Chia-Yu Chang, Assistant Professor,

National Chung-Hsing University

Research Interests： Virology, Immunology, Vaccinology, and Molecular Biology

Lectures： Medical Biochemistry, Veterinary Immunology, Veterinary Vaccinology, Veterinary Infectious Diseases

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Educational Background

2016-2020 **Ph.D.**
School of Veterinary Medicine, National Taiwan University, Taiwan

2015-2016 **Master direct to Ph.D.**
Graduate Institute of Molecular and Comparative Pathobiology, School of Veterinary Medicine, National Taiwan University, Taiwan

2010-2015 **Doctor of Veterinary Medicine**
School of Veterinary Medicine, National Taiwan University, Taiwan

Professional Career

2022-2022 **Postdoctoral Research**
Pathology Department, School of Medicine, Johns Hopkins University, Maryland, USA

2021-2022 **Postdoctoral Research**
La Fundacin Centre de Recerca en Sanitat Animal (CReSA), Institute of Agrifood Research and Technology (IRTA), Barcelona, Spain

2020-2021 **Postdoctoral Research**
Institute of Biological Chemistry, Academia Sinica, Taiwan

Honors

2020、2018 **The Excellent Research Award in the Infectious Disease**
The Infectious Disease Research and Education Center, Taiwan

2019 **The Postdoctoral Research Abroad Program**
Ministry of Science and Technology, Taiwan

Past Research Topics

- **Porcine Epidemic Diarrhea**
  Epitope identification, vaccine development, diagnostic kit design, antibody production, and viral ultrastructure analysis
- **African Swine Fever**
  CRISPR-based attenuated virus development and DIVA diagnostic method design
- **Papillomavirus**
  Investigation of canine and feline papillomavirus and modeling of human papillomavirus-induced tumorigenesis

Ongoing Topics

- **African Swine Fever**
  Viral Proteomics, Immune Regulation of Viral Proteins, and Diagnostic Antibody Production
- **Papillomavirus**
  Investigation of Bovine Papillomavirus in Taiwan

Research and Teaching Projects

2025-2026	**NSTC**	Elucidation of the Glycan Shielding Effect on CD2v of African Swine Fever Virus and Generation of High-Affinity Antibodies via Phage Display Technology [Project PI]
2024-2025	**NAIF**	Implementation of Pathological Diagnostics in Slaughter Hygiene and On-Site Instruction and Assessment of Meat Inspection Judgments [Project co-PI]
2024	**NCHU-ENABLE**	Machine Learning-Driven Affinity-Optimized Recombinant Antibody Design for Disease Diagnostic Assays [Project PI]
2023-2025	**NSTC**	Characterization of N-glycosylation on Hemadsorption Protein of African Swine Fever Virus, CD2v, and Its Involvement in The Regulation of Cellular and Humoral Immune Responses [Project PI]
2023	**NCHU**	Investigation of Bovine Papillomavirus in Taiwan and Isolation of Indigenous Virus Strains [Project PI]
2023	**NCHU**	總整課程計畫－動物疫苗之理論與實際 [Project PI]

Publications

Swine Diseases

1. Danaya Nammuang, Yi-Wen Shen, Chiao-Hsu Ke, Nan-Ling Kuan, Chao-Nan Lin, Kuang-Sheng Yeh, Yen-Chen Chang, **Chia-Yu Chang**, Hui-Wen Chang. Isolation and Evaluation of the Pathogenicity of a Hybrid Shiga Toxin-producing and Enterotoxigenic *Escherichia coli* in Pigs. **BMC Veterinary Research** 21;20(1):480. **(2024)**

2. Marín-Moraleda D, Muñoz-Basagoiti J, Tort-Miró A, Navas MJ, Muñoz M, Vidal E, Cobos À, Martín-Mur B, Meas S, Motuzova V, **Chia-Yu Chang**, Marta Gut, Francesc Accensi, Sonia Pina-Pedrero, José Ignacio Núñez, Anna Esteve-Codina, Boris Gavrilov, Fernando Rodriguez, Lihong Liu, Jordi Argilaguet. Elucidating the Onset of Cross-Protective Immunity after Intranasal Vaccination with the Attenuated African Swine Fever Vaccine Candidate BA71ΔCD2. **Vaccines**, 12(5):517. **(2024)**

