HSUAN-CHEN WU

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EDUCATION

UNIVERSITY OF MARYLAND, COLLEGE PARK, MD, USA
Ph.D., Bioengineering, May 2012

- Dissertation: "Incorporation of bacterial quorum sensing in synthetic biology"
- Advisor: Dr. William E. Bentley

TUNGHAI UNIVERSITY, Taiwan
M.S., Biology, July 2002

- Thesis: "Will giant wood spider *Nephila pilipes* respond to diet variation by altering silk protein? Evidence from field surveys and manipulative studies"
- Advisor: Dr. I-Min Tso

NATIONAL TAIWAN UNIVERSITY, Taiwan
B.S., Chemical Engineering, July 2000

RESEARCH INTERESTS

- **Synthetic Biology**: prokaryotic/eukaryotic cellular reprogramming, quorum sensing switch, biomedicine, biomolecular engineering
- **Metabolic engineering**: autonomous protein expression systems, RNAi based cellular pathway engineering, biotherapeutics production
- **Biofabrication**: bio-inspired assembly, bio-device interfaces, functional bio-conjugation, bio-nano integration
- **Biomaterials**: stimuli-responsive natural materials, biosensors, tissue engineering scaffolds

EXPERIENCE AND ACCOMPLISHMENTS

NATIONAL TAIWAN UNIVERSITY, Department of Biochemical Science and Technology
Assistant Professor Aug. 2015 – Present

UNIVERSITY OF MARYLAND, Institute for Bioscience and Biotechnology Research
Research Associate Jun. 2012 – May 2015
Advisor: Dr. William E. Bentley

UNIVERSITY OF MARYLAND, Fischell Department of Bioengineering
Research Assistant Jul. 2006 - May 2012
Advisor: Dr. William E. Bentley

Teaching Assistant, "Biomolecular and Cellular Rate Processes" Aug. - Dec. 2006
Teaching Assistant, "Biomechanics" Aug. - Dec. 2007

NATIONAL TAIPEI UNIVERSITY OF TECHNOLOGY, Department of Chemical Engineering, Taiwan
Research Assistant Aug. 2004 - Jul. 2005
Advisor: Dr. Thomas C.K. Yang

TAIPEI MEDICAL UNIVERSITY, Institutes of Oral Sciences, Taiwan
Research Assistant Feb. 2003 - Jun. 2004
Advisor: Dr. Jen-Chang Yang

Assisting on NSC projects, "Investigating the crystallization behaviors of *Nephila pilipes*' silk fibroin treated with electric fields"

TUNGHAI UNIVERSITY, Department of Biology, Taiwan
Research Assistant Jun. 2000 - Jun. 2002
Advisor: Dr. I-Min Tso

