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A. PERSONAL DATA

Current title	Senior Bioinformatics Analyst
Affiliation	Weill Cornell Medicine
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B. EDUCATION

Ph.D. , System Engineering	Xiamen University , Xiamen China	09/2011-07/2015	2015
M.S. , Control Engineering	Xi'an Jiaotong University , Xi'an China	09/2009-06/2011	2011
B.S. , Automation	Xi'an Jiaotong University , Xi'an China	09/2005-06/2009	2009

C. POSTDOCTORAL TRAINING

Postdoctoral Scholar Bioinformatics and System biology	University of Chicago , Chicago, IL	03/2019 – 08/2021
Postdoctoral Scholar Bioinformatics and System biology	Mississippi State University , Starkville, MS	08/2015 – 08/2018

D. PROFESSIONAL POSITIONS & EMPLOYMENT

Senior Bioinformatics Analyst	Weill Cornell Medicine , New York, NY	08/2021 – now
Visiting Scholar	Miami University , Oxford, OH	04/2013 - 06/2014

E. BIBLIOGRAPHY

co-first author

Selected Publications:

1. **Li, Lei#**, Haley L Dugan#, Christopher Stamper#, Linda Yu-Ling Lan, Nicholas Asby, Matthew Knight, Olivia Stovicek, Nai-Ying Zheng, Maria Lucia Madariaga, Kumaran Shanmugarajah, Maud O Jansen, Siriruk Changrob, Henry A Utset, Carole Henry, Christopher Nelson, Robert Jedrzejczak, Daved Fremont, Andrzej Joachimiak, Florian Krammer, Jun Huang, Aly Khan, Patrick C Wilson. "Improved integration of single-cell transcriptome and surface protein expression by LinQ-View." **Cell Reports Methods** 1, no. 4 (2021): 100056. DOI: 10.1016/j.crmeth.2021.100056
2. Dugan, Haley#, Christopher T Stamper#, **Lei Li#**, Siriruk Changrob, Nicholas W Asby, Peter J Halfmann, Nai-Ying Zheng, Min Huang, Dustin G Shaw, Mari S Cobb, Steven A Erickson, Jenna J Guthmiller, Olivia Stovicek, Jiaolong Wang, Emma S Winkler, Maria Lucia Madariaga, Kumaran Shanmugarajah, Maud O Jansen, Fatima Amanat, Isabelle Stewart, Henry A Utset, Jun Huang, Christopher A Nelson, Ya-Nan Dai, Paige D Hall, Robert P Jedrzejczak, Andrzej Joachimiak, Florian Krammer, Michael S Diamond, Daved H Fremont, Yoshihiro Kawaoka, Patrick C Wilson "Profiling B cell immunodominance after SARS-CoV-2 infection reveals antibody evolution to non-neutralizing viral targets". **Immunity** 54 (6), 1290-1303. e7 (2021). Doi: 10.1016/j.immuni.2021.05.001
3. **Li, Lei**, Deborah Chang, Lei Han, Xiaojian Zhang, Joseph Zaia, Xiu-Feng Wan. "Multi-task learning sparse group lasso: a method for quantifying antigenicity of influenza A (H1N1) virus using mutations and variations in glycosylation of Hemagglutinin." **BMC bioinformatics** 21 (2020): 1-22. Doi: 10.1186/s12859-020-3527-5
4. Zhang, Xiaojian#, Hailiang Sun#, Fred L Cunningham#, **Lei Li#**, Katie Hanson-Dorr, Matthew W Hopken, Jim Cooley, Li-Ping Long, John A Baroch, Tao Li, Brandon S Schmit, Xiaoxu Lin, Alicia K Olivier, Richard G Jarman, Thomas J DeLiberto, Xiu-Feng Wan. "Tissue tropisms opt for transmissible reassortants during avian and swine influenza A virus co-infection in swine." **PLoS pathogens** 14, no. 12 (2018): e1007417. Doi: 10.1371/journal.ppat.1007417
5. **Li, Lei**, Andrew S Bowman, Thomas J DeLiberto, Mary L Killian, Scott Krauss, Jacqueline M Nolting, Mia Kim Torchetti, Andrew M Ramey, Andrew B Reeves, David E Stallknecht, Richard J Webby, Xiu-Feng Wan. "Genetic evidence supports sporadic and independent introductions of subtype H5 low-pathogenic avian influenza A viruses from wild birds to domestic poultry in North America." **Journal of virology** 92, no. 19 (2018). Doi: 10.1128/JVI.00913-18
6. Kosikova, Martina#, **Lei Li#**, Peter Radvak, Zhiping Ye, Xiu-Feng Wan, and Hang Xie. "Imprinting of repeated influenza A/H3 exposures on antibody quantity and antibody quality: implications for seasonal vaccine strain selection and vaccine performance." **Clinical infectious diseases** 67, no. 10 (2018): 1523-1532. Doi: 10.1093/cid/ciy327
7. **Li, Lei**, Thomas J. DeLiberto, Mary L. Killian, Mia K. Torchetti, and Xiu-Feng Wan. "Evolutionary pathway for the 2017 emergence of a novel highly pathogenic avian influenza A (H7N9) virus among domestic poultry in Tennessee, United States." **Virology** 525 (2018): 32-39. Doi: 10.1016/j.virol.2018.09.003
8. **Li, Lei**, Guoli Ji, Congting Ye, Changlong Shu, Jie Zhang, and Chun Liang. "PlantOrDB: A genome-wide ortholog database for land plants and green algae." **BMC plant biology** 15, no. 1 (2015): 1-11. Doi: 10.1186/s12870-015-0531-4

