CHE ALEX MA 馬徹

Curriculum Vitae

Research Fellow and Professor
TBF Chair in Biotechnology
Division Director of Chemical Biology
Genomics Research Center, Academia Sinica
128 Academia Rd. Section 2, Taipei 115, Taiwan
Telephone: (02) 2787 1233 **E-mail:** cma@gate.sinica.edu.tw **Website:** malabtw.org

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 – 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)**.