PUBLICATIONS

- Chen, W.-C., Wang, R.-C., Yu, S.-K., Chen, J.-L., Kao, Y.-H., Wang, T.-Y., Chang, P.-Y., Sheu, H.-S., Chen, S.-C., Liu, W.-R., Yang, T., Wu, H.-C. (2023) Self-Healable Spider Dragline Silk Materials. *Advanced Functional Materials*, 2303571. (IF 19.92)
- Sabarikirishwaran P, Shen M-Y, Ramaraj R, Unpaprom Y, Wu H-C, Chu C-Y. (2023) Feasibility and optimizing assessments on biogas and biomethane productions from E. coli fermenter effluent. *Biomass and Bioenergy*, 173, 106783. (IF 5.77)
- Wu, S.-D., Chuang, W.-T., Ho, J.-C., Wu, H.-C., Hsu, S.-H. (2023) Self-healing of recombinant spider silk gel and coating. *Polymers*, 15 (8), 1855 (IF 4.97)
- Wan H-Y, Chen Y-T, Li G-T, Wu H-C, Huang T-C, Yang T-I. (2022) Electroactive aniline tetramer–spider silks with conductive and electrochromic functionality. *RSC Advances*, 12(34), 21946-21956. (IF 4.08)
- Hu P, Ly KL, Pham LP, Pottash AE, Sheridan K, Wu H-C, Tsao C-Y, Quan D, Bentley WE, Rubloff GW. (2022) Bacterial chemotaxis in static gradients quantified in a biopolymer membrane-integrated microfluidic platform. *Lab on a Chip*, 22(17), 3203-3216. (IF 6.35)
- Terrell, J. L., Tschirhart, T., Jahnke, J. P., Stephens, K., Liu, Y., Dong, H., Hurley, M. M., Pozo, M., McKay, R., Tsao, C.-Y., Wu, H.-C., Vora, G., Payne, G. F., Stratis-Cullum, D. N., Bentley, W. E. (2021). Bioelectronic control of a microbial community using surface-assembled electrogenetic cells to route signals. *Nature Nanotechnology*, 16, 688–697. (IF 40.52)
- Hong J-C, Fan H-C, Yang P-J, Lin D-W, Wu H-C, Huang H-C. (2021) Localized proteolysis for the construction of intracellular asymmetry in Escherichia coli. *ACS Synthetic Biology*,10(8), 1830-1836. (IF 5.25)
- Wu, S. R., Chen, J. L., Wu, H. C. (2020) Biofabricating a Silk Scaffold as a Functional Microbial Trap. *ACS Biomaterials Science & Engineering*. 6, 12, 7041–7050. doi: https://doi.org/10.1021/acsbiomaterials.0c01232 [Impact Factor: 4.15]
- Chen, C. Y., SY Huang, S. Y., Wan, H. Y., Chen, Y. T., Yu, S. K., Wu, H. C., Yang T. I. (2020) Electrospun hydrophobic polyaniline/silk fibroin electrochromic nanofibers with low electrical resistance. *Polymers*. 12 (9), 2102. doi: https://doi.org/10.3390/polym12092102. [Impact Factor: 3.43]
- Wu, H. C., Pandey, A., Chang, L. Y., Hsu, C. Y., Yang, T. C. K., Tso, I. M., Sheu, H. S., Yang, J. C. (2020) Hydrothermal Effect on Mechanical Properties of *Nephila pilipes* Spidroin *Polymers*. 12(5):1013. doi: 10.3390/polym12051013. [Impact Factor: 3.43]
- Huang, C. S, Hsieh, S. C., Teng, N. C., Lee, W. F., Negi, P., Belem, W. F., Wu, H. C., Yang, J. C. (2020) A Silk Fibroin Based Hydration Accelerator for Root Canal Filling Materials. *Polymers*. 12(4):994. doi: 10.3390/polym12040994. [Impact Factor: 3.43]
- Virgile, C., Hauk, P., Wu, H. C., Bentley, W. E. (2019) Plasmid encoded-protein attenuates Escherichia coli swimming velocity and cell growth, not reprogrammed regulatory functions. *Biotechnology Progress*. e2778. [Impact Factor: 2.41]
- Wu, H. C., Wu, S. R., Yang, T. C. K., Yang, J. C. (2018) A Facile Measurement for Monitoring Dragline Silk Dope Concentration in *Nephila pilipes* upon Spinning. *Materials*. 11: 1951 [Impact Factor: 2.47]
- Virgile, C., Hauk, P., Wu, H. C., Shang, W., Tsao, C. Y., Payne, G. F., Bentley, W. E. (2018) Engineering Bacterial Motility towards Hydrogen-Peroxide. *PLoS One*. 3(5):e0196999. doi: 10.1371/journal.pone.0196999. [Impact Factor: 2.8;SCI]
- Liu Y., Wu, H. C., Bhokisham, N., Li, J., Hong, K. L., Quan, D. N., Tsao, C. Y., Bentley, W. E., Payne, G. F. (2018) Biofabricating Functional Soft Matter Using Protein Engineering to Enable Enzymatic Assembly. *Bioconjugate Chemistry*. doi: 10.1021/acs.bioconjchem.8b00197. [Impact Factor: 4.8;SCI]

