

## CURRICULUM VITAE

Bruce X. Ling, Ph.D.  
Assistant Professor, Pediatric Surgery  
Translational Medicine Program  
<http://translationalmedicine.stanford.edu>

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Mail code: 5501. Stanford, CA 94304

### Education

1990 B.S., Biochemistry, Fudan University, China  
1994 M.A., Molecular and Developmental Biology, UCLA, US  
1996 Ph.D., Biological Chemistry, UCLA, US

### Post-Doctoral Training

1996-1998 Postdoctoral training, Biomedicine/Computer Science, Stanford University, US  
2000-2001 Business Administration, Leavey School of Business, Santa Clara University, US

### Academic Appointments

9/1/16 Assistant Professor of Surgery, Stanford University

### Professional Appointments & Activities

2006 Consultant, Biotechnology Core, Lucile Packard Children's Hospital, Stanford University  
2007 - 2010 Senior Scientist, Translational Medicine Program, Dept. of Pediatrics, School of Medicine, Stanford University  
2011 - PI, Translational Medicine Program, Dept. of Surgery, School of Medicine, Stanford University  
2016 - Member, Bio-X  
2016 - Member, Child Health Research Institute

### Industry Appointments

1998 - 1999 Computation/Bioinformatics Scientist, Incyte Pharmaceuticals, Inc.  
1999 - 2000 Project manager, Research, Pangea System, Inc.  
2000 - 2001 Associate Director, Research, DoubleTwist, Inc.  
2001 - 2004 Director, Research, Tularik Inc.  
2004 - 2005 Director, Research, Amgen Inc.

### Society Memberships

Investigator, March of the Dimes Prematurity Research Center, Stanford University

### Service

1997 Member, Medical Advisor Board, National Kidney Foundation of Northern California  
2005 - Member, Journal Editorial Board, Cancer Informatics

### Honors and Awards

1986 - University Fellowship, Fudan University, China  
1990 Summa cum laude, Fudan University, China  
1990 University Fellowship, Fudan University, China  
1991 University Fellowship, University of Iowa, IA  
1992 University Fellowship, UCLA, CA  
1996 Dean's Fellowship, Stanford University  
1997 National Kidney Foundation Research Award

1997	Walter Berry Medical Research Award
2011	Stanford Spark Innovation Program Scholar
2012	Stanford Spark Innovation Program Scholar
2013	First place in clinical research, Stanford University Cardiovascular Institute 2013 research retreat (shared with Dr. Andrew Shin in CVICU)
2013	Stanford Spark Innovation Program Scholar
2014	Stanford Spark Innovation Program Scholar
2014	American Heart Association Award
2021	NIH STTR award
2022	NIH STTR award
2022	NIH Technology Accelerator Challenge for Maternal Health
2023	FDA contract award

## **Research Interests**

### **Hypothesis driven, Real World Bigdata Empowered, Translational R&D**

<http://translationalmedicine.stanford.edu>

- **Population health R&D**: we use tens of millions of real-world state-wide EMRs to develop risk surveillance systems that forecast aspects like disease progression, resource utilization, and mortality across a diverse patient demographic. This prompts timely clinical actions by simplifying intervention orders and crafting care strategies tailored to address modifiable patient risk components.
- **First-in-class molecular diagnostics**: we have developed unique LCMS based multi-omic approaches that allow the simultaneous absolute quantification of thousands of metabolites and proteins in blood and FFPE pathological slides to predict clinical outcomes. Our collaborations with key opinion leaders in pregnancy disorder and pediatric diseases, such as Kawasaki disease, have been productive and have helped to fill critical unmet medical needs.
- **Computer-aided pathology (CAP) and computer-aided medical imaging analytics (CAMIA)**: we have developed deep learning-based computational solutions to decode clinical outcome-correlating signals in pathological whole slide images and echocardiograms. Our multi-modality and multi-omics approaches synergize to promise the next generation of disease diagnostics and risk stratification solutions.

## **Editorial Board Member**

Journal of Gynecology and Obstetrics Forecast  
 Clinics of Oncology  
 Journal of Surgery Forecast  
 Journal of Pediatrics Diseases

## **Editorial Review**

Ad hoc reviewer for: *BMC medicine*, *PLOS ONE*, *PLOS Medicine*, *Molecular Cellular Proteomics*, *Bioinformatics*, *BMC bioinformatics*, and *EMBO medicine*. *JMIR mHealth*, *uHealth*, and ...

## **Patents/Copyright Held**

US Patent/Copyright Pending or Issued:

1. US61/783,450: Provisional application, S12-310 (STAN-983PRV): Methods of Predicting Preeclampsia (serum peptide markers).
2. US61/731,640: Provisional application, S11-499 (STAN-939PRV2): Methods of Predicting Preeclampsia (serum protein markers).

