

## Noble Metal Nanowire Based SERS Sensor

강태준

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The interface between nanomaterials and biosystems is emerging as one of the broadest and most dynamic areas of science and technology, bringing together biology, chemistry, physics and many areas of engineering, biomedicine. The combination of these diverse areas of research promised to yield revolutionary advances in healthcare, medicine, and life science. For example, the creation of new and powerful nanosensors that enable direct, sensitive, and rapid analysis of biological and chemical species can advance the diagnosis and treatment of disease, discovery and screening of new drug molecules. Nanowire based sensors are emerging as a powerful and general platform for ultrasensitive and multiplex detection of biological and chemical species. Here, we present the studies about noble metal nanowire sensors that can be used for sensitive detection of a wide-range of biological and chemical species including nucleic acids, proteins, and toxic metal ions. Moreover, the optical and electrochemical applications of noble metal nanowires are introduced. Noble metal nanowires are successfully used as plasmonic antennas and nanoelectrodes, thereby provide a pathway for a single molecule sensor, in vivo neural recording, and molecular injection and detection in a single living cell.

**Keywords:** Nanowire, Surface-enhanced Raman Scattering, Sensor