3. Joan Pujols, Elena Blázquez, Joaquim Segalés, Fernando Rodríguez, **Chia-Yu Chang**, Jordi Argilaguet, Laia Bosch-Camós, Rosa Rosell, Lola Pailler-García, Boris Gavrilov, Joy Campbell, Javier Polo. Feeding Spray-Dried Porcine Plasma to Pigs Improves the Protection Afforded by the African Swine Fever Virus (ASFV) BA71ΔCD2 Vaccine Prototype against Experimental Challenge with the Pandemic ASFV—Study 2. **Vaccines**, 11(4), 825. **(2023)**

4. Laia Bosch-Camos, Uxia Alonso, Anna Esteve-Codina, **Chia-Yu Chang**, Beatriz Martin-Mur, Francesc Accensi1, Marta Muñoz, Maria J. Navas, Marc Dabad, Enric Vidal, Sonia Pina-Pedrero, Patricia Pleguezuelos, Ginevra Caratu, Maria L. Salas, Lihong Liu, Stanimira Bataklieva, Boris Gavrilov, Fernando Rodriguez, Jordi Argilaguet. Cross-protection against African Swine Fever Virus upon Intranasal Vaccination is Associated with an Adaptive-innate Immune Crosstalk. **PLOS Pathogens** 18(11): e1010931. (**2022**)

5. Cheng-Yu Huang*, Piotr Draczkowski*, Yong-Sheng Wang*, **Chia-Yu Chang***, Yu-Chun Chien, Yun-Han Cheng, Yi-Min Wu, Chun-Hsiung Wang, Yuan-Chih Chang, Yen-Chen Chang, Tzu-Jing Yang, Yu-Xi Tsai, Kay-Hooi Khoo, Hui-Wen Chang, Shang-Te Danny Hsu. In Situ Structure and Dynamics of an Alphacoronavirus Spike Protein by Cryo-ET and Cryo-EM. **Nature Communications** 13, 4877. (*co-first author) **(2022)**

6. **Chia-Yu Chang**, Yong-Sheng Wang, Jou-Fei Wu, Tzu-Jing Yang, Yen-Chen Chang, Chanhee Chae, Hui-Wen Chang, Shang-Te Danny Hsu. Generation and Characterization of a Spike Glycoprotein Domain A-Specific Neutralizing Single-Chain Variable Fragment against Porcine Epidemic Diarrhea Virus. **Vaccines**, 9(8), 833. **(2021)**

7. Wei-Ting Hsu, **Chia-Yu Chang**, Chih-Hsuan Tsai, Sung-Chan Wei, Huei-Ru Lo, Robert John S. Lamis, Hui-Wen Chang, Yu-Chan Chao. PEDV Infection Generates Conformation-Specific Antibodies That Can Be Effectively Detected by a Cell-Based ELISA. **Viruses**, 13(2), 303. **(2021)**

8. **Chia-Yu Chang**, Wei-Ting Hsu, Pei-Shiue Tsai, Chi-Min Chen, Ivan-Chen Cheng, Yu-Chan Chao, Hui-Wen Chang. Oral Administration of Porcine Epidemic Diarrhea Virus Spike Protein Expressing in Silkworm Pupae Failed to Elicit Immune Responses in Pigs. **AMB Express,** Jan 28;10(1):20. **(2020)**

9. **Chia-Yu Chang**, Ju-Yi Peng, Yun-Han Cheng, Yen-Chen Chang, Yen-Tse Wu, Pei-Shiue Tsai, Hue-Ying Chiou, Chian-Ren Jeng, Hui-Wen Chang. Development and Comparison of Enzyme-linked Immunosorbent Assays Based on Recombinant Trimeric Full-length and Truncated Spike Proteins for Detecting Antibodies against Porcine Epidemic Diarrhea Virus. **BMC Veterinary Research**, 15:421. **(2019)**