Other Peer-reviewed Research Articles:

1. Jenna J Guthmiller, Julianna Han, Henry A Utset, **Lei Li**, Linda Yu-Ling Lan, Carole Henry, Christopher T Stamper, Olivia Stovicek, Lauren Gentles, Haley L Dugan, Nai-Ying Zheng, Sara T Richey, Micah E Tepora, Dalia J Bitar, Siriruk Changrob, Shirin Strohmeier, Min Huang, Adolfo García-Sastre, Raffael Nachbagauer, Peter Palese, Jesse D Bloom, Florian Krammer, Lynda

- Coughlan, Andrew B Ward, Patrick C Wilso. "Broadly neutralizing antibodies target a hemagglutinin anchor epitope." **Nature** (2021). In press.
2. Siriruk Changrob#, Yanbin Fu#, Jenna J Guthmiller#, Peter J Halfmann, **Lei Li**, Christopher T Stamper, Haley L Dugan, Molly Accola, William Rehrauer, Nai-Ying Zheng, Min Huang, Jiaolong Wang, Steven A Erickson, Henry A Utset, Hortencia M Graves, Fatima Amanat, D Noah Sather, Florian Krammer, Yoshihiro Kawaoka, Patrick C Wilson. "Cross-Neutralization of Emerging SARS-CoV-2 Variants of Concern by Antibodies Targeting Distinct Epitopes on Spike". **Mbio** 12, no. 6 (2021): e02975-21. DOI: 10.1128/mBio.02975-21
 3. Guthmiller, Jenna J.#, Julianna Han#, **Lei Li**, Alec W. Freyn, Sean TH Liu, Olivia Stovicek, Christopher Stamper et al. "First exposure to the pandemic H1N1 virus induced broadly neutralizing antibodies targeting hemagglutinin head epitopes". **Science Translational Medicine** (2021) Vol. 13, Issue 596, eabg4535. DOI: 10.1126/scitranslmed.abg4535
 4. Rahul Vijay, Jenna J Guthmiller, Alexandria J Sturtz, Sequoia Crooks, Jordan T Johnson, **Lei Li**, Linda Yu-Ling Lan, Rosemary L Pope, Yani Chen, Kai J Rogers, Nirmal Dutta, Jason E Toombs, Mary E Wilson, Patrick C Wilson, Wendy Maury, Rolf A Brekken, Noah S Butler. "Hemolysis-associated phosphatidylserine exposure promotes polyclonal plasmablast differentiation". **Journal of Experimental Medicine** 218, no. 6 (2021): e20202359. Doi: 10.1084/jem.20202359
 5. Dong-Hun Lee, Mary Lea Killian, Thomas J Deliberto, Xiu-Feng Wan, **Li Lei**, David E Swayne, Mia Kim Torchetti. "H7N1 Low Pathogenicity Avian Influenza Viruses in Poultry in the United States During 2018." **Avian Diseases** 65, no. 1 (2021): 59-62. Doi: 10.1637/aviandiseases-D-20-00088
