

Purvesh Khatri

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Academic Appointments

- 2018 Associate Professor (May 1, 2018 – Present)
Stanford Institute for Immunity, Transplantation and Infection
Center for Biomedical Informatics Research
Department of Medicine, Stanford University
- 2014 Assistant Professor (October 1, 2014 – April 30, 2018)
Stanford Institute for Immunity, Transplantation and Infection
Center for Biomedical Informatics Research
Department of Medicine, Stanford University
- 2013 Acting Assistant Professor (April 1, 2013 – September 30, 2014)
Stanford Institute for Immunity, Transplantation and Infection
Center for Biomedical Informatics Research
Department of Medicine, Stanford University
- 2011 Research Associate (April 1, 2011 - March 31, 2013)
Divisions of Systems Medicine and Nephrology
Department of Pediatrics, Stanford University
- 2008 Postdoctoral Scholar (July 1, 2008 - March 31, 2011)
Center for Biomedical Informatics Research (BMIR)
Departments of Pediatrics and Medicine, Stanford University
- 2008 Part-time Faculty (January 2008 - April 2008)
Department of Computer Science, Wayne State University
- 2006 Postdoctoral Fellow (August 2006 - June 2008)
Intelligent Systems and Bioinformatics Laboratory
Department of Computer Science, Wayne State University
- 2000 Research Assistant (July 2000 - August 2006)
Intelligent Systems and Bioinformatics Laboratory
Department of Computer Science, Wayne State University
- 2003 Research Scientist (January 2003 - June 2004)
Bioinformatics cell, Telemedicine and Advanced Technology Research Center, US Army Medical
Research and Materiel Command
- 2002 Teaching Assistant (August 2002 - December 2002)
Department of Computer Science, Wayne State University
- 2000 Research Assistant (July 2000 - August 2002)
Center for Molecular Medicine and Genetics, Wayne State University

Education

- 2006 Ph.D. in Computer Science
Wayne State University, Detroit, MI
Thesis: Onto-Tools: Tools for Functional Design and Interpretation of High Throughput Gene
Expression Data
- 2006 M.S. Computer Science
Wayne State University, Detroit, MI

Thesis: Onto-Express: Tool for Functional Profiling of Gene Expression Data

1998 B.Eng. in Electronics Engineering

B.V.M. Engineering College, Sardar Patel University, Gujarat, India

Awards and Honors

- 2016 Selected one of the top 10 science advances of 2016 by NIAID for Andres-Terre *et al.* Immunity 2015
- 2016 Teaching award, Department of Medicine, Stanford University
- 2010 “Young Investigator Award” at American Transplant Congress 2010 for Meta-analysis of Solid Organ Transplant Data Sets Identifies Differentially Expressed microRNAs common in Heart, Kidney and Liver Allografts. (35 recipients out of more than 4,400 applicants worldwide)
- 2005 “Fast Breaking Paper” award in the field of Computer Science (Bioinformatics) for Khatri et al. Bioinformatics 2005 Sep; 21(18): 3587-3595 by ISI Thomson-Scientific Essential Science Indicator. According to ISI Thomson, these papers comprise the top 1% of papers in each field and each year (<http://esi-topics.com/fbp/2006/october06-SorinDraghici.html>)
- 2004 Graduate Research Assistant Recognition Award. Department of Computer Science, Wayne State University, Detroit, MI, April 2004
- 2003 Graduate Research Assistant Recognition Award. Department of Computer Science, Wayne State University, Detroit, MI, April 2003
- 2002 Graduate Research Assistant Recognition Award. Department of Computer Science, Wayne State University, Detroit, MI, April 2002

Scientific Committee Member

- 2012 Scientific Program Committee member for the Eighth International Conference on Data Integration in the Life Sciences (DILS 2012). June 28-29, 2012, University of Maryland, College Park, MD, USA.
- 2012 Scientific Program Committee member for the AMIA Summit on Translational Bioinformatics (TBI 2012). March 18-20, 2012. San Francisco, CA, USA.
- 2010 Chair for Special session on Machine Learning Applications in Bioinformatics and Computational Biology for the International Conference on Machine Learning and Applications (ICMLA) 2010. 12-14 Dec. 2010, Washington D.C., USA.
(http://www.icmla-conference.org/icmla10/CFP_SpecialSession7.html)
- 2009 Technical committee member for Special session on Machine Learning Applications in Bioinformatics and Computational Biology for the International Conference on Machine Learning and Applications (ICMLA) 2009.

Ad hoc Reviewer

Cell, Nature, Lancet, Cell Host & Microbe, Lancet Respiratory Medicine, Nature Medicine, Nature Biotechnology, Science Translational Medicine, Nucleic Acids Research, Public Library of Science (PLOS) Computational Biology, Bioinformatics, BMC Bioinformatics, BMC Genomics, BMC Medical Genomics, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Journal of Biomedical Informatics, EMBO Molecular Medicine, Infection, Genetics and Evolution, Computational Statistics and Data Analysis, Drug Discovery Today, BioSystems

Students and Postdoc Mentoring

Postdocs

1. Andrew Reese Moore
2. Benjamin Solomon
3. Ian Lee

4. Denis Dermadi
5. Hong Zheng
6. Michele Donato
7. Guangbo Chen
8. Simone Thair
9. Stephen Schaffert
10. Francesco Vallania
11. Hayley Warsinske
12. Timothy Sweeney
13. Sudeb Dalai
14. Rohit Vashisht
15. Lara Murphy Jones
16. Aurelie Tomczak

Students

1. Kalani Ratnasiri, Immunology, PhD, Research advisor (September 2020 – Present)
2. Yiran Liu, Epidemiology, Research co-advisor (with Jason Andrews; April 2019 – Present)
3. Jiaying Toh, Immunology, PhD, Research co-advisor (with Olivia Martinez; April 2016 – 2023)
4. Larry Kalesinskas, Biomedical Informatics, PhD, Research advisor (January 2018 – 2022)
5. Ananthakrishnan Ganesan, ICME, PhD, Research advisor (May 2018 – 2022)
6. Aditya Rao, Immunology, PhD, Research advisor (January 2017 – 2022)
7. Lawrence Bai, Immunology, PhD, Research co-advisor (June 2017 – 2022)
8. Madeleine Scott, MSTP, Research advisor (July 2016 – 2022)
9. Kelly McGill, Immunology, MS, Research co-advisor (with PJ Utz; January 2016 – 2021)
10. Winn Haynes, Biomedical Informatics, PhD, Research co-advisor (with PJ Utz; February 2014 – 2018)
11. Erika Bongen, Immunology, PhD, Research co-advisor (with PJ Utz; March 2014 – 2018)
12. Marta Andres-Terre, Immunology, PhD, Research co-advisor (with Denise Monack; December 2013 – 2018)
13. Tim Sweeney, Biomedical Informatics and resident (surgery), Research advisor (August 2013 – September 2015)
14. Matthew Daniel Li, Stanford Medical Student, 2nd year, Research advisor (July 2013 – May 2016)
15. Charles Liu, Volunteer and Stanford SIMR program, Research advisor (January 2012 – January 2014)
16. Andrew Liu, Stanford SIMR program, Research advisor (June 2010 - April 2011)

