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**Education**

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| 2003-2007 | B.S. in Department of Chemical Engineering, TamKang University, Taipei, Taiwan    |
| 2007-2009 | M.S. in Institute of Biomedical Engineering, National Taiwan University, Taiwan   |
| 2009-2013 | Ph. D. in Institute of Biomedical Engineering, National Taiwan University, Taiwan |

**Research and Professional Positions Held in Chronological Sequence**

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| 2016–2020    | Assistant Professor, Graduate Institute of Biomedical Materials and Tissue Engineering, Taipei Medical University, Taiwan    |
| 2018–Present | Board Member, Taiwan Chitin and Chitosan Society, Taiwan   |
| 2020–2023    | Associate Professor, Graduate Institute of Biomedical Materials and Tissue Engineering, Taipei Medical University, Taiwan    |
| 2021–Present | Founder, Hsuan-Chen Biomedical Technology Co., Ltd., a Taipei Medical University spin-off company, Taiwan                    |
| 2023–2024    | Professor, Graduate Institute of Biomedical Materials and Tissue Engineering, Taipei Medical University, Taiwan              |
| 2024–Present | Professor and Director, Graduate Institute of Biomedical Materials and Tissue Engineering, Taipei Medical University, Taiwan |

**Research Interests**

- Smart Biomimetic Medical Materials

Our work focuses on smart biomimetic medical materials inspired by cells, photosynthetic microorganisms, and naturally derived vesicles. These systems provide active functions such as oxygen generation, immune modulation, microenvironmental regulation, and stimulus-triggered therapy, moving beyond conventional passive biomaterials.

- Polysaccharide-Based Polymers and Composite Medical Materials

We are developing polysaccharide-based and composite medical materials, including chitosan, glycol chitosan, alginate, fucoidan, carrageenan, and hyaluronic acid systems. These materials have been applied to hydrogels, nanocarriers, wound dressings, scaffolds, and regenerative platforms for wound healing, cartilage repair, cancer therapy, and inflammatory disease treatment.

- Physically, Biochemically, and Environmentally Driven Biomaterial Technologies

Our research emphasizes biomaterials activated by physical, biochemical, or environmental cues, such as light, heat, magnetic fields, plasma treatment, redox reactions, enzymes, and pathological signals. These systems can generate photothermal, photoelectric, oxygen-releasing, immunomodulatory, antibacterial, and tissue-repairing effects.

- Clinical Translational Applications of Nanomedicine Delivery Systems and Tissue Engineering

A central goal of my research is to bridge biomaterials science with clinical translation. Our platforms have been explored in cancer, thrombosis, diabetic wounds, osteoarthritis, rheumatoid arthritis, bladder disorders, ophthalmic diseases, and regenerative medicine to develop safer and more effective therapeutic strategies.

● Applications of Plasma and Liquid Crystal Technologies in Precision Biomedical Engineering  
We have explored plasma and liquid crystal technologies for precision biomedical engineering. Plasma technology improves the surface chemistry and biological performance of polymeric biomaterials, while liquid crystal systems provide rapid, low-cost, and sensitive biomedical detection platforms.

### **Major Honors and Awards**

- Taipei Medical University Outstanding Research Paper Award, 2025 ( Academic Year 114 )
- Taipei Medical University Annual Research Achievement Award, 2025 ( Academic Year 114 )
- National Innovation Award - Innovation Advancement Award (2021-2025)
- Wanfang Hospital Excellent Paper Award (2021-2025)
- Taipei Medical University Hospital High Point Index Award for Outstanding Papers (2023-2025)
- Journal of Nanobiotechnology | Outstanding Reviewer Award (2024-2025)
- 2025 National Science Council 114th Annual "2030 Transgenerational Young Scholars Program | Outstanding Young Scholars Research Project"
- Sigma Xi The Scientific Research Honor Society (2025)
- The 7th Taiwan International Symposium on Regenerative Medicine Materials and the Annual Meeting of the Chinese Society for Biomedical Materials and Drug Manufacturing - Invited Speakers
- National Science Council Research Grants for Colleges and Universities, 2012-2014 (Measures to Reward Exceptionally Outstanding Talents)
- Taipei Medical University Distinguished Research Paper Award, Academic Year 113 (2024)
- Taipei Medical University Distinguished Research Paper Award, Academic Year 112 (2023)
- Taipei Medical University Annual Research Achievement Award, Academic Year 112 (2023)
- 2023 Taipei United University System Academic Research Achievements Presentation (Oral Presentation Award of Excellence)
- Invited Speaker, Taiwan Society of Chemical Engineers (2022)
- Annual Meeting of the Chinese Society for Biomedical Materials and Drug Manufacturing & Presentation of Achievements in Engineering Medicine, Department of Life Sciences, National Science Council - Invited Speakers
- 110th Academic Year Taipei Medical University Young Scholar Research Award
- 110th Academic Year Taipei Medical University Outstanding Research Paper Award
- 2021 Ministry of Science and Technology Research Awards (Measures for Attracting and Rewarding Exceptionally Outstanding Talents)
- The 17th National Innovation Award - Academic and Research Innovation Award (2020)
- VEBLEO SCIENTIST AWARD (2020)