Gold Nanoparticles Bring Scientists Closer to a Treatment for Cancer

ScienceDaily (July 5, 2011) — Scientists at the University of Southampton have developed smart nanomaterials, which can disrupt the blood supply to cancerous tumours.

The team of researchers, led by Physics lecturer Dr Antonios Kanaras, showed that a small dose of gold nanoparticles can activate or inhibit genes that are involved in angiogenesis -- a complex process responsible for the supply of oxygen and nutrients to most types of cancer.

"The peptide-functionalised gold nanoparticles that we synthesised are very effective in the deliberate activation or inhibition of angiogenic genes," said Dr Kanaras.

The team went a step further to control the degree of damage to the endothelial cells using laser illumination. Endothelial cells construct the interior of blood vessels and play a pivotal role in angiogenesis.

"We have found that gold nanoparticles can have a dual role in cellular manipulation. Applying laser irradiation, we can use the nanoparticles either to destroy endothelial cells, as a measure to cut the blood supply to tumours, or to deliberately open up the cellular membrane in order to deliver a drug efficiently," said Dr Kanaras.

The researchers are almost midway through their research and have published two related papers with another one submitted for publication and four more planned throughout this year. Their major target is to develop a complete nanotechnology toolkit to manipulate angiogenesis. To make this a reality within five to ten years they continue to seek funding.


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Upcoming Dates/Deadlines

ECU-SPFD (Summer Program for Future Doctors) Deadline
FASFA Deadline
March 2nd
March 15th
PREP Pharmacy Campbell University Deadline
April 1st
AMCAS Application Opens (www.aamc.org)
May 1st

What's happening in NC-HCAP/ Health Careers Club

- MCAT Tutorials w/ Professors (M 4:00-5:00 pm T/R 4:30-6:30 pm)
- MCAT/GRE Follow-up-workshop March 17-18th DF Lowry Building Rm 203& 207 ***If interested in Workshop contact HCAP Office ***
- Health Careers Club Odom Home Visit- March 27, 2012 3:00-5:00 pm
- Health Careers Club 1st Annual Community Easter Egg Hunt – March 31, 2012 11:00 am – 1:00 pm Pembroke Recreation Park

OAT Test Practice

Which of the following is the most polar molecular compound?

A. BF₃  B. CF₃  C. CBr₄  D. CH₂Cl₂  E. CH₂Br₂

PCAT Test Practice

If the free energy change accompanying a reaction is negative,

A. The reaction can occur spontaneously.
B. The reaction can be used to do work by driving other reactions.
C. The entropy must always be negative.
D. Both A and B are true.