

CHE ALEX MA

Curriculum Vitae

Principal Investigator
 TBF Chair in Biotechnology
 Division Director of Chemical Biology
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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 Research Fellow, Academia Sinica, Taiwan
 2010 – present Associate Research Fellow, Academia Sinica, Taiwan
 2014 – present Visiting Scientist, RIKEN SPring-8 Center, Japan
 2016 – present Division Director of Chemical Biology, GRC, Academia Sinica, Taiwan

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

Publications (in reverse chronological order)

1. X Chen, CH Wong and **C Ma***, Targeting the bacterial transglycosylase: antibiotic development from a structural perspective, *ACS Infectious Diseases*, DOI:10.1021/acsinfecdis.9b00118 (2019).
2. YC Tseng, CY Wu, ML Liu, TH Chen, WL Chiang, YH Yu, JT Jan, KI Lin, CH Wong* and **C Ma***, Egg-based influenza split virus vaccine with monoglycosylation induces cross-strain protection against influenza virus infections, *Proc Natl Acad Sci U S A*, 116, 4200 (2019).
3. 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, and A Townsend, Structure-function Analysis of Neutralizing Antibodies to H7N9 influenza from Naturally Infected Humans, *Nature Microbiology*, 4, 306 (2018). (Times cited: 2)
4. CL Chen, JC Hsu, CW Lin, CH Wang, MH Tsai, CY Wu, CH Wong*, **C Ma***, Crystal structure of a homogeneous IgG-Fc glycoform with the N-glycan designed to maximize the antibody-dependent cellular cytotoxicity, *ACS Chemical Biology*, 12, 1335 (2017). (Times cited: 10)

5. CP Chen, MH Lin, YT Chan, LC Chen **C Ma***, WB Fischer*, Membrane protein assembly: two cytoplasmic phosphorylated serine sites of Vpu from HIV-1 affect oligomerization, *Scientific Reports*, 6: 28866 (2016). (Times cited: 2)
6. CP Lee, SL Chiang, AM Ko, YF Liu, **C Ma**, CY Lu, CM Huang, JG Chang, TM Kuo, CL Chen, EM Tsai, YC Ko, ALPK1 phosphorylates myosin IIA modulating TNF- α trafficking in gout flares, *Scientific Reports*, 6: 25740 (2016). (Times cited: 11)
7. CW Lin, MH Tsai, ST Li, TI Tsai, KC Chu, YC Liu, MY Lai, YC Tseng, CW Wu, YC Tseng, SS Shivatare, CH Wang, P Chao, SY Wang, HW Shih, TH You, JY Liao, CL Chen, CS Tsai, CC Huang, NH Lin, **C Ma**, CY Wu, CH Wong, A common glycan structure on immunoglobulin G for enhancement of effector functions, *Proc Natl Acad Sci U S A*, 112, 10611-10616 (2015). (Times cited: 66)
8. HS Chen, SC Hou, JW Jian, KS Goh, ST Shen, YC Lee, JJ You, HP Peng, WC Kuo, ST Chen, MC Peng, HJ Wang, CM Yu, IC Chen, CP Tung, TH Chen, KP Chiu, **C Ma**, CY Wu, SW Lin, AS Yang, Predominant structural configuration of natural antibody repertoires enables potent antibody responses against protein antigens, *Scientific Reports*, 5: 12411 (2015). (Times cited: 7)
9. J Wright, HM Chu, CH Huang, **C Ma**, TW Chang, C Lim, Structural and Physical Basis for Anti-IgE Therapy, *Scientific Reports*, 5: 11581 (2015). (Times cited: 20)
10. HH Wu, WW Hwang-Verslues, WH Lee, CK Huang, PC Wei, CL Chen, JY Shew, EY Lee, YM Jeng, YW Tien, **C Ma**, WH Lee, Targeting IL-17B-IL-17RB signaling with an anti-IL-17RB antibody blocks pancreatic cancer metastasis by silencing multiple chemokines, *J Exp Medicine*, 212(3), 333-349 (2015). (Times cited: 46)
11. CC Kung, MT Naik, SH Wang, HM Shih, CC Chang, LY Lin, CL Chen, CF Chang, **C Ma**, TH Huang, Structural Analysis of poly-SUMO Chain Recognition by RNF4-SIMs Domain, *Biochemical J* 462, 53-65 (2014). (Times cited: 8)
12. PC Chen, PK Chuang, CH Chen, YT Chan, JR Chen, SW Lin, **C Ma**, TL Hsu, CH Wong, Role of N-Lined Glycans in the Interactions of Recombinant HCV Envelope Glycoproteins with Cellular Receptors, *ACS Chemical Biology* 9, 1437-1443 (2014). (Times cited: 8)
13. JR Chen, YH Yu, YC Tseng, WL Chiang, MF Chiang, YA Ko, YK Chiu, HH Ma, CY Wu, JT Jan, KI Lin*, **C Ma*** and CH Wong*, Vaccination of Monoglycosylated Hemagglutinin Induces Cross-Strain Protection against Influenza Virus Infections, *Proc Natl Acad Sci U S A* 111, 2476-2481 (2014). (Times cited: 27)
14. CK Huang, CY Yang, YM Jeng, CL Chen, HH Wu, YC Chang, **C Ma**, WH Kuo, KJ Chang, JY Shew, WH Lee, Autocrine/paracrine mechanism of interleukin-17B receptor promotes breast tumorigenesis through NF- κ B-mediated antiapoptotic pathway. *Oncogene* 33, 2968-2977 (2014). (Times cited: 39)
15. CM Yu, HP Peng, IC Chen, YC Lee, JB Chen, KC Tsai, CT Chen, JY Chang, EW Yang, PC Hsu, JW Jian, HJ Hsu, HJ Chang, WL Hsu, KF Huang, **C Ma**, AS Yang, Rationalization and Design of the Complementarity Determining Region Sequences in an Antibody-Antigen Recognition Interface. *PLoS One* 7, e33340 (2012). (Times cited: 26)
16. HW Shih, YF Chang, WJ Li, FC Meng, CY Huang, **C Ma**, TJ Cheng, CH Wong, WC Cheng, Effect of the peptide moiety of Lipid II on bacterial transglycosylase. *Angew Chem Int Ed Engl* 51, 10123-10126 (2012). (Times cited: 15)
17. CY Huang, HW Shih, LY Lin, YW Tien, TJ Cheng, WC Cheng, CH Wong*, **C Ma***, Crystal structure of Staphylococcus aureus transglycosylase in complex with a lipid II analog and elucidation of peptidoglycan synthesis mechanism. *Proc Natl Acad Sci U S A* 109, 6496-6501 (2012). (Times cited: 35)
18. JR Chen, **C Ma***, CH Wong*, Vaccine design of hemagglutinin glycoprotein against influenza. *Trends in Biotechnology* 29, 426-434 (2011). (Times cited: 21)

