

Hao Liu, Ph.D.



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QUALIFICATIONS & ACADEMIC EXPERIENCE

Mar 2024 – Current **Postdoctoral Research Fellow at Biological and Kaust Catlysis Center, King Abdullah University of Science and Technology, Saudi Arabia.**

I. Project title: Multiple H-bond-Based Polymer-Oligopeptide Conjugates.

Supervisor: Prof. Nikos, Hadjichristidis

Mar 2023 – Mar 2024 **Postdoctoral Research Fellow at Biological and Environment Science and Engineering Division, King Abdullah University of Science and Technology, Saudi Arabia.**

I. Project title: Novel infrastructure for coral reef restoration and reef scaping. (Funded and cooperated with Saudi government)

II. Project title: Development of implant coatings comprising biocompatible lubrication and anti-infective properties for next generation joint replacement prototypes (Johnson & Johnson company funded)

III. Peptide nanogels as a scaffold for fabricating dermal grafts and 3D vascularized skin models. (SAIF Partners China company funded)

Supervisor: Professor Charlotte Hauser

June 2019 – Feb 2023 **Ph.D. at Department of Chemistry, College of Sciences, Hong Kong Baptist University, Hong Kong, China**

Research title: Synthesis of Iridium(III) complex and its application for detecting analytes in biological systems

Supervisor: Professor Ma Dik-Lung

Aug 2018– May 2019 Research Assistant at Department of Chemistry, College of Sciences, Hong Kong Baptist University, Hong Kong, P. R. China

Research title: Synthesis of an coumarin analogue-conjugated Iridium(III) complex for the intracellular tracking of EZH2

Supervisor: Professor Ma Dik-Lung

Sep 2015 – June 2018 Master at Department of Chemistry, College of Sciences, Shanghai University, Shanghai, P. R. China

Research title: Synthesis of Fluorine-containing Indolizine and Pyrroloisoquinoline Derivatives Using Perfluoroalkynes as Building Blocks

Supervisor: Professor Weiguo Cao

Sep 2011 – June 2015 Bachelor at Department of Applied Chemistry, College of Applied Chemistry, Shenyang University of Science and Technology, P. R. China

Supervisor: Professor Jin Guan

RESEARCH INTEREST

1. Tumor microenvironment induced site-specific peptide based nano delivery system release
2. The development of transition metal complexes working as dual-functional luminescent probes and inhibitors towards biomarkers.
3. Virtual screening through natural product libraries to find the optimized promising inhibitor.
4. Multiple H-bond-Based Polymer-Oligopeptide Conjugates.

PUBLICATIONS

1. **H. Liu**, Dong He, Zhenhua Sun, Weimin He, Jing Han, Jie Chen, Hongmei Deng, Min Shao, Hui Zhang, Weiguo Cao. Novel Synthesis of Perfluoroalkylated Indolizinylphosphonates via a DIPEA-promoted One-pot Process. *Tetrahedron* 2018, 74, 135-141.
2. Wei Zhou, **H. Liu (co-first author)**, Yongyi Guo, Hui Zhang, Weiguo Cao. Base-promoted

- [3+2] cycloaddition/aromatization cascade reaction under air: An approach to access perfluoroalkylated pyrrolo[2,1-a]isoquinolines. *Journal of Fluorine Chemistry*, 2019, 222-223, 51-58.
3. G. Li, **H. Liu (co-first author)**, T.-S. Kang, D.-L. Ma, C.-H. Leung*. "A bioactive ligand-conjugated iridium(III) metal-based complex as a Keap1–Nrf2 protein-protein interaction inhibitor against acetaminophen-induced acute liver injury". *Redox Biology*, 2021, 48, 102129.
 4. G. Li, S.-A. Henry, **H. Liu (co-first author)**, T.-S. Kang, S.-C. Nao, Y.-C. Zhao, C. Wu, J.-W. Jin, J.-T. Zhang, C.-H. Leung*, P. W.-H. Chan*, D.-L. Ma. "A robust photoluminescence screening assay identifies uracil-DNA glycosylase inhibitors against prostate cancer". *Chem. Sci.*, 2020, 11, 1750.
 5. K.-J. Wu, P.-M. Lei, **H. Liu**, C. Wu, C.-H. Leung*, D.-L. Ma." Mimicking strategy for protein-protein interaction inhibitor discovery by virtual screening". *Molecules*, 2019, 24, 4428.
 6. D.-L. Ma, C. Wu, **H. Liu**, K.-J. Wu, C.-H. Leung*. "Luminescent approaches for the rapid detection of disease-related receptor proteins using transition metal-based probes". *J. Mater. Chem. B*, 2020, 8, 3249.
 7. K.-J. Wu, S.-H. Ho, J.-Y. Dong, L. Fu, S.-P. Wang, **H. Liu**, C. Wu, C.-H. Leung*, H.-M. Wang*, D.-L. Ma. "An aliphatic group-tethered iridium complex as a theranostic agent against malignant melanoma metastasis". *ACS Appl. Bio Mater.*, 2020, 3, 2017.

PROFESSIONAL & PERSONAL STRENGTHS

- ◆ Peptide synthesis and its applications as ADC and PDC platforms
- ◆ Nanoparticles as target drug delivery system
- ◆ Volumetric 3D printing using the ultrashort peptides
- ◆ Have studied the luminescence probe and potential inhibitor for cancers.
- ◆ Experience in multi-step organic synthesis
- ◆ Profound efficiency in handling of hygroscopic, air sensitive reagents and reactions
- ◆ Sound knowledge in organic materials
- ◆ Familiar with 1D (¹H, ¹³C), 2D NMR, IR, UV, analysis of mass spectra (EI, ESI, and FAB), HPLC and Polarimeter
- ◆ Excellent skills in scientific literature searching using Sci-Finder and Reaxys