

Real-time tracking and bio-imaging of cancer cells based on novel nanoscaled probes

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The early efficient diagnosis and therapy of some important disease like cancers is still a hot topic in the relative areas involving in patient care and treatments. The multidrug resistance (MDR) is often one of the major obstacles in relevant therapies due to disease-causing organisms to withstand a wide variety of structurally and functionally distinct drugs or chemicals. Diagnosis and therapy in combination with nanotechnology may offer an alternative promising and overcome the difficulty. And the early diagnosis based on some smart supramolecules and nano-biotechnology could be crucial for a successful treatment of cancers.

This study has established some ultrasensitive and intelligently supramolecules and multi-functional nanoprobe as well as multi-mode imaging techniques for real-time dynamic analysis of biomolecules/ cells/tissues. Meanwhile, we have developed a new strategy for the fast and high sensitive recognition of the target biomolecules and cancer cells by combining the supramolecular probes and functionalized nano-interface with the spectra-electrochemical study. Especially, the ultrasensitive *in vivo* bio-imaging of cancer cells and diseased tissues has been realized through *in situ* biosynthesized near-infrared fluorescence nanoclusters, establishing creative methods for non-invasive molecular diagnosis and treatment of some difficult diseases like cancers, thus paving the novel path for cancer diagnosis and treatment.

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Biography:

Dr. Xuemei WANG is currently a full professor in Southeast University, Nanjing, China. She got her PhD degree in Chemistry from Nanjing University in 1995; From February of 1995 to June of 1996 she a lecturer in Department of Chemistry in Nanjing University. In 1996 she got the Alexander von Humboldt fellowship in Germany and engaged in the research of supramolecular chemistry and bio-recognition. After returning to China in February of 1998, she joined school of Biological Science and Medical Engineering, Southeast University. In 2000, she was awarded Hong Kong Croucher Research Fund and Chinese Chemical Society Youth Award in Chemistry. She was elected in New Century Talent Supporting Project in China in 2005 and won Chinese Young Woman Scientist Award in 2007. In 2013, she won The National Science Fund for Distinguished Young Scholar in China. Her current research interests include nanomedicine, bio-imaging and biomedical sensors, especially focusing on the design of multifunctional nanostructures for nanomedicine, *in vivo* self-bio-labelling and multimode bio-imaging of tumors through *in-situ* biosynthesized biocompatible metal nano-clusters, and biosensors based on functionalized nanoscaled probes.