

One-Step Manufacture Of Nanowire Biosensors

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BACKGROUND

Electrochemical biosensors based on nanotubes or nanowires could be widely used in diagnostic, research, and security applications. However, the problems associated with functionalizing and placing these nano-elements on a device have prevented the practical application of this technology.

University of California scientists have developed a simple one-step methodology for the synthesis of functionalized nanowires that act as biosensors. Nanowires of 100 to 200 nm have been tested that can accurately sense the presence of target biological molecules through changes in conductance when the target binds to the wire's functional ligands

ADVANTAGES

- **One-step in-situ synthesis.** Each nanowire is fabricated on the device in seconds and is functionalized as it is grown. There is no need for post-synthesis modification or placement.
- **Easy manufacture.** UC's methods are compatible with current fabrication technologies and could be used to develop densely packed arrays of heterogonous probes on an array.
- **Instantaneous, specific, and label-free detection.** Biological targets selectively bind to the wire's functional groups, leading to a rapid and easily measured change in conductance.
- **Versatility.** The UC methods could be readily adapted to sense biological materials, chemical species, and gases.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,034,222	10/11/2011	2004-177

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OTHER INFORMATION

CATEGORIZED AS

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