 6. Fionna A Surette, Jenna J Guthmiller, **Lei Li**, Alexandria J Sturtz, Rahul Vijay, Rosemary L Pope, Brandon L McClellan, Angela D Pack, Ryan A Zander, Peng Shao, Linda Yu-Ling Lan, Daniel Fernandez-Ruiz, William R Heath, Patrick C Wilson, Noah S Butler. "Extrafollicular CD4 T cell-derived IL-10 functions rapidly and transiently to support anti-Plasmodium humoral immunity." **PLoS Pathogens** 17, no. 2 (2021): e1009288. Doi: 10.1371/journal.ppat.1009288
 7. Jenna J Guthmiller, Henry A Utset, Carole Henry, **Lei Li**, Nai-Ying Zheng, Weina Sun, Marcos C Vieira, Seth Zost, Min Huang, Scott E Hensley, Sarah Cobey, Peter Palese, Patrick C Wilson. "An egg-derived sulfated N-Acetylglucosamine glycan is an antigenic decoy of influenza virus vaccines." **mBio** (2021). Doi: 10.1101/2021.03.16.435673
 8. Jenna J Guthmiller, Olivia Stovicek, Jiaolong Wang, Siriruk Changrob, **Lei Li**, Peter Halfmann, Nai-Ying Zheng, Henry Utset, Christopher T Stamper, Haley L Dugan, William D Miller, Min Huang, Ya-Nan Dai, Christopher A Nelson, Paige D Hall, Maud Jansen, Kumaran Shanmugarajah, Jessica S Donington, Florian Krammer, Daved H Fremont, Andrzej Joachimiak, Yoshihiro Kawaoka, Vera Tesic, Maria Lucia Madariaga, Patrick C Wilson. "SARS-CoV-2 infection severity is linked to superior humoral immunity against the spike." **MBio** 12, no. 1 (2021). Doi: 10.1128/mBio.02940-20
 9. Jenna J Guthmiller, Linda Yu-Ling Lan, Monica L Fernández-Quintero, Julianna Han, Henry A Utset, Dalia J Bitar, Natalie J Hamel, Olivia Stovicek, **Lei Li**, Micah Tepora, Carole Henry, Karlynn E Neu, Haley L Dugan, Marta T Borowska, Yao-Qing Chen, Sean TH Liu, Christopher T Stamper, Nai-Ying Zheng, Min Huang, Anna-Karin E Palm, Adolfo García-Sastre, Raffael Nachbagauer, Peter Palese, Lynda Coughlan, Florian Krammer, Andrew B Ward, Klaus R Liedl, Patrick C Wilson. "Polyreactive Broadly Neutralizing B Cells Are Selected to Provide Defense against Pandemic Threat Influenza Viruses." **Immunity** 53, no. 6 (2020): 1230-1244. Doi: 10.1016/j.immuni.2020.10.005
 10. Knight, Matthew, Siriruk Changrob, **Lei Li**, and Patrick C. Wilson. "Imprinting, immunodominance, and other impediments to generating broad influenza immunity." **Immunological Reviews** 296, no. 1 (2020): 191-204. Doi: 10.1111/imr.12900
 11. Meng Hu, Guohua Yang, Jennifer DeBeauchamp, Jeri Carol Crumpton, Hyunsuh Kim, **Lei Li**, Xiu-Feng Wan, Lisa Kercher, Andrew S Bowman, Robert G Webster, Richard J Webby, Charles J Russell. "HA stabilization promotes replication and transmission of swine H1N1 gamma influenza viruses in ferrets." **Elife** 9 (2020): e56236. Doi: 10.7554/eLife.56236