Publications

Manuscripts under review/revision

1. Denis Dermadi*, Laurynas Kalesinskas*, Ananthakrishnan Ganesan*, Alex Kuo, Peggie Cheung, Sarah Cheng, Mai Dvorak, Thomas Scriba, Aida Habtezion, Michele Donato, Paul J Utz[§], **Purvesh Khatri**[§]. *Crosstalk of histone modifications in the healthy human immune system.* (under review). *Co-first authors, [§]Co-senior authors.
2. CJ Walsh, J Batt, M.S. Herridge, S. Mathur, GD Bader, P Hu, **P Khatri**, and CC. dos Santos* Submitted on behalf of the MEND-ICU Group and Canadian Critical Care Translational Biology Group. *Comprehensive multi-cohort transcriptional meta-analysis of muscle diseases identifies a signature of disease severity.* (under revision).
3. Aram J. Krauson*, Steven Schaffert*, Elisabeth M. Walczak, Jonathan M. Nizar, Gwen M. Holdgate, Sonali Iyer, Ragwa Elsayed, Alexandre Gaudet, **Purvesh Khatri**[§], Vivek Bhalla[§]. *Proximal and distal nephron-specific adaptation to Furosemide.* (under review) [§]Co-senior authors, *Co-first authors.

Peer-reviewed Journal Publications (original contributions; PubMed indexed) 2023

4. Rushika Pandya, Yudong D. He, Timothy E. Sweeney, Yehudit Hasin-Brumshtein[§], Purvesh Khatri[§]. *A machine learning classifier using 33 host immune response mRNAs accurately distinguishes viral and non-viral acute respiratory illnesses in nasal swab samples*. *Genome Medicine* 2023 (in press). [§]Co-senior authors
5. Sayantani B Sindher, Andrew R Chin, Nima Aghaeepour, Lawrence Prince, Holden Maecker, Gary M Shaw, David K Stevenson, Kari C Nadeau, Michael Snyder, Purvesh Khatri, Scott D Boyd, Virginia D Winn, Martin S Angst, R Sharon Chinthrajah. *Advances and potential of omics studies for understanding the development of food allergy*. *Frontiers in Food Allergy* 2023, 4:1149008.
6. Yiran E Liu, Patricia A. Darrah, Joseph J. Zeppa, Megha Kamath, Farida Laboune, Daniel C. Douek, Pauline Maiello, Mario Roederer, JoAnne L. Flynn, Robert A. Seder, **Purvesh Khatri**. *Blood Transcriptional Correlates of BCG-Induced Protection Against Tuberculosis in Rhesus Macaques*. *Cell Reports Medicine* 2023:101096.
7. Benjamin D Solomon, Hong Zheng, Laura W Dillon, Jason D. Goldman, Christopher S Hourigan, James R. Heath, **Purvesh Khatri**. *Prediction of HLA genotypes from single-cell transcriptome data*. *Frontiers in Immunology* 2023, 14:1146826.
8. Oihane Erice, Shruthi Narayanan, Iker Feliu, Rodrigo Entrialgo-Cadierno, Antonia Malinova, Caterina Vicentini, Elizabeth Guruceaga, Pietro Delfino, Marija Trajkovic-Arsic, Haritz Moreno, Karnele Valencia, Ester Blanco, Irati Macaya, Daniel Öhlund, **Purvesh Khatri**, Fernando Lecanda, Aldo Scarpa, Jens T Siveke, Vincenzo Corbo, Mariano Ponz-Sarvisé, Silve Vicent. *LAMC2 Regulates Key Transcriptional and Targetable Effectors to Support Pancreatic Cancer Growth*. *Clinical Cancer Research* 2023, 29(6):1137-1154.
9. Maureen Ty, Shenghuan Sun, Perri C. Callaway, John Rek, Kathleen D. Press, Kattria van der Ploeg, Jason Nideffer, Zicheng Hu, Sandy Klemm, William Greenleaf, Michele Donato, Stephen Tukwasibwe, Emmanuel Arinaitwe, Felistas Nankya, Kenneth Musinguzi, Dean Andrew, Lauren de la Parte, Diego Martinez Mori, Savannah N. Lewis, Saki Takahashi, Isabel Rodriguez-Barraquer, Bryan Greenhouse, Catherine Blish, PJ Utz, **Purvesh Khatri**, Grant Dorsey, Moses Kamya, Michelle Boyle, Margaret Feeney, Isaac Ssewanyana, Prasanna Jagannathan. *Malaria-driven expansion of adaptive-like functional CD56-negative NK cells correlates with clinical immunity to malaria*. *Science Translational Medicine* 2023, 15(680):eadd9012.
10. Maryam Shojaei, Uan-I Chen, Uros Medic, Sally Teoh, Simone Thair, Anthony McLean, Timothy E. Sweeney, Matthew Thompson, Oliver Liesenfeld[§], **Purvesh Khatri**[§], Benjamin Tang[§]. *Multi-site validation of a host response signature for predicting likelihood of bacterial and viral infections in patients with suspected influenza*. *European Journal of Clinical Investigation* 2023 (in press). [§]Co-senior authors.
11. Ananthakrishnan Ganesan*, Denis Dermadi*, Laurynas Kalesinskas*, Michele Donato*, Rosalie Sowers, Paul J. Utz, **Purvesh Khatri**. *Imputing abundances and inferring direction of associations between histone modifications using neural processes*. *iScience* 2023, 26(1):105756. *Co-first authors.
12. Burcu Ayoglu*, Michele Donato*, Leslie Crofford, Daniel Furst, Ellen Goldmuntz, Lynette Keyes-Elstein, Maureen Mayes, Peter McSweeney, Richard Nash, Keith Sullivan, Beverly Welch, Ashley Pinckney, Rong Mao, Lorinda Chung, **Purvesh Khatri**[§], Paul Utz[§]. *Characterizing the autoantibody repertoire in systemic sclerosis following myeloablative hematopoietic stem cell transplantation*. *Annals of Rheumatic Diseases* 2023. *Co-first authors, [§]Co-senior authors.
13. Lawrence Bai*, Denis Dermadi*, Laurynas Kalesinskas*, Mai Dvorak, Sarah E. Chang, Ananthakrishnan Ganesan, Alex Kuo, Peggie Cheung, Michele Donato, Paul J. Utz[§], Aida Habtezion[§], and **Purvesh Khatri**[§]. *Single-cell landscape of histone post-translational modifications in peripheral immune cells in inflammatory bowel diseases*. *Journal of Crohn's and Colitis* 2023 (in press). [§]Co-senior authors.