19. HW Shih, KT Chen, SK Chen, CY Huang, TJR Cheng, **C Ma**, CH Wong, WC Cheng, Combinatorial approach toward synthesis of small molecule libraries as bacterial transglycosylase inhibitors. *Organic & Biomolecular Chemistry* 8, 2586-2593 (2010). (Times cited: 27)
20. CY Liu, CW Guo, YF Chang, JT Wang, HW Shih, YF Hsu, CW Chen, SK Chen, YC Wang, TJ Cheng, **C Ma**, CH Wong, JM Fang, WC Cheng, Synthesis and evaluation of a new fluorescent transglycosylase substrate: lipid II-based molecule possessing a dansyl-C20 polyprenyl moiety. *Organic Letters* 12, 1608-1611 (2010). (Times cited: 30)
21. CC Wang, JR Chen, YC Tseng, CH Hsu, YF Hung, SW Chen, CM Chen, KH Khoo, TJ Cheng, Y S Cheng, JT Jan, CY Wu, **C Ma***, CH Wong*, Glycans on influenza hemagglutinin affect receptor binding and immune response. *Proc Natl Acad Sci U S A* 106, 18137-18142 (2009). (Times cited: 189)
22. MT Sung, YT Lai, CY Huang, LY Chou, HW Shih, WC Cheng, CH Wong*, **C Ma***, Crystal structure of the membrane-bound bifunctional transglycosylase PBP1b from Escherichia coli. *Proc Natl Acad Sci U S A* 106, 8824-8829 (2009). (Times cited: 107)
23. TJ Cheng, MT Sung, HY Liao, YF Chang, CW Chen, CY Huang, LY Chou, YD Wu, YH Chen, YS Cheng, CH Wong*, **C Ma***, W. C. Cheng*, Domain requirement of moenomycin binding to bifunctional transglycosylases and development of high-throughput discovery of antibiotics. *Proc Natl Acad Sci U S A* 105, 431-436 (2008). (Times cited: 45)
24. Z Zhang, **C Ma**, O Pornillos, X Xiu, G. Chang, M H Saier, Jr., Functional characterization of the heterooligomeric EbrAB multidrug efflux transporter of Bacillus subtilis. *Biochemistry* 46, 5218-5225 (2007). (Times cited: 20)
25. YJ Chen, O Pornillos, S Lieu, **C Ma**, AP Chen, G Chang, X-ray structure of EmrE supports dual topology model. *Proc Natl Acad Sci U S A* 104, 18999-19004 (2007). (Times cited: 191)
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27. **C Ma**, G Chang, Crystallography of the integral membrane protein EmrE from Escherichia coli. *Acta Crystallogr D Biol Crystallogr* 60, 2399-2402 (2004). (Times cited: 4)
28. G Veglia, AC Zeri, **C Ma**, SJ Opella, Deuterium/hydrogen exchange factors measured by solution nuclear magnetic resonance spectroscopy as indicators of the structure and topology of membrane proteins. *Biophysical Journal* 82, 2176-2183 (2002). (Times cited: 41)
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31. SJ Opella, **C Ma**, F. M. Marassi, Nuclear magnetic resonance of membrane-associated peptides and proteins in *Nuclear Magnetic Resonance of Biological Macromolecules, Pt B. Methods in Enzymology* (2001), vol. 339, pp. 285-313. (Times cited: 68)
32. FM Marassi, **C Ma**, JJ Gesell, SJ Opella, Three-dimensional solid-state NMR spectroscopy is essential for resolution of resonances from in-plane residues in uniformly N-15-labeled helical membrane proteins in oriented lipid bilayers. *Journal of Magnetic Resonance* 144, 156-161 (2000). (Times cited: 59)
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