3. US2013/0052665A1: Methods for diagnosis of systemic juvenile idiopathic arthritis (Plasma protein markers).
4. US61/59,3791 S07-246PRV: Methods for diagnosis of systemic juvenile idiopathic arthritis (Urine peptide markers).
5. US2011/0224101A1: Tumor associated proteome and peptidome analysis for multiclass cancer discrimination.
6. US61/496,684: Provisional application, S10-302 (STAN-788PRV): Biomarkers for Necrotizing Enterocolitis and Sepsis.
7. PCT/US12/23739 S09-260: Methods for diagnosis of Kawasaki disease.
8. S13-088 STAN-1924PRV: Levels of RAD54L protein in the blood identify subtypes of high grade serous ovarian cancer.
9. US provisional application S13-331 (STAN-1062PRV) 61/919,459: Parallel Analysis of Serum EpiCAM and MMP7 Can Discriminate Sepsis, Necrotizing Enterocolitis and Normal Control Patients
10. Stanford OTL Docket # S12-344: Novel diagnostic algorithm for acute kidney injury in hospitalized children.
11. Stanford OTL Docket # S13-229: SNP for predicting effectiveness of preterm birth diagnostic test.
12. Stanford OTL Docket #S13-171: A mutli-gene assay to predict brain metastasis from any primary tumors.
13. US Copyright © 2007 Bruce Ling, S07-242: "MASS-Conductor" - High throughput proteomic biomarker discovery platform.
14. US Copyright © 2011 Bruce Ling: Stanford "FDR server" statistical applications.
15. US Copyright © 2012 Bruce Ling, S13-204: A novel severity index for the congenital heart disease.
16. US Copyright © 2013 Bruce Ling, S13-094: Clinical dashboard systems with novel predictive and exploratory analytics for quality and cost improvements for inpatient care
17. Filing date 01/20/17 Methods and compositions for providing an early stage ovarian cancer assessment with metabolites 28125943PCT/US17/14406 Confirmation number 8606
18. Filing date 01/30/17 Methods and compositions for detecting early stage ovarian cancer with RNAseq expression profiling 28202664PCT/US17/15554 Confirmation number 2162
19. Filing date 03/21/17 Methods and compositions for detecting early stage colon cancer with RNA-seq expression profiling 28699011PCT/US17/23478 Confirmation number 2884
20. Filing date 03/21/17 Methods and compositions for detecting early stage bladder cancer with RNA-seq expression profiling 28698999PCT/US17/23476 Confirmation number 1418
21. Filing date 03/21/17 Methods and compositions for detecting early stage breast cancer with RNA-seq expression profiling 28698975PCT/US17/23475 Confirmation number 5204
22. Filing date 03/21/17 Methods and compositions for detection early stage lung adenocarcinoma with RNAseq expression profiling 28698961PCT/US17/23474 Confirmation number 7097
23. Filing date 03/21/17 Methods and compositions for detection early stage lung squamous cell carcinoma with RNAseq expression profiling 28698934PCT/US17/23473 Confirmation number 4387
24. Filing date 03/21/17 Clinical method for the population screening of adult metabolic disorder associated with chronic human disease 28698353PCT/US17/23447 Confirmation number 7376
25. Filing date 03/23/17 Quantitative targeted metabolomic analysis based on the mixture of isotope- and nonisotope-labeled internal standards 28723383 PCT/US17/23863 Confirmation number 7011
26. Filing date 03/23/17 Methods and compositions for providing a preeclampsia assessment with metabolites 28711831PCT/US17/23680 2950
27. Filing date 07/20/17 Methods and compositions for providing a preeclampsia assessment using activin a and elastin. US patent 29836181 62534689confirmation number 1016

28. Filing date 12/15/17 Methods to predict preterm pregnancy based on the gestational clock US patent 31242862 62599251 confirmation number 2022
29. Filing date 11/07/18 Methods and compositions for providing a preeclampsia assessment using leptin US patent 34244614 62757099 confirmation number 2992
30. Filing date 12/01/18 Methods and compositions for the assessment of acute myocardial infarction (ami) 34458912PCT/US18/63517 confirmation number 2671
31. Filing date 12/02/18 Methods and compositions for providing a preeclampsia assessment by proteomics 34459190PCT/US18/63529 confirmation number 7786
32. Filing date 12/13/18 Methods to estimate the gestational age and predict preterm pregnancy US patent 34584700 16219944 confirmation number 3503
33. Filing date 12/02/18 Methods and compositions for providing a preeclampsia assessment by proteomics 34459190PCT/US18/63529 confirmation number 7786
34. Filing date 03/21/2021 Methods and compositions for providing a preeclampsia assessment using leptin and ceramide PCT/US21/20417 confirmation number 9901
35. Filing date 04/15/2023 Methods and compositions for providing a gestational dating assessment using urine metabolic profile US patent 63331258 18296334 confirmation number 7872
36. Filing date 01/26/2023 Methods and compositions for providing early prediction of risk for moderate or very preterm births using high-resolution urinary metabolomic profiling US patent 63481762 confirmation number 2026
37. Filing date 05/26/2023 Methods and compositions for providing a urine-based prediction for preeclampsia during early pregnancy US patent 63504443 confirmation number 7974

