

CHE ALEX MA 馬徹**Curriculum Vitae**

Research Fellow and Professor

Genomics Research Center, Academia Sinica

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Research Focus

Structure and function of membrane glycoproteins and drug discovery

Education

1992 B.S. Department of Chemistry, National Taiwan University, Taiwan

1996 M.S. Department of Chemistry, University of Pennsylvania, USA

2000 Ph.D. Department of Chemistry, University of Pennsylvania, USA

Professional Experience

2001 Postdoctoral Fellow, University of California, San Diego, USA

2001 – 2004 Postdoctoral Fellow, The Scripps Research Institute, USA

2004 – 2010 Assistant Professor, Academia Sinica

2010 – 2019 Associate Professor, Academia Sinica

2014 – 2019 Visiting Scientist, RIKEN SPring-8 Center, Japan

2016 – 2023 Division Director of Chemical Biology, GRC, Academia Sinica

2019 – Professor, Academia Sinica

Awards

1995 University of Pennsylvania, Teaching Assistant Award

2001 The Skaggs Postdoctoral Fellowship (2001-2002)

2002 Frontiers of Structural Biology, Keystone Symposia Scholarship

2009 TWAS Young Affiliate (2009-2013)

2010 Academia Sinica Award for Junior Research Investigators

2011 The Young Scholar Award of Tien-De Li Biomedical Foundation

2012 Academia Sinica Significant Research

2013 Academia Sinica Career Development Award

2014 Exceptional Merit in Academic Award from Chung Hwa Rotary Educational Foundation

2014 Taiwan Bio-Development Foundation Chair in Biotechnology

2021 Two FUTEX Futuretech Awards, Ministry of Science and Technology, Taiwan

5-Year Publications (in reverse chronological order; corresponding authors with asterisks)

1. Structure of the heterotrimeric membrane protein complex FtsB-FtsL-FtsQ of the bacterial divisome. HTV Nguyen, X Chen, C Parada, AC Luo, O Shih, US Jeng, CY Huang, YL Shih* and **C Ma***. *Nat Commun.* 14(1):1903 (2023).
2. Structural basis for a conserved neutralization epitope on the receptor-binding domain of SARS-CoV-2. KA Huang*, X Chen, A Mohapatra, HTV Nguyen, L Schimanski, TK Tan, P Rijal, SK Vester, RA Hills, M Howarth, JR Keeffe, AA Cohen, LM Kakutani, YM Wu, M Shahed-Al-Mahmud, YC Chou, PJ Bjorkman, AR Townsend, **C Ma***. *Nat Commun.* 14(1):311 (2023).
3. Structural basis of interleukin-17B receptor in complex with a neutralizing antibody for guiding humanization and affinity maturation. WH Lee, X Chen, IJ Liu, JH Lee, CM Hu, HC Wu, SK Wang, WH Lee* and **C Ma***. *Cell Reports* 41(4):111555 (2022).
4. Vaccination with SARS-CoV-2 spike protein lacking glycan shields elicits enhanced protective responses in animal models. HY Huang, HY Liao, X Chen, SW Wang, CW Cheng, M Shahed-Al-

