

WIAS TOP Runners' Lecture Collection

Investigate Biomedical Questions Using Multidisciplinary Approaches

Allen Wei-Lun Huang

¹ Center of Applied Nanomedicine, ² Department of Medical Laboratory Science and Biotechnology, College of Medicine, National Cheng Kung University, Tainan, Taiwan

E-mail: allenhuang@mail.ncku.edu.tw



Cross-disciplinary study is now an emerging trend for advancing science in different fields. In the Center of Applied Nanomedicine, National Cheng Kung University, we also tried to leverage multidisciplinary technologies to accelerate our biomedical studies. In this talk, I would like to share some of our experience in cancer therapy and liquid biopsy using multidisciplinary approaches. For example, by using the versatile graphene oxide quantum dots in combination with the electron donating sacrificial reagent theme, we augmented their ROS generation capability for developing the concise cancer nanotherapeutic modality as well as the diagnostic signal amplification platform. By introducing surface-enhanced Raman spectroscopy (SERS), cryo-TEM, and liquid-TEM, we are now able to dissect extracellular vesicles with aspects other than the classical biomedical analysis. We also leveraged the material analysis methods like SEM and Fourier-transform infrared spectroscopy (FTIR) to confirm the efficiency of isolation protocol for the novel ultra-short cell free DNAs as well as their methylation properties. At the end of this talk, I will show how we isolated circulating tumor cells and analyzed their responses to therapies using dielectrophoresis and electro-rotation based bio-chips.

Dr. Huang は nanomedicine が専門の若手研究者で、がん治療や細胞外小胞の基礎的理解、リキッドバイオプシーなどに幅広く取り組まれています。本講演では、分野を超えた最先端の技術を組み合わせることで、がん研究やバイオメディカル研究の課題の解決にどのように役立てられるのか、これまでの研究成果を元にご講演いただきます。

学生の皆さんや先生方のご参加を広くお待ちしております。

日時/Venue

7 月 8 日(月) 13:00-14:00

July 8 (Mon), 2024, 1-2 pm

TWIns(50 号館) セミナー室 3/Seminar room 3

主催：早稲田大学 高等研究所

企画：西田 奈央 (早稲田大学 高等研究所) nnishida@aoni.waseda.jp