

CURRICULUM VITAE

Shih-Hua Yeh

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Education

M.S. in Chemistry, National Taiwan University(2011)

Thesis: Fluorescent Nanodiamond as a Novel Nanoparticle for Cell Labeling and *in vivo* Biodistribution Studies.

B.S. in Applied Chemistry, National Chi Nan University(2009)

Research Experiences

M.S. Research Project:

Fluorescent Nanodiamond as a platform for noninvasive *in vivo* imaging. Biophysical Chemistry Lab, Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan 106, R.O.C.

Fluorescent nanodiamond (FND) has many unique properties, such as photostability and biocompatibility, making it as a novel nanoparticle for both *in vitro* and *in vivo* applications. We tracked the fate of 100 nm FNDs by *in vivo* fluorescence imaging in mouse and rat models, and *ex vivo* fluorescence detection of the particles in various tissues and organs after digestion.

Fluorescent nanodiamond for cell labeling and tracking.

Biophysical Chemistry Lab, Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan 106, R.O.C.

Here, We demonstrated that the 100 nm FND as a nanolabel for HeLa cervical cancer cells, 3T3-L1 pre-adipocytes, 489-2.1 multipotential stromal cells(adherent cells)and M1leukemia cells(non-adherent cell). We introduced FNDs into cells through incubation. Colocalization analysis showed that the internalized FNDs are accumulated in lysosomes with little excretion after 3 hours of post-labeling for Hela cells. Cell division tracking was performed by fluorescence microscopy and cell doubling time was analyzed by flow cytometry. We also demonstrated that the high-purity sorting of FND-labeled 489-2.1

cells in a 1:1000 cell mixture is achievable by utilizing both the fluorescence and light-scattering properties of FND.

Under Graduate Research Project:

Applications of thermoresponsive PNIPAAm polymer on capillary electrophoresis.
Biochemistry Lab, Department of Applied Chemistry, National Chi Nan University,
Puli, Nantou, Taiwan 545, R.O.C.

Poly(N-isopropyl acrylamide)(PNIPAAm) is a kind of thermoresponsive polymer. By varying temperature and salt concentration of aqueous solution, the hydrophilic and hydrophobic properties of PNIPAAm polymer are fast changed. Using the properties of PNIPAAm, PNIPAAm-assisted Micellar Electro Kinetic Chromatography (MEKC) system in capillary electrophoresis analysis was developed to separate five neutral steroids (testosterone, dexamethasone, hydrocortisone, hydrocortisone 21-acetate, and prednisolone). Results showed that an effective separation of steroids was achieved with an excellent resolution, which was better than that of traditional MEKC.

PUBLICATIONS

The long-term stability and biocompatibility of fluorescent nanodiamond as an *in vivo* contrast agent., V. Vaijayanthimala , Po-Yun Cheng , **Shih-Hua Yeh** , Kuang-Kai Liu , Cheng-Hsiang Hsiao, Jui-I Chao, Huan-Cheng Chang., *Biomaterials* **2012**, *33*, 7794-7802

The Exocytosis of Fluorescent Nanodiamond and Its Use as a Long-Term Cell Tracker., Chia-Yi Fang , V. Vaijayanthimala , Chi-An Cheng , **Shih-Hua Yeh** , Ching-Fang Chang , Chung-Leung Li , and Huan-Cheng Chang., *Small* **2011**, *7*, No. 23, 3363–3370

Research interests

Biomedical applications.

Relevant courses studied

Experiments in Biochemistry, Nanomedicine, Biochemistry, Chemical Biology, Bio-analytical Chemistry, Physical Chemistry, Introduction to Material Science, Analytical Chemistry, Organic Chemistry, Inorganic Chemistry, Chemical Mathematics.

Other skills

Computer: MS Office, Origin

Language: Chinese and English

References

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