Convection-enhanced Delivery of Drug-Loaded Nanoparticles to the Brain Tumors

- Biodegradable nanoparticles (NPs) have been optimized to penetrate through tumor tissue when delivered by convection-enhanced delivery (CED).
- Delivery of drug-loaded enhanced NPs by CED outperforms treatment with "standard" NPs or drug alone.
- Could also be used to deliver therapeutics to the brain for other indications besides oncology.

References: Zhou et al., 2012 Cancer; 2013 PNAS; Ediriwickrema et al., 2014 Biomaterials; Gaudin et al., 2016 Biomaterials; Saucier-Sawyer et al., 2016 J Control Release.

Patents Applications: 20150118311; 20140371712

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Kaplan-Meier survival curves for tumor-bearing rats: blue line, brain-penetrating paclitaxel NPs (median survival 46 d); red line, standard paclitaxel NPs (median survival 38 d); green line, free paclitaxel (median survival 30 d); yellow line, blank NPs (median survival 31 d); grey line, no treatment (median survival 27 d)