Laser-Activated, Drug-Delivering, Nanoparticle Bubbles

TECHNICAL FIELD
Drug Delivery, Cancer Therapeutics, Oncology, Glaucoma

APPLICATION
A controlled-release drug delivery method where injectable nanoparticle carriers are activated by laser, and then ultrasound, and then fully biodegrade.

DESCRIPTION
Cancer treatment is the largest segment of nanomedicine, accounting for 35% of the market and valued at $19 billion in 2013. Targeted attack of cancer cells, while minimizing harm to healthy cells, remains an elusive challenge.

Professor Yoonjee Park, in work begun at MIT and ongoing at the University of Cincinnati, has developed a nanoparticle drug-delivery bubble with superior stability, preventing harm to healthy cells unless activated initially by laser, and then by ultrasound. Her particles are relatively inexpensive and can deliver lipophilic or hydrophilic compounds. In addition to cancers, glaucoma is a potential application.

ADVANTAGES
• Greater stability
• Better targeting
• Hydrophilic or lipophilic payloads

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STATUS
Provisional Patent Pending

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