2022

14. Aditya M Rao*, Stephen J Popper*, Viengmon Davong, Krista Vaidya, Anisone Chanthongthip, Sabine Dittrich, Matthew T Robinson, Manivanh Vongsouvath, Mayfong Mayxay, Pruksa Nawtaisong, Biraj

Karmacharya, Simone A Thair, Isaac Bogoch, Timothy E Sweeney, Paul N Newton, Jason R Andrews, David A Relman[§], **Purvesh Khatri**[§]. *A robust host-response-based signature distinguishes bacterial and viral infections across diverse global populations. Cell Reports Medicine* 2022, 3(12):100842. [§]Co-senior authors. *Co-first authors.

15. Rachel J. Hagey, Menashe Elazar, Edward A. Pham, Siqi Tian, Lily Ben-Avi, Claire Bernardin-Souibgui, Matthew F. Yee, Fernando R. Moreira, Meirav Vilan Rabinovitch, Rita M. Meganck, Benjamin Fram, Aimee Beck, Scott A. Gibson, Grace Lam, Josephine Devera, Wipapat Kladwang, Khanh Nguyen, Anming Xiong, Steven Schaffert, Talia Avisar, Ping Liu, Arjun Rustagi, Carl J. Fichtenbaum, Phillip S. Pang, **Purvesh Khatri**, Chien-Te Tseng, Jeffery K. Taubenberger, Catherine A. Blish, Brett L. Hurst, Timothy P. Sheahan, Rhiju Das & Jeffrey S. Glenn. *Programmable antivirals targeting critical conserved viral RNA secondary structures from influenza A virus and SARS-CoV-2. Nature Medicine* 2022, 28(9):1944–1955.
16. Andrea C Bohrer, Ehydel Castro, Claire E Tocheny, Maike Assmann, Benjamin Schwarz, Eric Bohrsen, Michelle A Makiya, Fanny Legrand, Kerry L Hilligan, Paul J Baker, Flor Torres-Juarez, Zhidong Hu, Hui Ma, Lin Wang, Liangfei Niu, Zilu Wen, Sang H Lee, Olena Kamenyeva, Tuberculosis Imaging Program, Keith D Kauffman, Michele Donato, Alan Sher, Daniel L Barber, Laura E Via, Thomas J Scriba, **Purvesh Khatri**, Yanzheng Song, Ka-Wing Wong, Catharine M Bosio, Amy D Klion, Katrin D Mayer-Barber. *Rapid GPR183-mediated recruitment of eosinophils to the lung after Mycobacterium tuberculosis infection. Cell Reports* 2022, 40(4):111144.
17. Laurynas Kalesinskas, Sanjana Gupta, and **Purvesh Khatri**. *Increasing reproducibility, robustness, and generalizability of biomarker selection from meta-analysis using Bayesian methodology. PLOS Computational Biology* 2022, 18(6):e1010260.
18. Melodi Anahtar, Leslie W. Chan, Henry Ko, Aditya Rao, Ava P. Soleimany, **Purvesh Khatri**[§], Sangeeta N. Bhatia[§]. *Host protease activity classifies pneumonia etiology. Proceedings of the National Academy of Sciences USA* 2022, 119(25):e2121778119. [§]Co-senior authors.
19. Yiran E. Liu*, Sirle Saul*, Aditya Manohar Rao, Makeda Lucretia Robinson, Olga Lucia Agudelo Rojas, Ana Maria Sanz, Michelle Verghese, Daniel Solis, Mamdouh Sibai, ChunHong Huang, Malaya Kumar Sahoo, Rosa Margarita Gelvez, Nathalia Bueno, Maria Isabel Estupiñan Cardenas, Luis Angel Villar Centeno, Elsa Marina Rojas Garrido, Fernando Rosso, Michele Donato, Benjamin A. Pinsky, Shirir Einav[§], **Purvesh Khatri**[§]. *An 8-gene machine learning model outperforms clinical warning signs for predicting severe dengue progression. Genome Medicine* 2022, 14:33. [§]Co-senior authors, *Co-first authors.
20. Juan Aguilera, Xiaorui Han, Shu Cao, John Balmes, Fred Lurmann, Tim Tyner, Liza Lutzker, Elizabeth Noth, S Katharine Hammond, Vanitha Sampath, Trevor Burt, PJ Utz, **Purvesh Khatri**, Nima Aghaeepour, Holden Maecker, Mary Prunicki, Kari Nadeau. *Increases in ambient air pollutants during pregnancy are linked to increases in methylation of IL4, IL10, and IFNγ. Clinical Epigenetics* 2022, 14:40.
21. Chunfeng Li, Audrey Lee, Lilit Grigoryan, Prabhu S. Arunachalam, Madeleine K. D. Scott, Meera Trisal, Florian Wimmers, Mrinmoy Sanyal, Payton A. Weidenbacher, Yupeng Feng, Julia Z. Adamska, Erika Valore, Yanli Wang, Rohit Verma, Noah Reis, Diane Dunham, Ruth O'Hara, Helen Park, Wei Luo, Alexander D. Gitlin, Peter Kim, **Purvesh Khatri**, Kari C. Nadeau and Bali Pulendran. *Mechanisms of innate and adaptive immunity to the Pfizer-BioNTech BNT162b2 vaccine. Nature Immunology* 2022, 23(4):543-555.
22. Guangbo Chen, Gail Deutsch, Grant Schulert, Hong Zheng, SoRi Jang, Bruce Trapnell, Claudia Macaubas,⁶ Katherine Ho,^{1,2} Corinne Schneider,⁷ Vivian E. Saper,⁸ Adriana Almeida de Jesus,⁹ Mark Krasnow, Alexei Grom, Raphaela Goldbach-Mansky, **Purvesh Khatri**[§], Elizabeth D, Mellins[§], Scott W. Canna[§]. *Serum proteome analysis of systemic JIA and related pulmonary alveolar proteinosis identifies distinct inflammatory programs. Arthritis & Rheumatology* 2022, 74(7):1271-1283. [§]Co-senior authors.
23. Neeraja Ravi, Sarah E. Chang, Luis M. Franco, Sandesh C. S. Nagamani, **Purvesh Khatri**, Paul J. Utz, Shan X. Wang. *Measuring Influenza Host Response to Infection using GMR biosensor array. Biosensors and Bioelectronics* 2022, 205:114086.
24. Yehudit Hasin-Brumshtein, Suraj Sakaram, **Purvesh Khatri**, Yudong He, Timothy E Sweeney. *A Robust Gene Expression Signature for NASH in Liver Expression. Scientific Reports* 2022, 12:2571.