- Shang, W., Tsao, C. Y., Luo, X., Teodoro, M., McKay, R., Quan, D. N., Wu, H. C., Payne, G. F., Bentley, W. E. (2017) A simple and reusable bilayer membrane-based microfluidic device for the study of gradient-mediated bacterial behaviors. *Biomicrofluidics*,11, 044114. doi: 10.1063/1.4993438. [Impact Factor: 2.5; EI, SCI]
- McKay, R., Hauk, P., Wu, H. C., Pottash, A. E., Shang, Wu., Terrell, T., Payne, G. F., Bentley, W. E. (2017) Controlling localization of Escherichia coli populations using a two-part synthetic motility circuit: An accelerator and brake. Biotechnology and Bioengineering, 114:2883-2895. doi: 10.1002/bit.26391. [Impact Factor: 4.1; SCI, EI]
- Tschirhart, T., Kim, E., Mckay, R., Ueda, H., Wu, H. C., Pottash, A. E., Zargar, A., and Negrete, A., Shiloach, J., Payne, G. F., Bentley, W. E. (2017) Electronic control of gene expression and cell behaviour in Escherichia coli through redox signaling. *Nature Communications*, 8:14030. doi:10.1038/ncomms14030 [Impact factor:11.5; SCI]
- Wu, H. C., Quan, D. N., Tsao, C. Y., Liu, Y., Terrell, J. L., Luo, X. L., Yang, J. C., Payne, G. F., Bentley, W. E. Conferring biological activity to native spider silk: a biofunctionalized protein-based microfiber. *Biotechnology and Bioengineering*, 114:83-95. [Impact Factor: 4.1; SCI, EI]
- Quan, D. N., Tsao, C. Y., Wu, H. C., Bebtley, W. E. (2016) Quorum sensing desynchronization leads to bimodality and patterned behaviors. PLOS Computational Biology, 12(4): e1004781.
- Kuo, Y. C., Wu, H. C., Hoang, D., Bentley, W. E., D'Souza, W. D., Ragjavan, S. R. (2016) Colloidal properties of nanoerythrosomes derived from bovine red-blood-cells. *Langmuir*, 32(1), 171-179. [Impact factor: 4.5 ;SCI]
- Servinsky, M. D., Terrell, J. L., Tsao, C. Y., Wu, H. C., Quan, D. N., Zargar, A. Allen, P., Byrd, C. M., Sund, C. J., Bentley, W. E. (2016). Directed assembly of a bacterial quorum. *ISME Jorunal*, 10(1), 158-169. [Impact factor: 9.3;SCI]
- Terrell, J. L., Wu, H. C., Tsao, C. Y., Barber, N. B., Servinsky, M. D., Bentley, W. E. (2015). Nano-guided cell networks as conveyors of molecular communication. *Nature Communications*, 6:8500. doi: 10.1038/ncomms9500 [Impact factor:11.5; SCI]
- Kim, Y. W., Subramanian, S., Gerasopoulos, K., Ben-Yoav, H., Wu, H. C., Quan, N. D., Carter, K., Meyer, M., Bentley, W. E., Ghodssi, R. (2015) Effect of electrical energy on the efficacy of biofilm treatment using the bioelectric effect. *NPJ Biofilms and Microbiomes*, 1: 15016. doi:10.1038/npjbiofilms.2015.16.
- Kim, E., Xiong, Y., Cheng, Y., Wu, H. C., Liu, Y., Morrow, B. H., Ben-Yoav, H., Ghodssi, R., Rubloff, G. W., Shen, J., Bentley, W. E., Shi, X., Payne, G. F. (2015). Chitosan to connect biology to electronics: Fabricating the bio-Device interface and communicating across this interface. *Polymers*, 7, 1-46. [Impact Factor: 3.7; SCI, EI]
- Zargar, A., Quan, D. N., Emamian, M., Tsao, C. Y., Wu, H. C., Virgile, C. R., Bentley, W. E. (2015). Rational design of "controller cells" to manipulate protein and phenotype expression. *Metabolic Engineering*, 30, 61-68. [Impact Factor: 6.8; SCI,EI]
- Liu, Y., Wu, H. C., Chhuan, M., Terrell, J. L., Tsao, C. Y., Bentley, W. E., Payne, G. F. (2015). Functionalizing soft matter for molecular communication. *ACS Biomaterials Science and Engineering*, 1(5), 320–328.
- Luo, X. L., Tsao C. Y., Wu, H. C., Quan, D. N, Payne, G. F, Rubloff, G. W, Bentley, W. E. (2015). Distal modulation of bacterial cell-cell signalling in a synthetic ecosystem using partitioned microfluidics. *Lab on a Chip*, 15(8), 1842-1851. [Impact Factor: 6.1; SCI]
- Luo, X. L., Wu, H. C., Betz, J., Rubloff, G. W., Bentley, W. E. (2014). Air bubble-initiated biofabrication of freestanding, semi-permeable biopolymer membranes in PDMS microfluidics. *Biochemical Engineering Journal*, 85, 2-9. [Impact Factor: 2.5; SCI, EI]
- Wu, H. C., Tsao, C. Y., Quan, D. N., Cheng, Y., Servinskyd, M. D., Carter, K. K., Jee, J. J., Terrell, J. L., Zargar, A., Rubloff, G. W., Payne, G. F., Valdese, J. J., Bentley, W. E. (2013). Autonomous bacterial localization and gene expression based on nearby cell receptor density. *Molecular Systems Biology*, 22, 9:636. Featured article. [Impact Factor: 10.9; SCI]
- Wu, H. C., Hebert, C. G., Hung, C. W., Quan, D. N., Carter, K. K., Bentley, W. E. (2013). Tuning cell cycle of insect cells for enhanced protein production. *Journal of Biotechnology*, 168(1):55-61. [Impact Factor: 2.9; SCI; EI]