### **Former Trainees**

### **Current Position**

Dan Li, Ph.D. (Postdoctoral Fellow in Tularik 2002-2003)	Associate Professor, Mount Sinai School of Medicine
Shuaibin Wu (Postdoctoral Fellow 2011)	Investigator, Zhengzhou Tobacco Research Institute, China
Ting Yang, Ph.D. (Postdoctoral Fellow 2011-2012)	Associate professor, Jilin University
Jun Ji (Exchange Ph.D. Student 2011-2013)	Assistant Professor, Qingdao University
Qiaojun Wen (Exchange Ph.D. Student 2012-2013)	Analyst, Trading company
Changlin Fu (Exchange M.S. Student 2012-2013)	CEO, start up in Shanghai
Zhongkai Hu (Exchange Ph.D. Student, 2013-2014)	Scientist, Alibaba Research Institute
Feng Tian (Exchange Ph.D. Student, 2013)	Ph.D. 2014, Tsinghua University
Zhou Tan, Ph.D. (Postdoctoral Fellow, 2014-2015)	Associate Professor, Hangzhou Normal University
Shiyang Hao, Ph.D. (Postdoctoral Fellow, 2014-2015)	Instructor, Stanford University
Rui Liu, Ph.D. (Postdoctoral Fellow, 2014-2015)	Associate professor, South China University of Technology
Yue Wang, (Exchange Ph.D. Student, 2014-2015)	Assistant Professor, Zhejiang University
Le Zheng (Exchange Ph.D. Student, 2015)	Ph.D. 2016, Tsinghua University

Irene Deng, Ph.D. (Postdoctoral Fellow, 2015-2016)	Associate Professor, China
Jianjian Lu, M.D. (Postdoctoral Fellow, 2015-2016)	Surgeon, Beijing Union Medical College
Zhongkai Hu, Ph.D. (Postdoctoral Fellow, 2016-2017)	Scientist, Alibaba Research Institute
Yanting Guo, (Exchange Ph.D. Student, 2016-2017)	Assistant Professor, Xiamen University
Xiaolan Jiang, (Exchange M.S. Student, 2016-2017)	Programmer, HBI Solutions Inc.
Qian Wu, (Exchange Ph.D. Student, 2016-2017)	Postdoctoral Fellow, Qinghua University
Jun Ji (Postdoctoral Fellow, 2017-2018)	Professor, Qingdao University
Xin Liu, Ph.D. (Postdoctoral Fellow, 2017-2018)	Manager, mProbe, Inc.
Jingyao May, (Exchange Ph.D. Student, 2017-2018)	Postdoctoral Fellow, Zhejiang University
Yuheng Jia, (Exchange Ph.D. Student, 2018)	Associate Professor, Nanjing University
Jin You, Ph.D. (Postdoctoral Fellow, 2019)	Seattle Biotechnology Company
Le Zheng (Postdoctoral Fellow, 2019)	Assistant Professor, North China Electric Power University
Yaqi Zhang (exchanged Ph.D. student, 2020)	Assistant Professor, South China Normal University

### **Former Visiting Scholars**

Jun Zhao (Visiting Scholar 2010-2011)  
 Sihua Peng, Ph.D. (Visiting Faculty 2011-2012)  
 Gongxing Chen (Visiting Scholar 2011-2012)  
 Xiaolin Zheng, Ph.D. (Visiting Scholar 2012-2013)  
 Jing Dong, M.D. (Visiting Scholar, 2013)  
 Yingzhen Zhao, Ph.D. (Visiting Scholar, 2013-2014)  
 Shenghui Shi, Ph.D. (Visiting Scholar 2013-2014)  
 Yanpeng Hao, Ph.D. (Visiting Scholar, 2014-2015)  
 Guang Hu, Ph.D. (Visiting Scholar, 2015-2016)  
 Fang Cao, Ph.D. (Visiting Scholar, 2016-2017)

### **Current Position**

Professor, Ningxia University  
 Associate Professor, Shanghai Ocean University  
 Associate Professor, Hangzhou Normal University  
 Associate Professor, Zhejiang University  
 Assistant Professor, China Medical University  
 Professor, Hangzhou Normal University  
 Associate Professor, Beijing Chemical Engineering University  
 Professor, South China University of Technology  
 Professor, Beijing University  
 Professor, South China University of Technology

Dongyan Zhang, Ph.D (Visiting Scholar, 2016-2017)	Professor, Beijing Institute of Technology
Yunliang Chen, Ph.D. (Visiting Scholar, 2016-2017)	Professor, Wuhan University
Yujuan Huang, M.D. (Visiting Scholar, 2016-2017)	Associate Professor, Shanghai Children's Hospital
Yan Zhang, M.D. (Visiting Scholar, 2016-2017)	Professor, Northern China Early Cancer Detection Consortium
Zhen Li, Ph.D. (Visiting Scholar, 2016-2017)	Assistant Professor, Southeastern University
Jaehong Kim, Ph.D. (Visiting Scholar, 2016-2017)	Scientist, mProbe Inc.
Chengyin (Phyllis) Ye, Ph.D. (Visiting Scholar, 2017-2018)	Associate Professor, Hangzhou Normal University
Xiaofang Wang, Ph.D. (Visiting Scholar, 2017-2018)	Professor, University of Jinan
Yongxia Han (Visiting Scholar, 2019)	Professor, South China University of Technology
Peng Gao (Visiting Scholar, 2019)	Professor, Shandong University of Traditional Chinese Medicine
Xiaodong Li (Visiting Scholar, 2019)	Professor, Zhejiang University

### **Current Visiting Scholars**

James Chou, Ph.D.  
Zhi Han, Ph.D. (Lu Tian's Lab, Biostatistics)

### **Current Funded Research**

NIH Award Number 1R41TR004351 - 01 (PI: Ling)  
An automated system to differentiate Kawasaki disease from febrile illness with real life clinical datasets in New York City.  
Funded: 09/2022-08/2024

FDA Contract grant – Solicitation number FDABAA-23-00123 Contract number 75F40123C00103 (PI: Ling)  
Development of neuroblastoma tissue diagnostic utility through deep learning-based image analytics and targeted multiplex proteomics.  
Funded: 09/2023-09/2026

### **Completed Research**

Corporate Research Project - DoubleTwist, Inc.  
Develop high throughput novel algorithms for high throughput genome ontological classification.  
(PI: Ling)  
Funded: 01/2000-01/2001

Corporate Research Project - Tularik Inc.  
Develop high throughput computation platform (the Discovery® Platform) to enable globally integrated high throughput small molecule screening in either cell based or biochemical assays.  
(PI: Ling)  
Funded: 01/2001-01/2004

Corporate Research Project - Tularik Inc.