10. Ju-Yi Peng, Yi-Bing Horng, Ching-Ho Wu, **Chia-Yu Chang**, Yen-Chen Chang, Pei-Shiue Tsai, Chian-Ren Jeng, Yeong-Hsiang Cheng, Hui-Wen Chang. Evaluation of Antiviral Activity of *Bacillus licheniformis*-fermented Products against Porcine Epidemic Diarrhea Virus. **AMB Express**, 9:191. **(2019)**

11. Fu-Chun Hsueh, Chao-Nan Lin, Hue-Ying Chiou, Min-Yuan Chia, Ming-Tang Chiou, Takashi Haga, Chi-Fei Kao, Yen-Chen Chang, **Chia-Yu Chang**, Chian-Ren Jeng, Hui-Wen Chang. Updated Phylogenetic Analysis of the Spike Gene and Identification of a Novel Recombinant Porcine Epidemic Diarrhoea Virus Strain in Taiwan. **Transboundary Emerging Diseases**, 00:1–14. **(2019)**

12. **Chia-Yu Chang**, Ivan-Chen Cheng, Yen-Chen Chang, Pei-Shiue Tsai, Seiu-Yu Lai, Yu-Liang Huang, Chian-Ren Jeng, Victor Fei Pang, Hui-Wen Chang. Identification of Neutralizing Monoclonal Antibodies Targeting Novel Conformational Epitopes of the Porcine Epidemic Diarrhoea Virus Spike Protein. **Scientific Reports**, 9(1):2529. **(2019)**

13. **Chia-Yu Chang**, Wei-Ting Hsu, Yu-Chan Chao, Hui-Wen Chang. Display of Porcine Epidemic Diarrhea Virus Spike Protein on Baculovirus to Improve Immunogenicity and Protective Efficacy. **Viruses**, 10, 346. **(2018)**

14. Ju-Yi Peng, **Chia-Yu Chang**, Chi-Fei Kao, Yen-Chen Chang, Cheng-Shun Hsueh, Chian-Ren Jeng, Ivan-Chen Cheng, Victor Fei Pang, Pei-Shiue Tsai, Hui-Wen Chang. Different Intestinal Tropism of the G2b Taiwan Porcine Epidemic Diarrhea Virus-Pintung 52 Strain in Conventional 7-Day-Old Piglets. **The Veterinary Journal**; 237: 69-75. **(2018)**

15. Yen-Chen Chang, **Chia-Yu Chang**, Pei-Shiue Tsai, Hue-Ying Chiou, Chian-Ren Jeng, Victor Fei Pang, Hui-Wen Chang. Efficacy of Heat-Labile Enterotoxin B Subunit-adjuvanted Parenteral Porcine Epidemic Diarrhea Virus Trimeric Spike Subunit Vaccine in Piglets. **Applied Microbiology and Biotechnology**, Sep, 102(17):7499-7507. **(2018)**

16. Yen-Chen Chang, Chi-Fei Kao, **Chia-Yu Chang**, Chian-Ren Jeng, Pei-Shiue Tsai, Victor Fei Pang, Hue-Ying Chiou, Ju-Yi Peng, Ivan-Chen Cheng and Hui-Wen Chang. Evaluation and Comparison of the Pathogenicity and Host Immune Responses Induced by a G2b Taiwan Porcine Epidemic Diarrhea Virus (Strain Pintung 52) and Its Highly Cell-Culture Passaged Strain in Conventional 5-Week- Old Pigs. **Viruses**, 9, 121. **(2017)**

17. Ju-Yi Peng, Cai-Zhen Jian, **Chia-Yu Chang**, Hui-Wen Chang. Porcine Epidemic Diarrhea. Jagadeesh Bayry (Ed), Emerging and Re-emerging Infectious Diseases of Livestock. Springer. p.273-283 **(2017)**