- Fernandes, R., Roy, V., Wu, H. C., Bentley, W. E. (2010). Engineered biological nanofactories trigger quorum sensing response in targeted bacteria. *Nature Nanotechnology*, 5(3), 213-217. [Impact Factor: 34.0; SCI]
- Luo, X. L., Wu, H. C., Tsao, C. Y., Cheng, Y., Betz, J., Payne, G. F., Rubloff, G. W., Bentley, W. E. (2012). Biofabrication of stratified biofilm mimics for observation and control of bacterial signaling. *Biomaterials*, 33(20):5136-43. [Impact Factor: 8.6; SCI, EI]
- Adams, B., Carter, K. K., Guo, M., Wu, H. C., Tsao, C. Y., Sintim, H., Valdes, J. J., Bentley, W. E. (2014). Evolved quorum sensing regulator, LsrR, for altered switching functions. *ACS Synthetic Biology*, 3 (4), 210–219 [Impact Factor:5.0; SCI]
- Betz, J.F., Cheng, Y., Tsao, C.Y., Zargar, A., Wu, H. C., Luo, X., Payne, G. F., Bentley, W. E., Rubloff, G. W. (2013). Optically clear alginate hydrogels for spatially controlled cell entrapment and culture at microfluidic electrode surfaces. *Lab on a Chip*, 13(10), 1854-1858. [Impact Factor: 6.1; SCI]
- Payne, G. F, Kim, E., Cheng, Y., Wu, H. C., Ghodssi, R., Rubloff, G. W., Raghavan, S. R., Culver, J. N., Bentley, W. E. (2013) Accessing biology's toolbox for the mesoscale biofabrication of soft matter. *Soft Matter*, 9, 6019-6032. [Impact Factor: 4.0; SCI, EI]
- Cheng, Y., Tsao, C. Y., Wu, H. C., Luo, X. L., Terrell, J. L., Betz, J., Payne, G. F., Bentley, W. E., Rubloff, G. W. (2012). Electroaddressing functionalized polysaccharides as model biofilms for interrogating cell signaling. *Advanced Functional Materials*, 22(3), 519-528. [Impact Factor: 12.3; SCI, EI]
- Liu, Y., Terrell, J. L., Tsao, C. Y., Wu, H. C., Javvaji, V., Kim, E., Cheng, Y., Wang, Y., Ulijn, R. V., Raghavan, S. R., Rubloff, G. W., Bentley,W. E., Payne, G. F. (2012). Biofabricating multifunctional soft matter with enzymes and stimuli-responsive materials. *Advanced Functional Materials*, 22(14), 3004-3012. [Impact Factor: 12.3; SCI, EI]
- Kim, Y. W., Sardari, S. E., Meyer, M. T., Iliadis, A. A., Wu, H. C., Bentley, W. E, Ghodssi, R. (2012). An ALD aluminum oxide passivated surface acoustic wave sensor for early biofilm detection. *Sensors and Actuators B-Chemical*, 163(1), 135-145. [Impact Factor: 4.1; SCI, EI]
- Terrell, J. L., Gordonov T., Cheng Y., Wu H. C., Sampey D., Luo X., Tsao C. Y., Ghodssi R., Rubloff G. W., Payne G. F., Bentley W. E. (2012). Integrated biofabrication for electro-addressed in-film bioprocessing. *Biotechnology Journal*, 7(3), 428-439. [Impact Factor: 3.5; SCI, EI]
- Cheng, Y., Luo, X., Tsao, C. Y., Wu, H. C., Betz, J., Payne, G. F., Bentley, W. E., Rubloff, G. W. (2011). Biocompatible multi-address 3D cell assembly in microfluidic devices using spatially programmable gel formation. *Lab on a Chip*, 11(14), 2316-2318. [Impact Factor: 6.1; SCI]
- Liu, Y., Cheng, Y., Wu, H. C., Kim, E., Ulijn, R. V., Rubloff, G. W., Payne, G. F. (2011). Electroaddressing agarose using Fmoc-phenylalanine as a temporary scaffold. *Langmuir*, 27(12), 7380-7384. [Impact Factor: 4.5; SCI, EI]
- Tsao, C. Y., Hooshangi, S., Wu, H. C., Valdes, J. J., Bentley, W. E. (2010). Autonomous induction of recombinant proteins by minimally rewiring native quorum sensing regulon of *E. coli*. *Metabolic Engineering*, 12(3), 291-297. [Impact Factor: 6.8; SCI, EI]
- Wu, H. C., Shi, X. W., Tsao, C. Y., Lewandowski, A. T., Fernandes, R., Hung, C. W., DeShong, P., Kobatake, E., Valdes, J. J., Bentley, W. E. (2009). Biofabrication of antibodies and antigens via IgG-binding domain engineered with activatable pentatyrosine pro-tag. *Biotechnology and Bioengineering*, 103(2), 231-240. [Impact Factor: 4.1; SCI, EI]
- Shi, X. W., Liu, Y., Lewandowski, A. T., Wu, L. Q., Wu, H. C., Ghodssi, R., Payne, G. F. (2008). Chitosan biotinylation and electrodeposition for selective protein assembly. *Macromolecular Bioscience*, 8(5), 451-457. [Impact Factor: 3.9; SCI, EI]
- Shi, X. W., Wu, H. C., Liu, Y., Tsao, C. Y., Wang, K., Kobatake, E., Payne, G. F. (2008). Chitosan fibers: versatile platform for nickel-mediated protein assembly. *Biomacromolecules*, 9(5), 1417-1423. [Impact Factor: 5.8; SCI, EI]
- Hung, Y. J., Smolyaninov, II, Wu, H. C., Davis, C. C. (2006). Fluorescence enhancement by surface gratings. *Optics Express*, 14(22), 10825-10830. [Impact Factor: 3.5; SCI, EI]

