Soft Bio-resorbable and Bio-inspired Electronics

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Although recent research efforts in materials, device designs, and fabrication techniques have resulted in meaningful progresses in soft bioelectronics and thus many clinical issues have been solved by the novel soft biomedical devices, significant challenges still remain. In particular, treatment of brain tumours with high efficacy and development of high-performance artificial eyes require much more breakthroughs. Here, our recent achievement in soft bio-resorbable and bio-inspired electronics to solve such unmet goals will be presented. In the first part of the presentation, an intracranial drug delivery device using the biodegradable wireless electronics integrated with a flexible bioresorbable drug reservoir will be explained. Then, a high-density soft CurvIS array inspired by a human eye and an advanced wide-field-of-view CurvIS array inspired by a fish eye will be presented. These two results are representative examples of our continuing research and development efforts in soft bioelectronics, and are expected to create many new opportunities in wireless intracranial drug delivery as well as artificial vision technology.