25. Kathleen D. Kolstad*, Avani Khatri*, Michele Donato, Sarah Chang, Shufeng Li, Virginia D. Steen, Paul J. Utz, **Purvesh Khatri** and Lorinda Chung. *Cytokine signatures differentiate systemic sclerosis patients at high versus low risk for pulmonary arterial hypertension. Arthritis Research & Therapy* 2022, 24:39. *Co-first authors
26. Dharmesh Hirani, Cristina M. Alvira, Soula Danopoulos, Carlos Milla, Michele Donato, Lu Tian, Jasmine Mohr, Katharina Dinger, Christina Vohlen, Jaco Selle, Silke v. Koningsbruggen-Rietschel, Verena Barbarino, Christian Pallasch, Stefan Rose-John, Margarete Odenthal, Gloria S. Pryhuber, Siavash Mansouri, Rajkumar Savai, Werner Seeger, **Purvesh Khatri**, Denise Al Alam, Jörg Dötsch, Miguel A. Alejandre Alcazar. *Macrophage-derived IL-6 trans-signaling as a novel target in the pathogenesis of bronchopulmonary dysplasia. European Respiratory Journal* 2022, 59:2002248.
27. Audrey Lee*, Madeleine KD Scott*, Florian Wimmers, Prabhu S Arunachalam, Wei Luo, Christopher B. Fox, Mark Tomai, **Purvesh Khatri**[§], Bali Pulendran[§]. *A molecular atlas of innate immunity to adjuvanted and live attenuated vaccines, in mice. Nature Communications* 2022, 13:549. [§]Co-senior authors. *Co-first authors.
28. Erin F. McCaffrey, Michele Donato, Leeat Keren, Zhenghao Chen, Megan Fitzpatrick, Alea Delmastro, Noah F. Greenwald, Alex Baranski, William Graf, Rashmi Kumar, Marc Bosse, Christine Camacho, Pratista K. Ramdial, Erna Forgo, Vladimir Jovic, David Van Valen, Sean C. Bendall, Matt van de Rijn, Daniel Kalman, Deepak Kaushal, Robert L. Hunter, Niaz Banaei, Adrie J.C. Steyn, **Purvesh Khatri**, Michael Angelo. *The immunoregulatory landscape of human tuberculosis granulomas. Nature Immunology* 2022, 23(2):318-329.
29. Ljubomir Buturovic*, Hong Zheng*, Benjamin Tang, Kevin Lai, Win Sen Kuan, Mark Gillett, Rahul Santram, Maryam Shojaei, Raquel Almansa, Jose Angel Nieto, Sonsoles Muñoz, Carmen Herrero, Nikolaos Antonakos, Panayiotis Koufargyris, Marina Kontogiorgi, Georgia Damoraki, Oliver Liesenfeld, James Wacker, Uros Midic, Roland Luethy, David Rawling, Melissa Remmel, Sabrina Coyle, Yiran E. Liu, Aditya M Rao, Denis Dermadi, Jiaying Toh, Lara Murphy Jones, Michele Donato, **Purvesh Khatri**[§], Evangelos J. Giamarellos-Bourboulis[§], Timothy E Sweeney[§]. *A 6-mRNA host response whole-blood classifier trained on pre-pandemic data accurately predicts severity in COVID-19 and other acute viral infections. Scientific Reports* 2022, 12(1):889. [§]Co-senior authors, *Co-first authors.
30. Afroza Akter, Tasnuva Ahmed, Imam Tauheed, Marjahan Akhtar, Sadia Isfat Ara Rahman, Fatema Khaton, Faisal Ahmmed, Jannatul Ferdous, Mokibul Hassan Afrad, Zannat Kawser, Mohabbat Hossain, Rabeya Khondaker, Mohammad Abul Hasnat, Mostafa Aziz Sumon, Asif Rashed, Shuvro Ghosh, Stephen B. Calderwood, Richelle C. Charles, Edward T. Ryan, **Purvesh Khatri**, Holden Terry Maecker, Gerlinde Obermoser, Bali Pulendran, John D. Clemens, Sayera Banu, Tahmina Shirin, Regina C. LaRocque, Jason B. Harris, Taufiqur Rahman Bhuiyan, Fahima Chowdhury, Firdausi Qadri. *Disease characteristics and serological responses in patients with differing severity of COVID-19 infection: A longitudinal cohort study in Dhaka, Bangladesh. PLOS Neglected Tropical Diseases* 2022, 16(1):e0010102.

2021

31. Lauren E. Higdon*, Steven Schaffert*, Rachel H. Cohen, Maria E. Montez-Rath, Marc Lucia, Naresha Saligrama, Kenneth B. Margulies, Olivia M. Martinez, Jane C. Tan, Mark M. Davis, **Purvesh Khatri**[§], Jonathan S. Maltzman[§]. *Functional consequences of memory inflation after solid-organ transplantation. Journal of Immunology* 2021, 207(8):2086-2095. [§]Co-senior authors, *Co-first authors
32. Lauren E. Higdon*, Steven Schaffert*, Huang Huang, Maria E. Montez-Rath, Marc Lucia, Alok Kumar Jha, Naresha Saligrama, Kenneth B. Margulies, Olivia M. Martinez, Mark M. Davis, **Purvesh Khatri**[§], Jonathan S. Maltzman[§]. *Evolution of cytomegalovirus-responsive T cell clonality following solid-organ transplantation. Journal of Immunology* 2021, 207(8):2077-2085. [§]Co-senior authors, *Co-first authors
33. Prabhu S. Arunachalam*, Madeleine K. D. Scott*, Thomas Hagan*, Chunfeng Li, Florian Wimmers, Yupeng Feng, Lilit Grigoryan, Meera Trisal, Venkata Viswanadh Edara, Lilin Lai, Sarah Esther Chang, Allan Feng, Shaurya Dhingra, Mihir Shah, Allie Skye Lee, Natalia Sigal, Sangeeta Kowli, Sheena Gupta, Kathryn Pellegrini, Sofia Maysel-Auslender, Steven Bosinger, Holden T. Maecker, Scott D. Boyd, Mark M. Davis, Paul J. Utz, Mehul S. Suthar, **Purvesh Khatri**[§], Kari C. Nadeau[§], Bali Pulendran[§]. *Systems*

biological assessment of human immunity to BNT162b2 mRNA vaccination. Nature 2021, 596:410–416. [§]Co-senior authors. *Co-first authors