- Tso, I. M., Wu, H. C., Hwang, I. R. (2005). Giant wood spider *Nephila pilipes* alters silk protein in response to prey variation. *Journal of Experimental Biology*, 208(6), 1053-1061. [Impact Factor: 2.9; SCI]
- Sheu, H. S., Phyu, K. W., Jean, Y. C., Chiang, Y. P., Tso, I. M., Wu, H. C., Ferng, S. L. (2004). Lattice deformation and thermal stability of crystals in spider silk. *International Journal of Biological Macromolecules*, 34(5), 325-331. [Impact Factor: 2.9; SCI]

Conference Presentations and Proceedings

- Chen, J. L., Huang, C. L., Wang, R. C., Yang, J. C., Yang, T. C., Wu, H. C. (2019, Mar). Developing a facile system for synthetic engineering of advanced silk based materials. *257th American Chemical Society National Meeting*, USA.
- Huang, C. L., Wu, H. C., Chen, Y. J. Kung, Y. C. (2019, Mar). Engineering bacterial systems to probe miRNAs secreted from mammalian cell. *257th American Chemical Society National Meeting*, U.S.A.
- Wu, H. C. (2017, Nov). Engineering bacterial communication pathways as whole-cell sensing networks. *The Taiwan Section of Association of Official Analytical Chemists International*.
- Wu, H. C. (2017, Jun). Metabolic engineering of bacterial cell-to-cell communication pathways for biotechnological applications. *代謝、代謝體與代謝工程研討會 台灣農業化學會*.
- Rhoads, M. K., Tsao, C. Y., Terrell, J. L., Wu, H. C., Bentley, W. E. (2014). Modulating bacterial communication pathways with quorum quenching capsules. *247th American Chemical Society National Meeting*, USA.
- Terrell, J. L., Russ, Z., Wu, H. C., Gupta, A., Bentley, W. E. (2014). DNA methylation for encoding quorum sensing-inspired cell communication. *247*th American Chemical Society National Meeting, USA.
- Wu, H. C., Tsao, C. Y., Quan, D. N., Carter, K. K., Terrell, J. L., Bentley, W. E. (2013). Controlling bacterial motility by quorum sensing signal generation and transduction. *Biomedical Engineering Society Annual Meeting*, USA.
- Luo, X. L., Terrell, J. L., Wu, H. C., Tsao, C. Y., Bentley, W. E. (2013) Integrated in-film bioprocessing in microfluidics enabled with biofabricated membranes and cell-gel composites. *Biomedical Engineering Society Annual Meeting*, USA.
- Terrell, J. L., Wu, H. C., Tsao, C. Y., Servinsky, M. D., Bentley, W. E. (2012). Cell surveillance of quorum sensing toward reporting the presence of contamination. *243th American Chemical Society National Meeting*, USA.
- Terrell,J. L., Gordonov, T., Cheng, Y., Wu, H. C., Sampey, D., Luo, X. L., Tsao, C. Y., Ghodssi, R., Rubloff, G. W., Payne, G. F., Bentley, W. E. (2012). Biofabrication of on-chip bioprocessing stations toward operational continuity. *243th American Chemical Society National Meeting*, USA.
- Luo, X. L., Wu, H. C., Tsao, C. Y., Cheng, Y., Betz, J., Rubloff, G. W., Bentley, W. E. (2012). In situ biofabrication of stratified biofilm mimics for direct observation of bacterial signaling. *Proceedings of IEEE 38th Annual Northeast Bioengineering Conference*, USA.
- Betz, J., Cheng, Y., Tsao, C. Y., Wu, H. C., Payne, G. F., Bentley W. E., Rubloff, G. W. (2012). Calcium-alginate mediated nucleic acid delivery in a microfluidic device. *American Institute of Chemical Engineers Annual Meeting*, USA.
- Luo, X. L., Wu, H. C., Tsao, C. Y., Rubloff, G. W., Bentley, W. E. (2012). Active interception and elimination of bacterial signaling with engineered cell communities: towards *in vitro* models of intestinal flora. *Biomedical Engineering Society Annual Meeting*, USA.
- Luo, X. L., Wu, H. C., Tsao, C. Y., Rubloff, G. W., Bentley, W. E. (2012). *In-situ* biofabrication of spatially programmed biofilm mimics for direct observation of bacterial signaling. *American Institute of Chemical Engineers Annual Meeting*, USA.
- Luo, X. L., Wu, H. C., Tsao, C. Y., Cheng, Y., Betz, J., Rubloff, G. W., Bentley, W. E. (2011). Bacterial communication in controlled microevironments. *58th AVS International Symposium*, USA.

