



## Curriculum Vitae

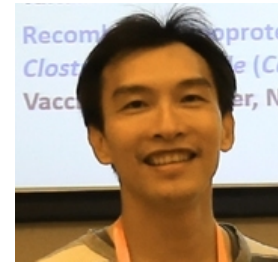
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### Education

Ph.D. in Materials Chemistry, University Montpellier I, France, 2001-2004

M.S. in Biomedical Engineering, National Yang-Ming University, Taiwan, 1997-1999

B.S. in Chemical Engineering, National Cheng-Kung University, Taiwan, 1993-1997

### Experience

**2014-present** Associate Investigator, National Institute of Infectious Diseases and Vaccinology, National Health Research Institutes, Miaoli, Taiwan

**2009-2014** Assistant Investigator, National Institute of Infectious Diseases and Vaccinology, National Health Research Institutes, Miaoli, Taiwan

**2005-2009** Postdoctoral Fellow, Vaccine Research and Development Center, National Health Research Institutes, Miaoli, Taiwan

### Research Interests

**Expertise:** Biomaterials, Immunobioengineering, Vaccine Formulations and Adjuvants

Dr. Huang's major interest is to develop novel biomaterials, in particular bioresorbable polymers and synthetic peptides for applications as substrate in vaccine adjuvants.

### Research Activities & Accomplishment

Dr. Ming-Hsi Huang's major research interest at NIIDV has been focused on the development of novel delivery vehicles for generating vaccine-induced long-term immunity as well as immunoregulatory agents for manipulating effective/harmful immune responses. Dr. Huang's research group was the pioneer who introduces the concepts of "stable" and "degradable" into vaccine emulsions. At the outset, his research group studies on the development of micro-encapsulation technology for a single-dose multivalent vaccine against emerging infectious diseases, in particular influenza-associated illness and hand-foot-mouth disease. During the past 3 years, he aimed to launch a mechanistic study on how emulsion adjuvants interacting with immune cells and to elucidate the role of processing and components in vaccine immunogenicity. He also extends these aspects to optimize alternative immunization routes, such as subcutaneous, intramuscular or mucosal administration. These features are of great interest for further investigations of sustained delivery against pathogen-associated cancers and immune dysfunctions.



● **Research Papers (2015-2018)**

1. Chen WL, Peng YF, Chiang SK, Huang MH\*. Thermal properties and physicochemical behavior in aqueous solution of pyrene-labeled poly(ethylene glycol)-polylactide conjugate. *International Journal of Nanomedicine*. 10:2815-2822, 2015. (\*Corresponding author)
2. Coumes F, Huang CY, Huang CH, Coudane J, Domurado D, Li SM, Darcos V\*, Huang MH\*. Design and development of immunomodulatory antigen delivery systems based on peptide/PEG-PLA conjugate for tuning immunity. *Biomacromolecules*. 16:3666-3673, 2015. (\*Corresponding author)
3. Lai CH, Tang N, Jan JT, Huang MH, Lu CY, Chiang BL, Huang LM, Wu SC. Use of recombinant flagellin in oil-in-water emulsions enhances hemagglutinin-specific mucosal IgA production and IL-17 secreting T cells against H5N1 avian influenza virus infection. *Vaccine*. 33:4321-4329, 2015.
4. Lin SI, Huang MH, Chang YW, Chen IH, Roffler S, Chen BM, Sher YP, Liu SJ. Chimeric peptide containing both B and T cells epitope of tumor-associated antigen L6 enhances anti-tumor effects in HLA-A2 transgenic mice. *Cancer Letters*. 377:126-133, 2016.
5. Huang MH\*, Dai SH, Chong P. Mucosal delivery of a combination adjuvant comprising emulsified fine particles and LD-indolicidin enhances serological immunity to inactivated influenza virus. *Microbes and Infection*. 18:706-709, 2016. (\*Corresponding author)
6. Huang CH, Huang CY, Cheng CP, Dai SH, Chen HW, Leng CH, Chong P, Liu SJ,\* Huang MH\*. Degradable emulsion as vaccine adjuvant reshapes antigen-specific immunity and thereby ameliorates vaccine efficacy. *Scientific Reports*. 6:36732, 2016. (\*Corresponding author)
7. Huang CY, Huang MH\*. Emulsifying properties and degradation characteristics of bioresorbable polymeric emulsifiers in aqueous solution and oil-in-water emulsion. *Polymer Degradation and Stability*. 139:138-142, 2017. (\*Corresponding author)
8. Chen TH, Liu YY, Jan JT, Huang MH, Spearman M, Butler M, Wu SC. Recombinant hemagglutinin proteins formulated in a novel PELC/CpG adjuvant for H7N9 subunit vaccine development. *Antiviral Research*. 146:213-220, 2017.
9. Huang CH\*, Huang CY, Huang MH\*. Unsaturated squalene content in emulsion vaccine adjuvants plays a crucial role in ROS-mediated antigen uptake and cellular immunity. *Molecular Pharmaceutics*. 15:420-429, 2018. (\*Corresponding author)
10. Huang CY, Huang CH, Liu SJ, Chen HW, Leng CH, Chong P, Huang MH\*. Polysorbosome: a colloidal vesicle contoured by polymeric bioresorbable amphiphiles as an immunogenic depot for vaccine delivery. *ACS Applied Materials & Interfaces*. 10:12553-12561, 2018. (\*Corresponding author)

● **Patents**

Multi-phase emulsions based on amphiphilic block copolymers (Patent granted)	Huang, MH; Chong, P; Leng, CH; Liu, SJ; Chen, HW	May 21, 2013	US	US 8,444,993
Multi-phase emulsions based on amphiphilic block copolymers (Patent granted)	Huang, MH; Chong, P; Leng, CH; Liu, SJ; Chen, HW	Feb 1, 2013	ROC	TW I383806
Novel multivalent vaccine against enterovirus, influenza virus, and/or Japanese encephalitis virus (Patent granted)	Huang, MH; Chong, P; Lin, CW; Chang, CY	Oct 28, 2015	PRC	CN 102988977 B
Novel multivalent vaccine against enterovirus, influenza virus, and/or Japanese encephalitis virus (Patent granted)	Huang, MH; Chong, P; Lin, CW; Chang, CY	Feb 21, 2016	ROC	TW I522469
Sorbitan polyester conjugates for stabilizing water-in-oil emulsions and delivering controlled release of bioactive agents (Patent granted)	Huang, MH; Huang, CY; Chong, P; Leng, CH; Liu, SJ; Chen, HW	Sep 11, 2017	ROC	TW I598114