Developed informatics platform for array CGH to screen for genetic lesions in cancer to discover novel cancer targets

(PI: Ling)

Funded: 01/2001-01/2003

Corporate Research Project - Amgen San Francisco

Develop compound property based CSAR/QSAR models to address compound PGP (P-glycoprotein, Efflux pump) liability in compound brain permeability for CNS programs

(PI: Ling)

Funded: 01/2004-01/2005

Corporate Research Project - Amgen San Francisco

Discover cancer targets through the large-scale tumor tissue sequencing and SNP analysis of somatic mutations in the potential targets of the interest and to explore their implications in cancer

(PI: Ling)

Funded: 01/2004-01/2005

Children's Health Initiative – Lucile Packard Foundation for Children's Health (CHI)

- Develop proteomic (2D gel DIGE and LCMS) platforms to discover diagnostic and prognostic biomarkers for in urine, plasma and tissue.
- Develop high throughput computational platform for feature detection and discovery of discriminative features in LCMS based biomarker discovery

(PI: Krensky; Co-I: Ling)

Funded: 01/2006 - 09/2009

ACE Pilot Grant

Prognostic proteomic markers in systemic juvenile idiopathic arthritis & adult onset Still's disease.

(PI: Mellins, Co-I: Ling)

Funded: 04/2009 - 03/2011

Lucile Park Foundation - Children's Health Initiative (CHI) Transition Fund.

Pediatric disease biomarker discovery and translational analytic support.

(Supervisor: Cohen, Co-I: Ling)

Funded: 10/2010 - 02/2011

Stanford Bio-X Interdisciplinary Initiatives Program – Round 5

Biosensors and biomarkers for neonatal disease

(Co-PIs: Sylvester, Wang, Ling)

Funded: 11/2010 - 11/2012

Stanford Pediatric Research Fund

Development of an ultra-sensitive nano biosensor test for impending SJIA flare to translate our recent findings of a SJIA flare plasma protein signature

(Co-PIs: Cohen, Wang, Ling 5%)

Funded: 01/2011 - 01/2012

Spark/Spectrum Innovation Award

Biosensors and biomarkers to manage NEC and Sepsis

(Co-PIs: Sylvester, Ling)

Funded: 03/2011 - 03/2012

FDA (1U01FD004194-01)  
Qualifying Studies of Biomarkers for Neonatal Disease  
(PI: Sylvester, Co-I: Ling)  
Funded: 01/2011-12/2013

SPECTRUM / SPARK Program  
Urinary Biosensors for Personalized Neonatal Care  
(PI Sylvester, Co-I: Ling)  
Funded: 01/2011-12/2013

Spark/Spectrum Innovation Award  
Preeclampsia biomarker discovery and validation  
(Co-PIs: Butte, Ling)  
Funded: 03/2012 - 03/2013

Stanford University CVICU Funded Project - CVICU KPI Analysis  
(Co-PIs: Ling/Shin)  
Funded: 10/2012 - 10/2014

Macklin Foundation Funded Project  
Planning grant for Kawasaki Disease diagnostic test  
(Co-PIs: Burns/Cohen/Ling)  
Funded: 08/2013-03/2014

American Heart Association  
Validation of vasculitis biomarkers to diagnose Kawasaki disease  
(PIs: Cohen/Ling, Co-I: UCSD Burns)  
Funded: 01/2013-12/2015

SPECTRUM / SPARK Program  
Identification of vasculitis biomarkers to diagnose Kawasaki disease  
(Co-PIs: Ling/Cohen)  
Funded: 01/2014-12/2014

SPARK Program  
Metabolomics features of Kawasaki disease  
(PI: Ling)  
Funded: 01/2017-12/2017

Stanford Overseas Program  
Beijing University Stanford Learning Center  
(PI: Ling)  
Funded: 07/2017-08/2017

Stanford Overseas Program  
Beijing University Stanford Learning Center  
(PI: Ling)  
Funded: 07/2018-08/2018

NIH Award Number 1R41HL160362-01 (PI: Ling)



An automated system to interpret echocardiography to predict adverse outcomes in patients with right ventricular dysfunction in daily hospital practice.