- Luo, X. L., Wu, H. C., Tsao, C. Y., Cheng, Y., Betz, J., Rubloff, G. W., Bentley, W. E. (2011). Cell signaling in membrane-based 3D microenvironments towards deciphering quorum sensing. *Materials Research Society (MRS) Meeting*, USA.
- Gordonov, T., Terrell, J. L., Wu, H. C., Tsao, C. Y., Sampey, D., Lou, X. L., Cheng, Y., Liu, Y., Rubloff, G. W., Payne, G. F., Bentley, W. E. (2011). Enzymatic assembly and protein engineering for advancing molecular detection techniques. *241th American Chemical Society National Meeting*, USA.
- Wu, H. C., Tsao, C. Y., Valdes, J. J., Payne, G. F., Muro, S., Bentley, W. E. (2011). Toward a bacterial dirigible: Autonomous localization and actuation. *241th American Chemical Society National Meeting*, USA. [Highlight in ACS press release: "Bacterial dirigibles" emerge as next-generation disease fighters] [Reports on MIT's Technology Review: "Making Bacteria into Drug Blimps"]
- Luo, X. L., Wu, H. C., Tsao, C. Y., Cheng, Y., Rubloff, G. W., Bentley, W. E. (2010). Micro-sandwich in microfluidics: 3D biopolymer membranes for cell assembly. *Biomedical Engineering Society Annual Meeting*, USA
- Cheng, Y., Terrell, J. L., Luo, X. L., Wu, H. C., Tsao, C. Y., Betz, J., Bentley, W. E., Rubloff, G. W. (2011). Immobilization and culturing of mammalian cells with biocompatible electrodeposition of calcium alginate gel in microfluidic devices. *Proceedings of the 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS)*, USA.
- Luo, X. L., Wu, H. C., Tsao, C. Y., Cheng, Y., Rubloff, G. W., Bentley, W. E. (2010) Micro-sandwich in microfluidics: 3D biopolymer membranes for cell assembly. *Proceedings of the 14th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS)*, Netherlands.
- Wu, H. C., Hebert, C. G., Hung, C. W., Bentley, W. E. (2009) Tuning cell cycle of insect cells for enhanced protein production. 238th American Chemical Society National Meeting, USA.
- Wu, H. C., Bentley, W. E. (2008). Tuning cell cycle of insect cells for enhanced protein production. 236th American Chemical Society National Meeting, USA.
- Hung, C. W., Howarth, E. R., Wu, H. C., Brown, A. D., Tsao, C. Y., Kofinas, P., Culver, J. N., Bentley, W. E. (2008). Silent packaging for gene silencing: Tobacco mosaic virus RNAi delivery. 236th American Chemical Society National Meeting, USA.
- Wu, H. C., Shi, X. W., Tsao, C. Y., Lewandowski, A. T., Fernandes, R., Hung, C. W., DeShong, P., Kobatake, E., Valdes, J. J., Payne, G. F., Bentley, W. E. (2007). Simple and generic immunoplatforms for antigen detection based on biofabrication. *234th American Chemical Society National Meeting*, USA.
