

| GLOBAL OUTLOOK

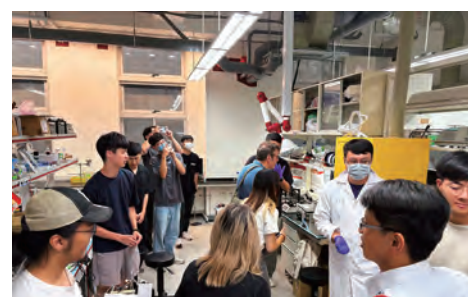
NTU and MIT Advance Smart Healthcare through Microfluidic Innovation

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Seminar speakers and guests. Front row, from left: Prof. Nien-Tsu Huang, NTU; Prof. Joel Voldman, MIT; Prof. Tsung-Lin Yang, NTU Deputy Vice President for Research and Development; Associate Professor Ya-Yu Chiang, NTU; and Mr. Charles Tsai, CEO of Leadgene Biosolutions. (Group photo.)

To strengthen international academic exchanges and explore the applications of microfluidic technologies in smart healthcare and precision medicine, National Taiwan University (NTU) hosted a seminar and industry-academia networking event, "Microfluidic Technologies for Immune Assessment and Personalized Medicine," on June 25. The event featured Prof. Joel Voldman of the Massachusetts Institute of Technology (MIT) and Prof. Nien-Tsu Huang of NTU's Department of Electrical Engineering and Graduate Institute of Biomedical Electronics and Bioinformatics. Faculty members in related fields and industry experts were also invited to participate in the discussions. In welcoming remarks, Prof. Tsung-Lin Yang, Deputy Vice President for Research and Development at NTU, asserted, "We hope everyone will actively participate in today's event, contributing valuable insights from different perspectives; so that, together, we may explore new possibilities that enrich academic research and spawn future opportunities for collaboration."



Prof. Joel Voldman visiting Associate Professor Ya-Yu Chiang's laboratory.

Opening the seminar, Prof. Voldman presented his latest research on microfluidic technologies. He introduced innovative new approaches that combine cell pairing, electrical cell sorting, and electrochemical microfluidic systems to precisely analyze immune cell functions and protein biomarkers. He further discussed potential applications of these technologies in disease diagnosis, immune monitoring, and clinical testing, while sharing both the current challenges and future directions of microfluidic research. Prof. Huang then introduced NTU's recent advances in developing multifunctional microfluidic platforms for personalized medicine and healthcare. By integrating multiple sensing and microfluidic technologies, these platforms significantly improve analytical efficiency and accuracy, demonstrating NTU's research strengths in precision medicine, biomedical chips, and smart healthcare. Throughout the seminar, the two professors exchanged their research experiences and technical perspectives, learning from each other's expertise while engaging with faculty members, students, and industry representatives in discussions on potential future collaborations.

Following the seminar, Prof. Huang and Associate Professor Ya-Yu Chiang of NTU's Department of Mechanical Engineering led Prof. Voldman on a campus tour. They first visited the NTU Museum of Engineering, located at the former Mechanical Engineering Building. There Prof. Voldman learned about the department's historical inventions and engineering breakthroughs. The visit continued with tours of Associate Professor Chiang's and Prof. Huang's laboratories. Students took the opportunity to introduce their research projects and experimental work, receiving valuable feedback, suggestions, and encouragement from Prof. Voldman. During the evening networking dinner, Prof. Voldman and several NTU faculty members further exchanged views on a range of topics, including the current research ecosystem, international collaboration models, and future partnership opportunities. The event not only showcased NTU's commitment to expanding global academic collaborations but also strengthened ties with one of the world's leading universities, creating new opportunities for international cooperation in biomedical technology and smart healthcare innovation.



Prof. Joel Voldman visiting NTU's Museum of Engineering.



Professor Joel Voldman interacting with graduate students while visiting Professor Nien-Tsu Huang's laboratory.