34. Lawrence Bai*, Madeleine KD Scott*, Ethan Steinberg, Aida Habtezion, Nigam Shah, **Purvesh Khatri**. *Molecular and clinical data integration identifies protective effects of atorvastatin in patients with Ulcerative Colitis. Journal of the American Medical Informatics Association* 2021, 28(11):2325–2335.
35. Alexandra J. Zimmer*, Samuel G. Schumacher*, Erik Södersten, Anna Mantsoki, Romain Wyss, David H. Persing, Sara Banderby, Linda Strömqvist Meuzelaar, Jacqueline Prieto, Devasena Gnanashanmugam, **Purvesh Khatri**, Stefano Ongarello, Morten Ruhwald[§], Claudia M. Denking[§]. *A novel blood-based assay for treatment monitoring of tuberculosis. BMC Research Notes* 2021, 14:247. [§]Co-senior authors, *Co-first authors
36. Andrew R Moore, Jonasel Roque, Brian T Shaller, Tola Asuni, Melissa Rimmel, David Rawling, Oliver Liesenfeld, **Purvesh Khatri**, Jennifer G Wilson, Joseph E Levitt, Timothy E Sweeney, Angela J Rogers. *Prospective validation of an 11-gene mRNA host response score for mortality risk stratification in the intensive care unit. Scientific Report* 2021,11:13062.
37. Florian Wimmers, Michele Donato*, Alex Kuo*, Tal Ashuach*, Shakti Gupta, Chunfeng Li, Mai Dvorak, Mariko Hinton Foecke, Sarah E. Chang, Sanne E. De Jong, Holden T. Maecker, Robbert van der Most, Peggie Cheung, Mario Cortese, Thomas L. Hagan, Steve Bosinger, Mark Davis, Nadine Roupheal, Shankar Subramaniam, Nir Yosef, Paul J. Utz, **Purvesh Khatri**, Bali Pulendran. *Single-cell analysis of the epigenomic and transcriptional landscape of innate immunity to seasonal and adjuvanted pandemic influenza vaccination in humans. Cell* 2021, 184:1-21.
38. Peggie Cheung*, Steven Schaffert*, Sarah E. Chang*, Mai Dvorak, Michele Donato, Claudia Macaubas, Mariko H. Foecke, Tie-Mei Li, Lichao Zhang, John P. Coan, Grant S. Schulert, Alexei A. Grom, Lauren A. Henderson, Peter A. Nigrovic, Joshua E. Elias, Or Gozani, Elizabeth D. Mellins[§], **Purvesh Khatri**[§], Paul J. Utz[§], Alex J. Kuo[§]. *Repression of CTSG, ELANE, AND PRTN3-mediated histone H3 proteolytic cleavage promotes monocyte-to-macrophage differentiation. Nature Immunology* 2021, 22:711-722. (accepted for publication). [§]Co-senior authors. *Co-first authors
39. Francesco Vallania, Liron Zisman, Claudia Macaubas, Shu-Chen Hung, Narendiran Rajasekaran, Sonia Mason, Jonathan Graf, Mary Nakamura, Elizabeth D. Mellins[§] and **Purvesh Khatri**[§]. *Multicohort Analysis Identifies Monocyte Gene Signatures to Accurately Monitor Subset-Specific Changes in Human Diseases. Frontiers in Immunology* 2021, 12:1732. [§]Co-senior authors
40. Mingxia Gu, Michele Donato, Minzhe Guo, Neil Wary, Yifei Miao, Shuai Mao, Toshie Saito, Shoichiro Otsuki, Lingli Wang, Rebecca L. Harper, Silin Sa, **Purvesh Khatri**, Marlene Rabinovitch. *Phenotypic drug screening in iPSC-endothelial cells within silico analyses identifies tyrophostin AG1296 for pulmonary arterial hypertension. Science Translational Medicine* 2021, 13:eaba6480.
41. Simone Thair*, Caspar Mewes*, José Hinz, MD, Ingo Bergmann, Benedikt Büttner, Stephan Schmisch, Konrad Meissner, Michael Quintel, Timothy E Sweeney, **Purvesh Khatri**[§] and Ashham Mansur[§]. *Gene-expression based diagnosis of infections in critically ill patients – prospective validation of the SepsisMetaScore in a longitudinal severe trauma cohort. Critical Care Medicine* 2021, 49(8):e751-e760. *Co-first authors. [§]Co-senior authors
42. Cesar J. Lopez Angel, Edward A. Pham, Huixun Du, Francesco Vallania, Benjamin J. Fram, Kevin Perez, Thai Nguyen, Yael Rosenberg-Hasson, Aijaz Ahmed, Cornelia L. Dekker, Philip M. Grant, **Purvesh Khatri**, Holden T. Maecker, Jeffrey S. Glenn, Mark M. Davis and David Furman. *Signatures of immune dysfunction in HIV and HCV infection share features with chronic inflammation in aging and persist after viral reduction or elimination. Proceedings of the National Academy of Sciences* 2021, 18(14):e2022928118.
43. Hong Zheng*, Aditya M Rao*, Denis Dermadi*, Jiaying Toh*, Lara Murphy Jones*, Michele Donato*, Yiran Liu, Yapeng Su, Minas Karagiannis, Theodoros Marantos, Yehudit Hasin-Brumshtein, Yudong D He, Evangelos J Giamarellos-Bourboulis, Jim Heath, **Purvesh Khatri**. *Multi-cohort analysis of host immune response identifies conserved protective and detrimental modules associated with severity across viruses. Immunity* 2021, 54:753-768.
44. Flora Martinez Figueira Moreira, Renu Verma, Paulo Cesar Pereira dos Santos, Alessandra Leite, Andrea da Silva Santos, Rafaela Carla Pivetta de Araujo, Bruna Oliveira da Silva, Júlio Henrique Ferreira de Sá