Oncology and Papillomavirus

1. Guan-Shiun Chen, Hue-Ying Chiou, Yen-Chen Chang, Hao-Ping Liu, Yu-I Pan, Ming-Yun Chan, Tsung-Ching Liu, Ming-Yuan Chia, Chienjin Huang, Jacky Peng-Wen Chan, **Chia-Yu Chang**. Molecular and Histological Identification of Bovine Papillomavirus 1, 2 and a Novel Genotype in Cutaneous Papillomas of Dairy Cattle in Taiwan. **Transboundary and Emerging Diseases**, 2025 Jun 25; 2025:5586786. **(2025)**

2. Chih-Ching Wu, **Chia-Yu Chang**, Pei-Yi Chou, Xiu-Ya Chan, Chun-Chueh Huang, Youngsen Yang, Hao-Ping Liu. Multiplexed Immunoassay for a Serum Autoantibody Biomarker Panel in Diagnostic and Prognostic Prediction of Canine Mammary Tumors. **Veterinary Quarterly**, 2025 Dec; 45(1):1-12. **(2025)**

3. Suyang Wang, Michelle Cheng, Chao-Cheng Chen, **Chia-Yu Chang**, Ya-Chea Tsai, Jr-Ming Yang, TC Wu, Chuan-Hsiang Huang, and Chien-Fu Hung. *Salmonella* Immunotherapy Engineered with Highly Efficient Tumor Antigen Coating Establishes Antigen-Specific CD8+ T Cell Immunity and Increases in Antitumor Efficacy with Type I Interferon Combination Therapy. **Oncoimmunology**, 13:1. **(2024)**

4. Nanako Yamashita-Kawanishi, **Chia-Yu Chang**, James K Chambers, Kazuyuki Uchida, Katsuaki Sugiura, Iwao Kukimoto, Hui-Wen Chang, Takeshi Haga. Comparison of Prevalence of *Felis catus* Papillomavirus Type 2 in Squamous Cell Carcinomas in Cats between Taiwan and Japan. **The Journal of Veterinary Medical Science**, Aug 6;83(8):1229-1233. **(2021)**

5. Nanako Yamashita-Kawanishi, Yuka Gushino, **Chia-Yu Chang**, Hui-Wen Chang, James K. Chambers, Kazuyuki Uchida, Takeshi Haga. Full-genome Characterization of a Novel *Felis catus* Papillomavirus 4 Subtype Identified in a Cutaneous Squamous Cell Carcinoma of a Domestic Cat. **Virus Genes**, Aug; 57(4):380-384. **(2021)**

6. **Chia-Yu Chang**, Nanako Yamashita-Kawanishi, Sonoka Tomizawa, I-Li Liu, Wei-Tao Chen, Yen-Chen Chang, Wei-Hsiang Huang; Pei-Shiue Tsai, Kinji Shirota, James K Chambers, Kazuyuki Uchida, Takeshi Haga, Hui-Wen Chang. Whole Genomic Analysis and Comparison of Two Canine Papillomavirus Type 9 Strains in Malignant and Benign Skin Lesions. **Viruses**, 12, 736. **(2020)**

7. **Chia-Yu Chang**, Wei-Tao Chen, Takeshi Haga, Nanako Yamashita, Chi-Fen Lee, Masano Tsuzuki, Hui-Wen Chang. The Detection and Association of Canine Papillomavirus with Benign and Malignant Skin Lesions in Dogs. **Viruses**, 12(2), 170. **(2020)**

8. Yamashita-Kawanishi N, Sawanobori R, Matsumiya K, Uema A, Chambers JK, Uchida K, Shimakura H, Tsuzuki M, **Chia-Yu Chang**, Hui-Wen Chang, Takeshi Haga. Detection of *Felis catus* Papillomavirus Type 3 and 4 DNA from Squamous Cell Carcinoma Cases of Cats in Japan. **The Journal of Veterinary Medical Science**, 80(8):1236-1240. **(2018)**

Other Subjects

1. Yun-Han Cheng, Yen-Chen Chang, **Chia-Yu Chang**, Hui-Wen Chang. Identification and Genomic Characterization of *Baculovirus Penaei* in *Litopenaeus vannamei* in Taiwan. **Journal of Fish Diseases** 46(6):611-617. **(2023)**

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