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Contact: Carrie D. Wolinetz, PhD
(301) 634-7650
cwolinetz@faseb.org

BREAKTHROUGHS IN BIOSCIENCE DESCRIBES ADVANCES IN NEURAL PROSTHETICS

Bethesda, MD – The Federation of American Societies for Experimental Biology (FASEB) is pleased to announce the release of the publication “Building Electronic Bridges to Bionics: The Basic Science of Neural Prosthetics,” the latest edition in the *Breakthroughs in Bioscience* series. This article explores the cutting-edge science of neural prosthetics, from cochlear implants to artificial retinas to bionic limbs, and describes the roots of these devices in centuries of fundamental research.

Today, millions of Americans use neural prostheses, whose origin can be traced back to the 18th century physicist, Luigi Galvani. Galvani’s discovery of “animal electricity” in frogs was later identified as the electrical nerve impulse, which is the basic signaling mechanism that nerves use to communicate with tissues and organs. Nearly a century later, the cochlea was identified as critical to the transmission of sounds and following in Galvani’s footsteps, Princeton psychologists E. Glen Wever and Charles Bray showed that electrical impulses were involved in hearing speech from this organ. NIH-funded research in California enabled scientists to discover exactly how the cochlea transmits speech sounds to the brain, and by the 1970’s, the first cochlear implant made its debut. The success of cochlear implants encouraged researchers to study other neural processes including sight and mobility, leading to today’s emerging developments in artificial retinas to overcome blindness and bionic limbs to restore movement and touch to amputees. Readers will come away with an understanding of how neural prostheses work, and an appreciation for the decades of scientists and clinicians whose collective work has resulted in these amazing devices.

The *Breakthroughs in Bioscience* series is a collection of illustrated articles, published by FASEB, that explain recent developments in basic biomedical research and how they are important to society. To obtain a free copy of these publications, visit the *Breakthroughs in Bioscience* Web site (<http://opa.faseb.org/pages/Publications/breakthroughs.htm>) or contact FASEB’s Office of Public Affairs at (301) 634-7650.

The new article may be accessed here: <http://opa.faseb.org/pdf/BuildingElectronicBT.pdf>

FASEB is composed of 21 societies with more than 80,000 members, making it the largest coalition of biomedical research associations in the United States. FASEB enhances the ability of biomedical and life scientists to improve—through their research—the health, well-being and productivity of all people. Our mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences through service to its member societies and collaborative advocacy.