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114. Nadine S. Jahchan, Joel T. Dudley, Pawel K. Mazur, Natasha Flores, Dian Yang, Alec Palmerton, Anne-Flore Zmoos, Dedeepya Vaka, Kim Q.T. Tran, Margaret Zhou, Karolina Krasinska, Jonathan W. Riess, Joel W. Neal, **Purvesh Khatri**, Kwon S. Park, Atul J. Butte, and Julien Sage. *A Drug Repositioning Approach Identifies Tricyclic Antidepressants as Inhibitors of Small Cell Lung Cancer and Other Neuroendocrine Tumors*. *Cancer Discovery* 2013, 3(12): 1364-1377.
115. **Purvesh Khatri**, Silke Roedder, Naoyuki Kimura, Alexander A Morgan, Matthew Vitalone, Michael P Fischbein, Robert C Robbins, Atul J Butte and Minnie M Sarwal. *Gene expression meta-analysis identifies core immune response module and suggests novel therapeutics in solid organ transplant rejection*. *Journal of Experimental Medicine* **2013**, 210:2205-2221.
116. Silvestre Vincent, Leanne C. Sayles, Dedeepya Vaka, **Purvesh Khatri**, Olivier Gevaert, Ron Chen, Yanyan Zheng, Anna K. Gillespie, Nicole Clarke, Yue Xu, Joseph Shrager, Choang Hoang, Sylvia Plevritis, Atul Butte, E. Alejandro Sweet-Cordero. *Cross-species functional analysis of cancer-associated fibroblasts identifies a critical role for CLCF1 and IL6 in non-small cell lung cancer in vivo*. *Cancer Research* 2012, 72(22):5744-5756.
117. Li Li*, **Purvesh Khatri***, Tara Sigdel*, Tim Tran, *et al.* *A Five-Gene Peripheral Blood Diagnostic Test for Acute Rejection in Renal Transplantation*. *American Journal of Transplantation* 2012, 12(10): 2710-2718. (Identified as “a landmark in furthering diagnosis of acute rejection in renal transplant” in the accompanying Editorial.) *Co-first authors.
118. Tara K Sigdel, Li Li, Tim Q Tran, **Purvesh Khatri**, Maarten Naesens, Poonam Sansanwal, Hong Dai, Szu-chuan Hsieh, and Minnie Sarwal. *Non-HLA Antibodies to Immunogenic Epitopes Predict the Evolution of Chronic Renal Allograft Injury*. *Journal of the American Society of Nephrology* 2012, 23 (4):750-763.
119. Tara Sigdel, Sang Woo, Hong Dai, **Purvesh Khatri**, Bryan Myers, Minnie Sarwal, Richard Lafayette. *Integrative Antibiotics Identifies Novel Autoantibody Biomarkers for IgA nephropathy*. *Clinical Journal of the American Society of Nephrology* 2011, 6(12):2775-2784.
120. Maarten Naesens, **Purvesh Khatri**, Li Li, Tara Sigdel, Rong Chen, Atul Butte, Oscar Silvatierrez, Minnie Sarwal. *Progressive histological damage in renal allografts is associated with expression of innate and adaptive immunity genes*. *Kidney International* 2011, 80:1364-1376.
121. Alexander A. Morgan, **Purvesh Khatri**, Richard Hayden Jones, Minnie M. Sarwal, and Atul J. Butte. *Comparison of Multiplex Meta-analysis Techniques for Understanding the Acute Rejection of Solid Organ Transplants*. *BMC Bioinformatics* 2010, 11(Suppl 9):S6.
122. Larry A. Sonna, Matthew M. Kuhlmeier, **Purvesh Khatri**, Dechang Chen, and Craig M. Lilly. *A microarray analysis of the effects of moderate hypothermia and rewarming on gene expression by human hepatocytes (HepG2)*. *Cell Stress and Chaperones* 2010, 15(5):687-702.
123. Kumaran Kandasamy *et al.* *NetPath: a public resource of curated signal transduction pathways*. *Genome Biology* **2010**, 11(1): R3.
124. Shai Shen-Orr*, Robert Tibshirani*, **Purvesh Khatri**, Dale Bodian, Frank Staedtler, Nicholas M. Perry, Trevor Hastie, Lihua Ying, Minnie M. Sarwal, Mark M. Davis, and Atul J. Butte. *A Method to systematically identify Cell-Type-Specific Differential Gene Expression from Complex Tissues*. *Nature Methods* 2010, 7(4):287-289.
125. Adi Laurentiu Tarca, Sorin Draghici, **Purvesh Khatri**, Sonia S Hassan, Pooja Mittal, Jung-Sun Kim, Chong Jai Kim, Juan Pedro Kusanovic, and Roberto Romero. *A Novel Signaling Pathway Impact Analysis (SPLA)*. *Bioinformatics* 2009, 25(1):75-82.
126. Bogdan Done, **Purvesh Khatri**, Arina Done, Sorin Draghici. *Predicting novel human gene ontology annotations using semantic analysis*. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* 2008, 7(1):91-99.
127. Sorin Draghici, **Purvesh Khatri**, Adi Laurentiu Tarca, Kashyap Amin, Arina Done, Calin Voichita, Constantin Georgescu and Roberto Romero. *A systems biology approach for pathway level analysis*. *Genome Research* 2007, 17(10):1537-1545.

128. **Purvesh Khatri**, Calin Voichita, Khalid Kattan, Nadeem Ansari, Avani Khatri, Constantin Georgescu, Adi Laurentiu Tarca, Sorin Draghici. *Onto-Tools: New Additions and Improvements in 2006*. *Nucleic Acids Research* 2007, 35:W206-W211.
129. **Purvesh Khatri**, Dechang Chen, Jaques Reifman, Larry Sonna. *Software Tool for Analysis of Variance of DNA Microarray Data*. U.S. Army Research Institute of Environmental Medicine Technical Report T03-1. Natick, MA 01760-5007.
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132. **Purvesh Khatri**, Bogdan Done, Archana Rao, Arina Done, and Sorin Draghici. *A semantic analysis of the annotations of the human genome*. *Bioinformatics* 2005, 21(16):3416-3421.
133. **Purvesh Khatri**, Sivakumar Sellamuthu, Pooja Malhotra, Kashyap Amin, Arina Done, and Sorin Draghici. *Recent additions and improvements to the Onto-Tools*. *Nucleic Acids Research* 2005, 33:W762-W765.
134. Sorin Draghici*, **Purvesh Khatri***, Yanhong Liu, Kitty J. Chase, Elizabeth A. Bode, David A. Kulesh, Leonard P. Wasieloski, David A. Norwood, and Jaques Reifman. *Identification of Genomic Signatures for the Design of Assays for the Detection and Monitoring of Anthrax Threats*. *Pacific Symposium on Biocomputing* 2005, 2480-259. *Joint first authors.
135. **Purvesh Khatri**, Pratik Bhavsar, Gagandeep Bawa, and Sorin Draghici. *Onto-Tools: An ensemble of web-accessible, ontology based tools for the functional design and interpretation of high throughput gene expression experiments*. *Nucleic Acids Research* 2004, 32:W449-W456.
136. Sorin Draghici, **Purvesh Khatri**, Pratik Bhavsar, Abhik Shah, Stephen A. Krawetz, and Michael Tainsky. *Onto-Tools, the toolkit of the modern biologist: Onto-Express, Onto-Compare, Onto-Design and Onto-Translate*. *Nucleic Acids Research* 2003, 31(13):3775-3781.
137. Sorin Draghici, **Purvesh Khatri**, Abhik Shah, and Michael Tainsky. *Assessing the functional bias of commercial microarrays using the Onto-Compare database*. *Biotechniques* 2003, Suppl:55-61.
138. Sorin Draghici, **Purvesh Khatri**, Rui P. Martins, G. Charles Ostermeier, and Stephen A. Krawetz. *Global functional profiling of gene expression*. *Genomics* 2003, 81(2):98-104.
139. G. Charles Ostermeier, David J. Dix, David Miller, **Purvesh Khatri**, and Stephen A. Krawetz. *Spermatozoal RNA profiles of normal fertile men*. *Lancet* 2002, 360(9335):772-777.
140. **Purvesh Khatri**, Sorin Draghici, G. Charles Ostermeier, and Stephen A. Krawetz. *Profiling Gene Expression Utilizing Onto-Express*. *Genomics* 2002, 79(2):266-270.

