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### Nanowires listen in on neurons

Creating a tool with unmatched sensitivity, Harvard University [\[profile\]](#) researchers have made silicon nanowires that can precisely measure multiple electric signals within a neuron. These ultrasmall silicon wires could help brain scientists understand the underpinnings of learning and memory. They could also be used in neural prosthetics, providing electrodes far more sensitive than those currently used.

The research group, led by Charles Lieber, professor of chemistry at Harvard University, has developed techniques for synthesizing large arrays of silicon nanowires, which act as transistors, amplifying very small electrical signals from as many as 50 places on a single neuron. In contrast, the most precise existing methods can pick up only one or two signals from a neuron. By detecting electrical activity in many places along a neuron, the researchers can watch how it processes and acts on incoming signals from other cells.

The nanowires are about the same size as the branches that neurons use to communicate with one another. William Ditto, professor of biomedical engineering at the University of Florida [\[profile\]](#), says neurons probably send the same kinds of signals to the nanowires as they do to other neurons. As a result, the nanowires could provide a realistic view of a neuron's complex firing patterns.

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