

FENS Forum 2006

For lectures, symposia and workshops, time indicates the beginning of the session.
For posters, authors are expected to be in attendance at their posters at the time indicated.



First author: Kim, Sung June (poster)

Poster board 63 - Tue 11/07, 12:15 - Hall X
Session 146 - Multisensory
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Title	Neural prosthetic implants for hearing, vision and cortical control.
Text	<p>We have worked on three areas of neural prosthetic implants. The first is on cochlear implant. A 16 channel electrode was developed based on Pt-Ir balls and silicone elastomer body. A receiver-stimulator IC was developed which was hermetically sealed in a Ti housing. Wearable speech processor uses CIS strategy. Stimulation is done using forward telemetry at 1 kpps rate per electrode site and reverse telemetry is also available to obtain feedback. This device is under preclinical trials. The second area of research is on retinal implant. A flexible electrode array was developed based on polyimide. Surgical procedures were developed to implant the electrodes epiretinally and subretinally. Electrically evoked potentials using such electrode were favorably compared with visually evoked potentials. The third is on developing neural depth probes for cortical implant. This study focused on developing high quality silicon-based fabrication technology and on cellular reaction for chronic use in the human body. The probes showed favorable performances with respect to impedance spectra, signal-to-noise ratio, fabrication yield, and neural recording. Brain damages, according to the sharpness of the tips and the speed of insertion, were examined using a real-time in vitro experimental setup with living brain slices. To assess the cellular reactions around probes, we examined time-dependent changes in different brain regions using immunohistochemistry and laser scanning confocal microscopy. This presentation will include details of the three researches mentioned above.</p> <p>This work was supported by KOSEF through NBS-ERC and its international collaboration program between NBS and Cornell Bioengineering program.</p>
Theme	Sensory systems Multisensory

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