This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Drug platforms			
Near-infrared (IR)-based amplification of antibody-functionalized, chemotherapy-loaded nanocarriers plus radiation therapy (quadriapeutics) to treat aggressive, therapy-resistant cancer	Cell culture and mouse studies showed that a therapeutic combination called quadriapeutics could help treat aggressive, therapy-resistant head and neck squamous cell carcinoma (HNSCC). Quadriapeutics technology combines four clinically validated therapeutic components: encapsulated drugs, colloidal gold nanoparticles, near-IR laser pulses and X-rays. In cell culture, antibody-functionalized gold nanoparticles and drug-loaded nanocarriers self-assembled and were locally activated with a near-IR pulse and X-rays to induce drug release and cell death. In multiple mouse models of HNSCC, quadriapeutics decreased tumor growth compared with chemotherapy plus radiation therapy. Next steps include clinical trials in the U.S. and Europe to test quadriapeutics in head and neck cancers.	Multiple patents covering the method and laser clinical system device filed; licensing discussions under way with Mechanical Drugs Inc.	Lukianova-Hleb, E.Y. <i>et al. Nat. Med.</i> ; published online June 1, 2014; doi:10.1038/nm.3484 Contact: Dmitri O. Lapotko, Rice University, Houston, Texas e-mail: dl5@rice.edu
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