Peer-reviewed Journal Publications (Reviews, Perspectives, and Editorials)

141. Kalani Ratnasiri, Aaron J Wilk, Madeline J Lee, **Purvesh Khatri**[§], Catherine Blish[§]. *Single-cell RNA-seq methods to interrogate virus-host interactions*. *Seminars in Immunopathology* 2022. [§]Co-senior authors.
142. Kerui Peng, Yana Safonova, Mikhail Shugay, Alice Popejoy, Oscar L Rodriguez, Felix Breden, Petter Brodin, Amanda M Burkhardt, Carlos Bustamante, Van-Mai Cao-Lormeau, Martin M Corcoran, Darragh Duffy, Macarena Fuentes Guajardo, Ricardo Fujita, Victor Greiff, Vanessa D Jönsson, Xiao Liu, Lluís Quintana-Murci, Maura Rossetti, Jianming Xie, Gur Yaari, Wei Zhang, Malak S Abedalthagafi, Khalid O Adekoya, Rahaman A Ahmeda, Wei-Chiao Chang, Clive Gray, Yusuke Nakamura, William D Lees, **Purvesh Khatri**, Houda Alachkar, Cathrine Scheepers, Corey T Watson, Gunilla B Karlsson Hedestam, Serghei Mangul. *Diversity in immunogenomics: the value and the challenge*. *Nature Methods* 2021, 18:588-591.
143. Lara Murphy Jones and **Purvesh Khatri**. *Multisystem Inflammatory Syndrome in Children (MIS-C): a microcosm of challenges and opportunities for translational bioinformatics in pediatrics research*. *Current Opinions in Pediatrics* 2021, 33(3):325-330.

144. Eli M Cahan and **Purvesh Khatri**. *Data Heterogeneity: The Enzyme to Catalyze Translational Bioinformatics?* *Journal of Medical Internet Research* 2020, 22(8):e18044.
145. Peggie Cheung, **Purvesh Khatri**, Paul J Utz, Alex Kuo. *Single-cell technologies — studying rheumatic diseases one cell at a time*. *Nature Reviews Rheumatology* 2019, 15:340-354.
146. Steven Schaffert, **Purvesh Khatri**. *Early life immunity in the era of systems biology: understanding development and disease*. *Genome Medicine* 2018, 10:88.
147. Charles S. Dela Cruz, Richard G. Wunderink, David C. Christiani, Stephania A. Cormier, Kristina Crothers, Claire M. Doerschuk, Scott E. Evans, Daniel R. Goldstein, **Purvesh Khatri**, Lester Kobzik, Jay K. Kolls, Bruce D. Levy, Mark L. Metersky, Michael S. Niederman, Roomi Nusrat, Carlos J. Orihuela, Paula Peyrani, Alice S. Prince, Julio A. Ramírez, Karen M. Ridge, Sanjay Sethi, Benjamin T. Suratt, Jacob I. Sznajder, Ephraim L. Tsalik, Allan J. Walkey, Sachin Yende, Neil R. Aggarwal, Elisabet V. Caler, Joseph P. Mizgerd. *Future Research Directions in Pneumonia: NHLBI Working Group Report*. *American Journal of Respiratory and Critical Care Medicine* 2018, 198(2):256-263.
148. Timothy E Sweeney and **Purvesh Khatri**. *Generalizable biomarkers in critical care: toward precision medicine*. *Critical Care Medicine* 2017, 45(6):934-939.
149. Timothy E Sweeney and **Purvesh Khatri**. *Septic Cardiomyopathy: Getting to the Heart of the Matter*. *Critical Care Medicine* 2017, 45(3):556-557.
150. Timothy E Sweeney and **Purvesh Khatri**. *Hospital-acquired Pneumonia: A Host of Factors*. *American Journal of Respiratory and Critical Care Medicine* 2017, 194(11):1309-1311.
151. **Purvesh Khatri**, Marina Sirota, and Atul J. Butte. *10 years of Functional Pathway Analysis: Current Approaches and Unaddressed Challenges*. *PLoS Computational Biology* 2012, 8(2):e1002375.
152. **Purvesh Khatri**, Minnie Sarwal, Atul Butte. *Applications of Translational Bioinformatics in Transplantation*. *Clinical Pharmacology & Therapeutics* 2011, 90(2):323-327.
153. Silke Roedder, Matthew Vitalone, **Purvesh Khatri**, and Minnie M Sarwal. *Biomarkers in solid organ transplantation: establishing personalized transplantation medicine*. *Genome Medicine* 2011, 3:37.
154. **Purvesh Khatri** and Minnie Sarwal. *Using Gene Arrays in Diagnosis of Rejection*. *Current Opinions in Organ Transplant* 2009, 14(1):34-39.
155. Sorin Draghici, **Purvesh Khatri**, Aron C. Eklund, and Zoltan Szallasi. *Reliability and reproducibility issues in DNA microarray measurements*. *Trends in Genetics* 2006, 22(2):101-109.
156. **Purvesh Khatri** and Sorin Draghici. *Ontological analysis of gene expression data: current tools, limitations, and open problems*. *Bioinformatics* 2005, 21(18):3587-3595. (Received “Fast Breaking Paper” award by ISI Thompson, <http://esi-topics.com/fbp/fbp-october2006.html>).

Book Chapters

1. **Purvesh Khatri**. *Knowledge Base-Driven Pathway Analysis*. A Bioinformatics Guide for Molecular Biologists Cold Spring Harbor Laboratory Press **2014**.
2. **Purvesh Khatri** and Minnie M Sarwal. *Functional Pathway Analysis for Understanding Immunologic Signature of Rejection: Current Approaches and Outstanding Challenges*. *Immunologic Signatures of Rejection* (Springer New York), 239-256, **2011**.
3. **Purvesh Khatri**, Sorin Draghici, Adi L. Tarca, Sonia S. Hassan, Roberto Romero. *A system biology approach for the steady-state analysis of gene signalling networks*. *Progress in Pattern Recognition, Image Analysis and Applications, Lecture Notes in Computer Science*. 4756:32-41, November **2007**
4. **Purvesh Khatri** and Sorin Draghici. *A comparison of existing tools for ontological analysis of gene expression data*. *Encyclopedia of Genetics, Genomics, Proteomics and Bioinformatics*. John Wiley & Sons. October **2005**.