Funded: 08/2021-07/2023

NIH Technology Accelerator Challenge for Maternal Health (Stanford University Prematurity Center, Co-I: Ling)

National Semi-Finalist 07/2022

## **ORIGINAL RESEARCH PUBLICATIONS**<sup>1-93</sup>

1. Zhang Y, Sylvester KG, Jin B, Wong RJ, Schilling J, Chou CJ, Han Z, Luo RY, Tian L, Ladella S, Mo L, Maric I, Blumenfeld YJ, Darmstadt GL, Shaw GM, Stevenson DK, Whitin JC, Cohen HJ, McElhinney DB, Ling XB. Development of a Urine Metabolomics Biomarker-Based Prediction Model for Preeclampsia during Early Pregnancy. *Metabolites*. 2023;13(6). Epub 20230531. doi: 10.3390/metabo13060715. PubMed PMID: 37367874; PMCID: PMC10301596.
2. Wang Q, Wang J, Tokhtaeva E, Li Z, Martin MG, Ling XB, Dunn JCY. An Engineered Living Intestinal Muscle Patch Produces Macroscopic Contractions that can Mix and Break Down Artificial Intestinal Contents. *Adv Mater*. 2023;35(15):e2207255. Epub 20230304. doi: 10.1002/adma.202207255. PubMed PMID: 36779454; PMCID: PMC10101936.
3. Edwards LA, Feng F, Iqbal M, Fu Y, Sanyahumbi A, Hao S, McElhinney DB, Ling XB, Sable C, Luo J. Machine Learning for Pediatric Echocardiographic Mitral Regurgitation Detection. *J Am Soc Echocardiogr*. 2023;36(1):96-104 e4. Epub 20220930. doi: 10.1016/j.echo.2022.09.017. PubMed PMID: 36191670.
4. Chen L, Tang Q, Zhang K, Huang Q, Ding Y, Jin B, Liu S, Hwa K, Chou CJ, Zhang Y, Thyparambil S, Liao W, Han Z, Mortensen R, Schilling J, Li Z, Heaton R, Tian L, Cohen HJ, Sylvester KG, Arent RC, Zhao X, McElhinney DB, Wu Y, Bai W, Ling XB. Altered expression of the L-arginine/nitric oxide pathway in ovarian cancer: metabolic biomarkers and biological implications. *BMC Cancer*. 2023;23(1):844. Epub 20230908. doi: 10.1186/s12885-023-11192-8. PubMed PMID: 37684587; PMCID: PMC10492322.
5. Zhu L, Huang Q, Li X, Jin B, Ding Y, Chou CJ, Su K-J, Zhang Y, Chen X, Hwa KY, Thyparambil S, Liao W, Han Z, Mortensen R, Jin Y, Li Z, Schilling J, Li Z, Sylvester KG, Sun X, Ling XB. Serological Phenotyping Analysis Uncovers a Unique Metabolomic Pattern Associated With Early Onset of Type 2 Diabetes Mellitus. *Frontiers in Molecular Biosciences*. 2022;9. doi: 10.3389/fmolb.2022.841209.
6. Ye C, Wu J, Reiss JD, Sinclair TJ, Stevenson DK, Shaw GM, Chace DH, Clark RH, Prince LS, Ling XB, Sylvester KG. Progressive Metabolic Abnormalities Associated with the Development of Neonatal Bronchopulmonary Dysplasia. *Nutrients*. 2022;14(17). Epub 20220828. doi: 10.3390/nu14173547. PubMed PMID: 36079804; PMCID: PMC9459725.
7. Maric I, Contrepolis K, Moufarrej MN, Stelzer IA, Feyaerts D, Han X, Tang A, Stanley N, Wong RJ, Traber GM, Ellenberger M, Chang AL, Fallahzadeh R, Nassar H, Becker M, Xenochristou M, Espinosa C, De Francesco D, Ghaemi MS, Costello EK, Culos A, Ling XB, Sylvester KG, Darmstadt GL, Winn VD, Shaw GM, Relman DA, Quake SR, Angst MS, Snyder MP, Stevenson DK, Gaudilliere B, Aghaeepour N. Early prediction and longitudinal modeling of preeclampsia from multiomics. *Patterns (N Y)*. 2022;3(12):100655. Epub 20221209. doi: 10.1016/j.patter.2022.100655. PubMed PMID: 36569558; PMCID: PMC9768681.
8. Lam JY, Shimizu C, Tremoulet AH, Bainto E, Roberts SC, Sivilay N, Gardiner MA, Kanegaye JT, Hogan AH, Salazar JC, Mohandas S, Szmuszkovicz JR, Mahanta S, Dionne A, Newburger JW, Ansusinha E, DeBiasi RL, Hao S, Ling XB, Cohen HJ, Nemati S, Burns JC, Pediatric Emergency Medicine Kawasaki Disease Research G, Group CS. A machine-learning algorithm for diagnosis of multisystem inflammatory syndrome in children and Kawasaki disease in the USA: a retrospective model development and validation study. *Lancet Digit Health*. 2022;4(10):e717-e26. doi: 10.1016/S2589-7500(22)00149-2. PubMed PMID: 36150781; PMCID: PMC9507344.
9. Kuo HC, Hao S, Jin B, Chou CJ, Han Z, Chang LS, Huang YH, Hwa K, Whitin JC, Sylvester KG, Reddy CD, Chubb H, Ceresnak SR, Kanegaye JT, Tremoulet AH, Burns JC, McElhinney D, Cohen HJ, Ling XB. Single center blind testing of a US multi-center validated diagnostic algorithm for Kawasaki disease in Taiwan. *Front Immunol*. 2022;13:1031387. Epub 20221003. doi: 10.3389/fimmu.2022.1031387. PubMed PMID: 36263040; PMCID: PMC9575935.
10. Zhang Y, Han Y, Gao P, Mo Y, Hao S, Huang J, Ye F, Li Z, Zheng L, Yao X, Li Z, Li X, Wang X, Huang CJ, Jin B, Zhang Y, Yang G, Alfreds ST, Kanov L, Sylvester KG, Widen E, Li L, Ling X. Electronic Health Record-Based Prediction of 1-Year Risk of Incident Cardiac Dysrhythmia: Prospective Case-Finding Algorithm

Development and Validation Study. *JMIR Med Inform.* 2021;9(2):e23606. Epub 20210217. doi: 10.2196/23606. PubMed PMID: 33595452; PMCID: PMC7929752.

