we have not had an efficient system to bring multiple therapeutic agents directly into specific cancer cells where they can perform different tasks," said research team leader Peixuan Guo, who is a professor of molecular virology at Purdue with joint appointments in Purdue's Cancer Research Center, School of Veterinary Medicine and Weldon School of Biomedical Engineering. "Physicians have hoped that nanotechnology might provide a solution to the problem, and it's possible that the application of these tiny triangles could lead to the solution."

"With these devices, Dr. Guo was able to deliver three different therapeutic agents into a cell at the same time," said Jean Chin, a scientist at the National Institute of General Medical Sciences, which is part of the National Institutes of Health. "This is an incredible accomplishment that points to the versatility and potential medical value of these nanoparticles."

Full article: http://www.sciencedaily.com/release...50914090218.htm