This issue of the *Johns Hopkins APL Technical Digest* is the second of two issues devoted to biomedical science and technologies being pursued by APL’s Research and Exploratory Development Business Area. The Revolutionizing Prosthetics program has been a model for integrating scientific research and advanced development across an expansive multidisciplinary and multiorganizational team. This proven capability has led to significant advances in many areas, including applied neuroscience, dexterous robotics, injury mitigation systems, patient-centered care, explosive ordnance disposal robotics, and systems engineering for improved patient safety. With extraordinary advances in genetics, molecular biology, cognitive science, bioinformatics, and biomaterials, the Laboratory will continue to address emerging challenges of national and global significance that will likely be the subject of future issues.