11. Stevenson DK, Wong RJ, Aghaeepour N, Maric I, Angst MS, Contrepolis K, Darmstadt GL, Druzin ML, Eisenberg ML, Gaudilliere B, Gibbs RS, Gotlib IH, Gould JB, Lee HC, Ling XB, Mayo JA, Moufarrej MN, Quaintance CC, Quake SR, Relman DA, Sirota M, Snyder MP, Sylvester KG, Hao S, Wise PH, Shaw GM, Katz M. Towards personalized medicine in maternal and child health: integrating biologic and social determinants. *Pediatr Res.* 2021;89(2):252-8. Epub 20200526. doi: 10.1038/s41390-020-0981-8. PubMed PMID: 32454518; PMCID: PMC8061757.

12. Stevenson DK, Aghaeepour N, Maric I, Angst MS, Darmstadt GL, Druzin ML, Gaudilliere B, Ling XB, Moufarrej MN, Peterson LS, Quake SR, Relman DA, Snyder MP, Sylvester KG, Shaw GM, Wong RJ. Understanding how biologic and social determinants affect disparities in preterm birth and outcomes of preterm infants in the NICU. *Semin Perinatol.* 2021;45(4):151408. Epub 20210324. doi: 10.1016/j.semperi.2021.151408. PubMed PMID: 33875265; PMCID: PMC9159791.

13. Stelzer IA, Ghaemi MS, Han X, Ando K, Hedou JJ, Feyaerts D, Peterson LS, Rumer KK, Tsai ES, Ganio EA, Gaudilliere DK, Tsai AS, Choisy B, Gaigne LP, Verdonk F, Jacobsen D, Gavasso S, Traber GM, Ellenberger M, Stanley N, Becker M, Culos A, Fallahzadeh R, Wong RJ, Darmstadt GL, Druzin ML, Winn VD, Gibbs RS, Ling XB, Sylvester K, Carvalho B, Snyder MP, Shaw GM, Stevenson DK, Contrepolis K, Angst MS, Aghaeepour N, Gaudilliere B. Integrated trajectories of the maternal metabolome, proteome, and immunome predict labor onset. *Sci Transl Med.* 2021;13(592). doi: 10.1126/scitranslmed.abd9898. PubMed PMID: 33952678; PMCID: PMC8136601.

14. Huang Q, Hao S, You J, Yao X, Li Z, Schilling J, Thyparambil S, Liao WL, Zhou X, Mo L, Ladella S, Davies-Balch SR, Zhao H, Fan D, Whitin JC, Cohen HJ, McElhinney DB, Wong RJ, Shaw GM, Stevenson DK, Sylvester KG, Ling XB. Early-pregnancy prediction of risk for pre-eclampsia using maternal blood leptin/ceramide ratio: discovery and confirmation. *BMJ Open.* 2021;11(11):e050963. Epub 20211125. doi: 10.1136/bmjopen-2021-050963. PubMed PMID: 34824115; PMCID: PMC8627403.

15. Huang Q, Hao S, Yao X, You J, Li X, Lai D, Han C, Schilling J, Hwa KY, Thyparambil S, Whitin J, Cohen HJ, Chubb H, Ceresnak SR, McElhinney DB, Wong RJ, Shaw GM, Stevenson DK, Sylvester KG, Ling XB. High-throughput quantitation of serological ceramides/dihydroceramides by LC/MS/MS: Pregnancy baseline biomarkers and potential metabolic messengers. *J Pharm Biomed Anal.* 2021;192:113639. Epub 2020/10/06. doi: 10.1016/j.jpba.2020.113639. PubMed PMID: 33017796.

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### **Conference presentations and proceedings (External)**

1. Histone H3 and H4 terminal sequences have redundant function in transcription regulation. West Coast Chromatin and Chromosomes Conference, Pacific Grove, CA. Dec 7, 1994.
2. DoubleTwist.com to empower the gold rush of the human genome for novel drug targets. National High Technology Exchange Conference, Shenzhen, China. Aug 15, 2000.
3. Decoding the human genome and launch of the first commercial human genome database. Genome Research Center, Yang Ming Medical University, Taiwan. Aug 2, 2000.

