

Genosensor Consortium  
VENTURA Co. April 95

**ADVANCED TECHNOLOGY PROGRAM**  
National Institute of Standards and Technology

*The Genosensor Consortium*

**Genosensor Technology Development**

<b>Technologies:</b>	Biotechnology	<b>First year request:</b>	\$1,645K
<b>Project length:</b>	5 years	<b>Matching funds:</b>	\$9,234K
<b>Total request:</b>	\$9,234K		

The Genosensor Consortium proposes a multifaceted project to develop the technologies necessary to build a unique new automated DNA analyzer. The basic innovation is a DNA "microlaboratory" — a revolutionary chip that marries microelectronics with molecular biology. This *genosensor* is a microcircuit-like array of synthetic DNA probes, each probe a short molecular chain capable of pairing with a unique sequence of DNA bases. In concept, the sensor chip would array, for example, probes for all 65,536 possible eight-base strings of the four bases comprising DNA. When an unknown sample of single-strand DNA is exposed to the chip, only those probe elements which exactly match with some eight-base sequence in the sample will combine with that segment of the sample. If the sequence of bases in each probe is known (by its position in the array) and the array can be "read" to detect paired (or "hybridized") probes, then a computerized pattern-matching routine could analyze the sequence of bases in a region of the DNA. Such a device would be far cheaper and faster than conventional DNA sequence analysis, opening up whole new markets for DNA analysis in diagnostics, forensics, therapeutics (design of complex drugs), agricultural research, and others. The Genosensor Consortium includes the Houston Advanced Research Center, Beckman Instruments, Microfab Technologies, Inc., Laboratories for Genetic Services, Inc., Genosys Biotechnologies, Inc., Triplex Pharmaceutical Corporation, the Baylor College of Medicine, and the Massachusetts Institute of Technology.

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