

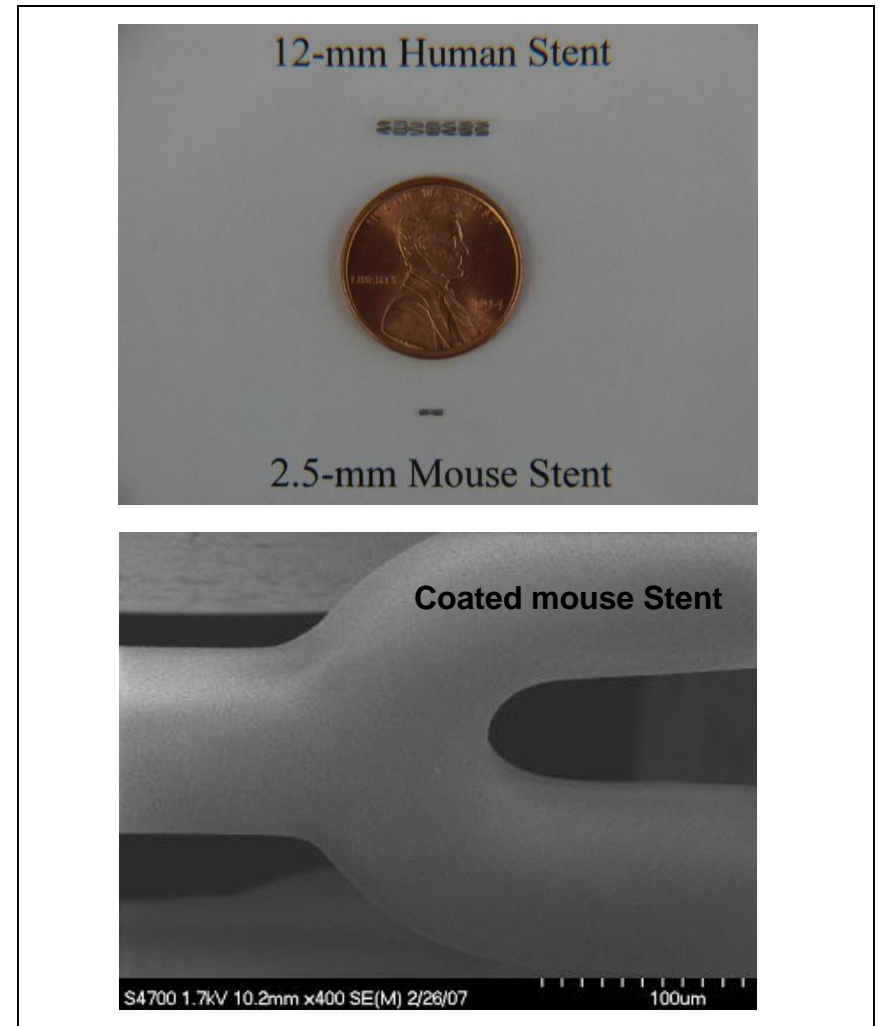
Polyisobutylene-based Biomaterials

Judit E. Puskas (U. Akron), DMR-Award #0509687

Major Findings:

A series of materials comprised of a core of branched polyisobutylene and various end blocks were synthesized and fully characterized. Selected polymers were reinforced with carbon and implanted into rabbits for 180 days. The samples showed less immune reaction than silicone rubber.

ElectroNanospray™, a proprietary technology licensed from the University of Minnesota and developed in part under NSF SBIR funding was used to coat coronary stents, including a mouse stent, with selected polymers and drugs. It was found that drug release profiles could be controlled by polymer properties and spraying conditions. Polyisobutylene was functionalized successfully via enzymatic catalysis. Patent applications are pending.



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Broader impacts: the current grant helped our group to grow (now 16, not all shown left). Last summer we had three REU students and a high school student, three from under-represented groups. The group is active in Upward Bound and other outreach programs. We started a new program to expose science students to art. The PI co-organized and chaired the 2nd TPE Symposium of the Rubber Division of the ACS. One paper resulting from the grant was featured by VCH-Materials Views.