4. Decoding and functional interpretation of the human genome. Genome Conference, National Chiao Tung University, Taiwan. Aug 3, 2000.
5. Genomics based drug discovery. TAC-CCL&STC-2002, Santa Clara, CA. Mar 4, 2002.
6. Genome annotation and drug target discovery through computational approaches. The Santa Clara Valley Chapter of the IEEE Computer Society, Stanford, CA. Oct 27, 2001.
7. Discovery platform for end to end drug discovery pipeline. Tularik Inc. Research Retreat, Pacific Grove, CA. Jan 15, 2002.
8. Leverage the computational cluster to empower pharmaceutical discovery. Executive IT Life Science Forum, New York, NY, May 8, 2002.
9. High throughput computational discovery platform to empower drug discovery. BIO-IT World, Boston, MA. July 15, 2003.
10. A comparative analysis of HGSC and Celera human genome assemblies and gene sets. CHI's Molecular Medicine Tri-Conference, Santa Clara, CA. March 17, 2003.
11. Comparative Analysis of Human Genome Assemblies Reveals Genome-Level Differences. Keystone Symposia (Functional Genomics), Santa Fe, NM. Feb 10, 2003.
12. High throughput computational discovery platform to empower drug discovery. The Drug Discovery & Development Information Integration Congress, Miami Beach, FL. Dec 4, 2003.
13. High throughput computational discovery platform to empower drug discovery. AccelrysWorld 2004. San Diego, CA. Mar 8, 2004.
14. Significance Analysis and Multiple Pharmacophore Models for Differentiating P-Glycoprotein Substrates. Internal and external knowledge sharing for pharma industry, London, UK. April 10, 2005.
15. High throughput computational discovery platform to empower drug discovery. Pharmaceutical Technology Congress, Loews Philadelphia, PA. Mar 15, 2005.
16. Multi-omics based biomarker discovery. Genentech, South San Francisco, CA. Nov 3, 2006.
17. A novel proteomic approach for identification of biomarkers for diagnosis and monitoring of acute rejection. Annual American Transplant Congress, MAY 05-09, San Francisco, CA, 2007
18. Informed decision-making and colorectal cancer screening - Is it occurring in primary care? 30th Annual Meeting of the Society-of-General-Internal-Medicine. April 25-28, Toronto, CANADA, 2007
19. Novel urinary peptidomic analysis for acute rejection monitoring. 8th American Transplant Congress, MAY 31-JUN 04, Toronto, CANADA, 2008
20. Discovery and validation of the protein biomarkers for pediatrics disease. Genentech, South San Francisco, CA. Jun 16, 2009.
21. Use of big data approach to discovery disease biomarkers with mass spectrometry. SRI, Menlo Park, CA. Sep 24, 2009.
22. Integrative Urinary Peptidomics in Renal Transplantation Identifies Novel Biomarkers for Acute Rejection. 10th American Transplant Congress, May 01-05, San Diego, CA, 2010.
23. Urinary proteomic analysis to identify host response proteins in catheter-associated urinary tract infection. American Urological Association (AUA) 2011 Annual Meeting, May 14-19, Washington, DC, 2011
24. Urinary peptidomics in kidney transplantation identifies novel peptide biomarkers for acute rejection. ipta 6th congress on pediatric transplantation, June 25 – 28, Montreal, Canada, 2011
25. Decoding health care big data for precision health and precision medicine. Zhejiang University, Hangzhou, China. Aug 14, 2011.
26. High throughput & high content analysis to drive the translation of medicine. Big data. 2013 summit, Beijing, China. May 20, 2013.
27. Transcriptomics and proteomics ensemble analyses reveal serological protein panel for preeclampsia diagnosis. 33rd Annual Meeting/Pregnancy Meeting of the Society-for-Maternal-Fetal-Medicine (SMFM), February 11-16, San Francisco, CA, 2013