- Mahmud, YM Liu, A Mohapatra, TH Chen, JM Lo, YM Wu, HH Ma, YH Chang, HY Tsai, YC Chou, YP Hsueh, CY Tsai, PY Huang, SY Chang, TL Chao, HC Kao, YM Tsai, YH Chen, CY Wu, JT Jan, TJR Cheng, KI Lin*, **C Ma*** and CH Wong*. *Science Translational Medicine*, 14, eabm0899 (2022).
5. Glycosite-deleted mRNA of SARS-CoV-2 spike protein as a broad-spectrum vaccine. CY Wu, CW Cheng, CC Kung, KS Liao, JT Jan, **C Ma** and CH Wong*. *Proc Natl Acad Sci U S A*, 119, e2019995119 (2022).
 6. Active humoral response reverts tumorigenicity through disruption of key signaling pathway. T Yong, KK Chang, YS Wang and **C Ma***. *Vaccines*, 10, 163 (2022).
 7. Debulking different Corona (SARS-CoV-2 delta, omicron, OC43) and Influenza (H1N1, H3N2) virus strains by plant viral trap proteins in chewing gums to decrease infection and transmission. H Daniell, SK Nair, H Guan, Y Guo, RJ Kulchar, MDT Torres, M Shahed-Al-Mahmud, G Wakade, YM Liu, AD Marques, J Graham-Wooten, W Zhou, P Wang, SK Molugu, WR de Araujo, C de la Fuente-Nunez, **C Ma**, WR Short, P Tebas, KB Margulies, FD Bushman, FK Mante, RP Ricciardi, RG Collman, MS Wolff. *Biomaterials*, 288:121671 (2022).
 8. Structures and therapeutic potential of anti-RBD human monoclonal antibodies against SARS-CoV-2. KA Huang, D Zhou, TK Tan, C Chen, HME Duyvesteyn, Y Zhao, HM Ginn, L Qin, P Rijal, L Schimanski, R Donat, A Harding, J Gilbert-Jaramillo, W James, JA Tree, K Buttigieg, M Carroll, S Charlton, CE Lien, MY Lin, CP Chen, SH Cheng, X Chen, TY Lin, EE Fry, J Ren, **C Ma**, AR Townsend, DI Stuart. *Theranostics*, 12(1):1-17 (2022).
 9. A non-neutralizing antibody broadly protects against influenza virus infection by engaging effector cells. YA Ko, YH Yu, YF Wu, YC Tseng, CL Chen, KS Goh, HY Liao, TH Chen, TJR Cheng, AS Yang, CH Wong, **C Ma**, Kuo-I Lin*. *PLOS Pathogens*, 17, e1009724 (2021).
 10. Identification of existing pharmaceuticals and herbal medicines as inhibitors for SARS-CoV-2 infection. JT Jan, TJR Cheng, YP Juang, SH Ma, YT Wu, WB Yang, CW Cheng, X Chen, TH Chou, JJ Shie, WC Cheng, RJ Chein, SS Mao, PH Liang*, **C Ma***, SC Hung*, CH Wong*. *Proc Natl Acad Sci U S A*, 118, e2021579118 (2021).
 11. Breadth and function of antibody response to acute SARS-CoV-2 infection in humans. KYA Huang, TK Tan, TH Chen, CG Huang, R Harvey, S Hussain, CP Chen, A Harding, J Gilbert-Jaramillo, X Liu, M Knight, L Schimanski, SR Shih, YC Lin, CY Cheng, SH Cheng, YC Huang, TY Lin, JT Jan, **C Ma**, W James, RS Daniels, Rodney JW McCauley, P Rijal, Pramila, AR Townsend. *PLOS Pathogens*, 17, e1009352 (2021).
 12. Chimeric hemagglutinin vaccine elicits broadly protective CD4 and CD8 T cell responses against multiple influenza strains and subtypes. HY Liao, SC Wang, YA Ko, KI Lin, **C Ma**, TJR Cheng, CH Wong. *Proc Natl Acad Sci U S A*, 117, 17757 (2020).
 13. A carbohydrate-binding protein from the edible Lablab beans effectively blocks the infections of influenza viruses and SARS-CoV-2. YM Liu, M. Shahed-Al-Mahmud, X Chen, TH Chen, KS Liao, JM Lo, YM Wu, MC Ho, CY Wu, CH Wong, JT Jan, **C Ma***. *Cell Reports*, 32, 108016 (2020).
 14. Structural basis for the neutralization of SARS-CoV-2 by an antibody from a convalescent patient. D Zhou, HME Duyvesteyn, CP Chen, CG Huang, TH Chen, SR Shih, YC Lin, CY Cheng, SH Cheng, YC Huang, TY Lin, **C Ma**, J Huo, L Carrique, T Malinauskas, RR Ruza, PNM Shah, TK Tan, P Rijal, R. Donat, K Godwin, K Buttigieg, J Tree, J Radecke, NG Paterson, P Supasa, J Mongkolsapaya, GR Screaton, MW Carroll, JG Jaramillo, M Knight, W James, RJ Owens, JH Naismith, AR Townsend, EE Fry, Y Zhao, J Ren, DI Stuart, KYA Huang. *Nat. Struct. Mol. Biol.*, 27, 950 (2020).
 15. XFEL coherent diffraction imaging for weakly scattering particles using heterodyne interference. CF Huang, WH Chang, TK Lee, Y Joti, Y Nishino, T Kimura, A Suzuki, Y Bessho, TT Lee, MC Chen, SM Yang, Y Hwu, SH Huang, PN Li, PL Chen, YC Tseng, **C Ma**, TL Hsu, CH Wong, K Tono, T Ishikawa, KS Liang. *AIP Advances*, 10, 11 (2020).
 16. Better influenza vaccines: an industry perspective. JR Chen, YM Liu, YC Tseng, **C Ma***. *J Biomed. Sci.*, 27, 33 (2020).

17. Targeting the bacterial transglycosylase: antibiotic development from a structural perspective, X Chen, CH Wong, **C Ma***. *ACS Infectious Diseases*, 5, 1493 (2019).
18. Egg-based influenza split virus vaccine with monoglycosylation induces cross-strain protection against influenza virus infections, YC Tseng, CY Wu, ML Liu, TH Chen, WL Chiang, YH Yu, JT Jan, KI Lin, CH Wong*, **C Ma***. *Proc Natl Acad Sci U S A*, 116, 4200 (2019).
19. Structure-function Analysis of Neutralizing Antibodies to H7N9 influenza from Naturally Infected Humans, KYA Huang, P Rijal, H Jiang, B Wang, L Schimanski, T Dong, YM Liu, P Chang, M Iqbal, MC Wang, Z Chen, R Song, CC Huang, JH Yang, J Qi, TY Lin, A Li, T Powell, JT Jan, **C Ma**, G Gao, Y Shi, A Townsend. *Nature Microbiology*, 4, 306 (2018).