12. Xiaojian Zhang, Frederick Cunningham, **Lei Li**, Katie Hanson-Dorr, Liyuan Liu, Kaitlyn Waters, Minhui Guan, Alicia Olivier, Brandon Schmit, Jacqueline Nolting, Andrew Bowman, Mia Torchetti, Thomas DeLiberto, Xiu-Feng Wan. "Tissue tropisms of avian influenza A viruses affect their spillovers from wild birds to pigs." **Journal of Virology** 23;94(24):e00847-20. (2020) Doi: 10.1128/JVI.00847-20.
13. Krammer, Florian, **Lei Li**, and Patrick C. Wilson. "Emerging from the shadow of hemagglutinin: neuraminidase is an important target for influenza vaccination." **Cell host & microbe** 26, no. 6 (2019): 712-713. Doi: 10.1016/j.chom.2019.11.006
14. Minhui Guan, Jeffrey S Hall, Xiaojian Zhang, Robert J Dusek, Alicia K Olivier, Liyuan Liu, **Lei Li**, Scott Krauss, Angela Danner, Tao Li, Wiriya Rutvisuttinunt, Xiaoxu Lin, Gunnar T Hallgrimsson, Sunna B Ragnarsdottir, Solvi R Vignisson, Josh TeSlaa, Sean W Nashold, Richard Jarman, Xiu-Feng Wan. "Aerosol transmission of Gull-Origin Iceland subtype H10N7 influenza A virus in ferrets." **Journal of virology** 93, no. 13 (2019). Doi: 10.1128/JVI.00282-19
15. Han, Lei, **Lei Li**, Feng Wen, Lei Zhong, Tong Zhang, and Xiu-Feng Wan. "Graph-guided multi-task sparse learning model: a method for identifying antigenic variants of influenza A (H3N2) virus." **Bioinformatics** 35, no. 1 (2019): 77-87. Doi: 10.1093/bioinformatics/bty457
16. Hang Xie, **Lei Li**, Zhiping Ye, Xing Li, Ewan P Plant, Olga Zoueva, Yangqing Zhao, Xianghong Jing, Zhengshi Lin, Toshiaki Kawano, Meng-Jung Chiang, Courtney L Finch, Martina Kosikova, Anding Zhang, Yanhong Zhu, Xiu-Feng Wan. "Differential effects of prior influenza exposures on H3N2 cross-reactivity of human postvaccination sera." **Clinical Infectious Diseases** 65, no. 2 (2017): 259-267. Doi: 10.1093/cid/cix269
17. Martin, Brigitte E., Andrew S. Bowman, **Lei Li**, Jacqueline M. Nolting, David R. Smith, Larry A. Hanson, and Xiu-Feng Wan. "Detection of antigenic variants of subtype H3 swine influenza A viruses from clinical samples." **Journal of clinical microbiology** 55, no. 4 (2017): 1037. Doi: 10.1128/JCM.02049-16
18. Huang, Guangzao, Mingshun Yuan, Moliang Chen, **Lei Li**, Wenjie You, Hanjie Li, James J. Cai, and Guoli Ji. "Integrating multiple fitting regression and Bayes decision for cancer diagnosis with transcriptomic data from tumor-educated blood platelets." **Analyst** 142, no. 19 (2017): 3588-3597. Doi: 10.1039/C7AN00944E
19. Shi, Jieming, Min Dong, **Lei Li**, Lin Liu, Agustin Luz-Madriral, Panagiotis A. Tsonis, Katia Del Rio-Tsonis, and Chun Liang. "mirPRO—a novel standalone program for differential expression and variation analysis of miRNAs." **Scientific reports** 5, no. 1 (2015): 1-12. Doi: 10.1038/srep14617
20. Ji, Guoli, **Lei Li**, Qingshun Q. Li, Xiangdong Wu, Jingyi Fu, Gong Chen, and Xiaohui Wu. "PASPA: a web server for mRNA poly (A) site predictions in plants and algae." **Bioinformatics** 31, no. 10 (2015): 1671-1673. Doi: 10.1093/bioinformatics/btv004
21. Ye, Congting, Guoli Ji, **Lei Li**, and Chun Liang. "detectIR: a novel program for detecting perfect and imperfect inverted repeats using complex numbers and vector calculation." **PloS one** 9, no. 11 (2014): e113349. Doi: 10.1371/journal.pone.0113349

Reviews and Editorials:

1. Review date: 2021, Type: review, Role: reviewer, Journal: **Nucleic Acids Research**
2. Review date: 2020, Type: review, Role: reviewer, Journal: **PloS one**

In review:

Under review:

1. **Li, Lei**#, Siriruk Changrob#, Yanbin Fu#, Olivia Stovicek, Jenna J. Guthmiller, Haley L. Dugan, Christopher T. Stamper, Nai-Ying Zheng, Min Huang, and Patrick C. Wilson. "Librator, a platform for optimized sequence editing, design, and expression of influenza virus proteins." Under review by **Briefings in Bioinformatics**

In preparation:

1. **Lei Li**, Linda Yu-Ling Lan, Lei Huang, Jorge Andrade, Patrick C. Wilson. "Selecting representative samples from single cell atlas using k-medoids clustering". Manuscript in preparation.
2. **Lei Li**, Jiayi Sun, Jenna J. Guthmiller, Yanbin Fu, Christopher T. Stamper, Siriruk Changrob, Nai-Ying Zheng, Min Huang, and Patrick C. Wilson. "VGenes, an integrated graphical tool for efficient, comprehensive and multimodal analyses of massive B-cell repertoire sequences". Manuscript in preparation.