- Bentley W. E., Lewandowski, A., Luo, X. L., Koev, S., Fernandes, R., Wu, H. C., Ghodssi, R., Rubloff, G. W., Payne, G. F., Wood, T. K. (2007). Probing cell sgnaling processes via biofunctionalized MEMS devices. *American Institute of Chemical Engineers Annual Meeting*, USA.
- Lin, W. H., Wu, H. C., Yang, J. C., Yang, C. K. (2004). Ionic effects on the conformational transition of secondary structures in silk protein produced by *Nephila pilipes*. *Annual Symposium of Chemical Engineering*, Taiwan.
- Hwang, I. R., Wu, H. C., Tso, I. M. (2004). Amino acid composition of spider dragline silk under different feeding conditions," *Joint Symposium of Animal Behavior & Ecology and Biology*, Taiwan.
- Yang J. C., Wu, H. C., Lin, S. Y., Lin, W. H., Yang, C. K., Sheu, H. S., Chen, C. N., Chen, L. T. (2004). Studies of protein secondary structure in *Nephila pilipes*' dragline silk via FTIR. *Polymer Symposium*, Taiwan.
- Wu, H. C., Tso, I. M. (2002). Effect of diet variation on dragline silk composition of giant wood spider *Nephila pilipes*. *Animal Behavior and Ecology Symposium*, Taiwan.
- Wu H. C., Yang, J. C., Hou, F. S., Ferng, S. L., Chen, L. T., Tso, I. M. (2001). Fiber characterization and structural analysis of silk produced by *Nephila pilipes* spiders. *Biomedical Symposium*, Taiwan.

Invited Talks

- "Synthesis and fabrication of biosynthetic spider silk materials", Taiwan Textile Research Institute. (May, 2023)

Book chapters

- Wu, H. C., Cha, H. J., Bentley, W. E. "Evaluating baculovirus infection using green fluorescent protein and variants." Methods in Molecular Biology #1350: Baculovirus and Insect Cell Expression Protocols, Ed. David W. Murhammer, Humana Press, Totowa, New Jersey, Chapter 22, 2015.
- Wu, H. C., Hu, Y. C., Bentley, W. E. "Tubular bioreactor for probing baculovirus infection and protein production." Methods in Molecular Biology # 1350: Baculovirus and Insect Cell Expression Protocols, Ed. David W. Murhammer, Humana Press, Totowa, New Jersey. Chapter 23, 2015.
- Wu, H. C., March, J. C., Bentley, W. E. "Gene silencing in insect cells using RNAi. "Methods in Molecular Biology # 1350: Baculovirus and Insect Cell Expression Protocols, Ed. David W. Murhammer, Humana Press, Totowa, New Jersey. Chapter 24, 2015.

Editors:

- Guest editor: A special issue "Molecular Pathology, Diagnostics, and Therapeutics" of International Journal of Molecular Sciences (ISSN 1422-0067), 2019-2020.
- Review editor: Frontiers in Bioengineering and Biotechnology, 2019~present.

Journal reviewer:

- Lab on a Chip
- New Journal of Physics
- Biomaterials
- Langmuir
- International Journal of Molecular Sciences
- PLOS ONE
- Composite Interfaces
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