28. Use of big data and AI/BI solutions to drive the translation of medicine. Big data. Beijing University, Zhejiang University, Tsinghua University, Chinese academy of Sciences, China. May 22, 2013.
29. Identification of novel biomarkers for early detection of ovarian cancer. AACR Special Conference on Advances in Ovarian Cancer Research: From Concept to Clinic, September 18-21, Miami, FL, 2013
30. CSF protein dynamic driver network: at the crossroads of brain tumorigenesis. IEEE International Conference on Bioinformatics and Biomedicine (IEEE BIBM), November 02-22, Univ Ulster, Belfast, NORTH IRELAND, 2014
31. Translational medicine – Bench side innovation to bed side utilities. The Society of Chinese American Physician Entrepreneurs (SCAPE). Jun 17, 2015.
32. An Improved Point-of-care Differentiation Of Kawasaki Disease From Other Febrile Illnesses. The 11th International Kawasaki Disease Symposium, Honolulu, HI, USA. Feb 4, 2015.
33. Online prediction of health care utilization in the next six months based on electronic health record information: a cohort and validation study. IEEE, Washington DC, USA. Nov 9, 2015.
34. Translation of multi-omics medicine to improve the Kawasaki disease care. The 3<sup>rd</sup> Oriental Pediatrics Conference, Shanghai, China. Sep 29, 2015.
35. Risk Prediction of Stroke: A Prospective Statewide Study on Patients in Maine. IEEE International Conference on Bioinformatics and Biomedicine - Medical Informatics and Decision Making, November 9-12, Washington, DC, 2015
36. Risk prediction for future 6-month healthcare resource utilization in Maine. IEEE International Conference on Bioinformatics and Biomedicine, November 9-12, Washington, DC, 2015
37. Multi-omics data production platform to empower the precision medicine services. Xi'an Jiaotong University, Xi'an, China. Oct 14, 2016.
38. One Platform - Multi-Omics + AI: Universal Services of Precision Medicine. Tianjin Cancer Hospital, Tianjin, China. Oct 16, 2016.
39. One mass spectrometric platform and universal health care services. China Diagnostics and Genetics Testing Forum, Shanghai, China. Oct 20, 2016.
40. Validation of the diagnostics biomarkers for Kawasaki disease. The 1<sup>st</sup> International Pediatrics Precision Medicine Forum, Shanghai, China. Nov 3, 2016.
41. A multi-omics analysis of human nucleus-coded mitochondrial genes with mouse extraembryonic tissue/placenta phenotypes: implications in mitochondrial-mediated maternal and fetal complications. SRI Conference. Montreal, Canada. Mar 16, 2016.
42. A Multi-Omics Analysis of Human Nucleus-Coded Mitochondrial Genes with Mouse Extraembryonic Tissue/Placenta Phenotypes: Implications in Mitochondria-Mediated Maternal and Fetal Complications. 63rd Annual Scientific Meeting of the Society-for-Reproductive-Investigation, March 16-19, Montreal, CANADA, 2016
43. Translational Medicine – B2B: Bench side innovation to Bed side utilities. National Taiwan University, Taipei. Feb 21, 2017.
44. Translational Medicine – B2B: Bench side innovation to Bed side utilities. Chang Gunn Hospital, Taipei. Feb 21, 2017.
45. Translational Medicine – B2B: Bench side innovation to Bed side utilities. Chinese CDC, Beijing, China. Jun 25, 2017.
46. Multi-omics and healthcare big-data-based AI. Shanghai Jiaotong University, Shanghai, China. Jun 30, 2017.
47. Disturbance Propagation in Power System Based on an Epidemic Model. IEEE Conference on Energy Internet and Energy System Integration (EI2), November 26-28, Beijing, China, 2017
48. Decoding Multi-Omics based Big Data with BI/AI Solutions in Health Care. Idea to Life 2017 Conference Information, Hangzhou, China. Dec 14, 2017.
49. Gene expression network analysis in aneuploid human trophoblast progenitor cells (TBPC) reveals modular structures. 38th Annual Meeting and Pregnancy Meeting of the Society-for-Maternal-Fetal-Medicine, January 29 – February 03, Dallas, TX, 2018

50. Shorten Bipolarity Checklist for the Differentiation of Subtypes of Bipolar Disorder Using Machine Learning. ICBCB 2018: Proceedings of the 2018 6th International Conference on Bioinformatics and Computational Biology, March 2018
51. Use of big data to translate the medicine of precision health. Chinese CDC, Beijing. Jul 5, 2018.
52. Predictive/preemptive AI solutions for population health. Chinese Fuwai Cardiovascular Hospital, Beijing. Jul 6, 2018.
53. Decoding multi-omics based big data with BI/AI solutions in health care. Fudan University, Shanghai. Aug 13, 2018.
54. Translational Medicine – B2B: Bench side innovation to Bed side utilities. Huaxi Hospital, Chengdu, China. Oct 25, 2018.
55. Translational Medicine: Affordable, Precise, Accessible. ThermoFisher Multi-omics Global Summit, Beijing. Mar 29, 2018.
56. Expression of antibody-drug conjugates (ADC) biomarkers in colorectal cancer. 2020 Gastrointestinal Cancers Symposium, January 23-25, San Francisco, 2020
57. Proteomic profiling to identify therapeutics targets in glioblastoma (GBM). 2020 ASCO Annual Meeting I, May 29-31, 2020
58. Deviation from the precisely timed phenomic ageotypes can assist in early CRC screening and reveal underlying pathophysiology. 2020 ASCO Annual Meeting I, May 29 – 31, 2020
59. Targeted multiplex proteomics (TMP) and genomics of early-onset colorectal cancer (EO-CRC). 2021 Gastrointestinal Cancers Symposium, January 15- 17, 2021
60. Multi-omics longitudinal analyses in stages I to III CRC patients: Surveillance liquid biopsy test to predict early recurrence and enable risk-stratified postoperative CRC management. 2021 ASCO Annual Meeting I, June 4-8, 2021
61. Deviation from the precisely timed age-associated patterns revealed by blood metabolomics to find CRC patients at risk of relapse at the CRC diagnosis. 2022 ASCO Gastrointestinal Cancers Symposium, January 20-22, 2022
62. Clinical survey of Trop2 antibody drug conjugate target and payload biomarkers in multiple cancer indications using multiplex mass spectrometry. AACR, New Orleans, April 8-13, 2022
63. Personalized therapy for head and neck squamous carcinoma (HNSCC) utilizing tissue proteomics profiling. 2023 ASCO Annual Meeting I, Chicago, June 2-6, 2023

#### **Conference presentations and proceedings (Stanford Internal)**

1. Drivers of value in critical congenital heart disease. Annual Cardiovascular Institute retreat. Stanford, USA. Sep 12, 2013.
2. Multi-omics big data analytics for biomarker discovery and validation. LPCH, Stanford, USA. Aug 10, 2016.
3. Metabolomics features predicting gestational age and the preterm birth outcome. March of Dimes Prematurity Research Center at Stanford Site Visit. August 26, 2019 LKSC Room 320.
4. Gestational dating by high resolution urine sampling: discovery and validation. The March of Dimes Prematurity Research Center at Stanford Site Visit. June 15, 2022.