Peer-reviewed Conference Publications

1. Calin Voichita, **Purvesh Khatri**, Sorin Draghici. *Identifying Uncertainty Regions in Support Vector Machines Using Geometric Margin and Convex Hulls*. IEEE World Congress on Computational Intelligence, WCCI 2008, Hong Kong, China. June 1-6, **2008**
2. **Purvesh Khatri**, Sorin Draghici, Adi L. Tarca, Sonia S. Hassan, Roberto Romero. *A system biology approach for the steady-state analysis of gene signalling networks*. 12th Iberoamerican Congress on Pattern Recognition, CIARP 2007, Valparaiso, Chile. November 13-16, **2007**
3. Bogdan Done, **Purvesh Khatri**, Arina Done, Sorin Draghici. *Semantic analysis of genome annotations using weighting schemes*. 2007 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (IEEE CIBCB 2007). Honolulu, Hawaii, April 1-5, **2007**
4. Valmik Desai, **Purvesh Khatri**, Arina Done, Aviva Friedman, Michael Tainsky, and Sorin Draghici. *A Novel Bioinformatics Technique for Predicting Condition-Specific Transcription Factor Binding Sites*. 2006 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (IEEE CIBCB 2005). San Diego, CA. November 14-15, **2005**

Conference Podium Presentations (up to 2017)

1. Francesco Vallania, Andrew Tam, Shane Lofgren, Steven Schaffert, Erika Bongen, Michael Alonso, Mark Davis, Ed Engleman and **Purvesh Khatri**. *Leveraging heterogeneity in public data to reduce bias and increase accuracy of cell-mixture deconvolution*. ISMB July 2017, Prague.
2. Winston Haynes, Rohit Vashisht, Francesco Vallania, Greg Caskins, Charles Liu, Erika Bongen, Shane Lofgren, Paul J Utz, Timothy E Sweeney, Nigam Shah, and **Purvesh Khatri**. *Understanding human disease relationships through integrated molecular and clinical analysis*. ISMB July 2017, Prague.
3. Michele Donato, Tej Deepak Azad, Line Heylen, Shai Shen-Orr, Timothy Sweeney, Maarten Naesens, **Purvesh Khatri**. *Dysregulated innate immune response is a robust marker of allograft injury and survival across all transplanted organs*. AMIA-TBI March 27, **2017**.
4. Shane Lofgren, Monique Hinchcliff, Mary Carns, Tammara Wood, Kathleen Aren, Esperanza Arroyo, Peggie Cheung, Alex Kuo, Antonia Valenzuela, Anna Haemel, Paul Wolters, Jessica Gordon, Robert Spiera, Shervin Assassi, Francesco Boin, Lorinda Chung, David Fiorentino, PJ Utz, Michael Whitfield, **Purvesh Khatri**. *Multi-cohort Analysis of Systemic Sclerosis Identifies Robust Transcriptional Signature of Disease Severity*. AMIA-TBI March 27, **2017**.
5. Erika Bongen, Francesco Vallania, PJ Utz, Timothy Sweeney, **Purvesh Khatri**. *Sex differences in immune system gene expression*. AMIA-TBI March 27, **2017**.
6. Winston Haynes, Rohit Vashisht, Francesco Vallania, Charles Liu, Greg Gaskin, Erika Bongen, Shane Lofgren, Timothy Sweeney, PJ Utz, Nigam Shah, **Purvesh Khatri**. *Understanding human disease relationships through integrated molecular and clinical analysis*. AMIA-TBI March 27, **2017**.
7. Aurelie Tomczak, Jonathan Mortensen, Rainer Winnenbourg, Winston Haynes, Charles Liu, Dominique Alessi, Francesco Vallania, Shane Lofgren, Varsha Swamy, Nigam Shah, Mark Musen, **Purvesh Khatri**. *Effect of evolution of the Gene Ontology on interpretation of experiments: implications for reproducibility*. AMIA-TBI March 27, **2017**.
8. Francesco Vallania, Andrew Tam, Shane Lofgren, Michael Alonso, Edgar Engleman, **Purvesh Khatri**. *immunoStates: a new strategy to remove platform and disease bias in cell- mixture deconvolution*. AMIA-TBI March 27, **2017**.
9. Timothy E Sweeney, Aaditya Shidham, Hector R Wong, **Purvesh Khatri**. *A Comprehensive Time-Course-Based Meta-Analysis of Sepsis and Sterile Inflammation Reveals a Robust Diagnostic Gene Set*. AMIA-TBI Mar 25, **2015**.
10. Timothy E Sweeney, Aaditya Shidham, Hector R Wong, **Purvesh Khatri**. "1002: A Comprehensive Time-Course-Based Meta-Analysis of Sepsis and Sterile Inflammation Reveals a Robust Discriminatory Gene Set". *Critical Care Medicine* 42 (12), A1601, **2014**.

11. Timothy E Sweeney, **Purvesh Khatri**. Gene Expression Can Robustly Separate Infectious and Non-Infectious Inflammation. *Journal of the American College of Surgeons* 219 (3), S43. American College of Surgeons Clinical Congress, **2014**.
12. Michael Januszzyk, Michael Sorkin, Robert C. Rennert, Geoffrey C. Gurtner, **Purvesh Khatri**, Atul J. Butte. *Identification of Transcriptionally-Defined Cancer Subpopulations Through Integration of Public Microarray Data with Single Cell Gene Expression Profiling*. AMIA 2014 Joint Summits on Translational Science, **2014**.
13. **Purvesh Khatri**. *Novel Method for Meta-analysis of Acute Rejection across Multiple Organ Data Sets Identifies a Core Immune Response Module for Repositioning Novel Therapeutics in Transplantation*. 2012 Summit on Translational Bioinformatics (TBI). San Francisco, CA, March 19-23, **2012**.
14. **Purvesh Khatri**. *A common immune response module for acute rejection across multiple organs can reposition novel therapeutics for organ transplantation*. 3rd International Conference on Transplantomics and Biomarkers in Organ Transplantation. La Jolla, CA, March 8-10, **2012**.
15. **Purvesh Khatri**, Shai Shen-Orr, Robert Tibshirani, Atul Butte, Minnie Sarwal. *Novel Cell-type Specific Deconvolution of Whole-Blood Gene Expression Profiles in Renal Acute Rejection*. American Transplant Congress, San Diego, USA, May 1-5, **2010**.
16. **Purvesh Khatri**, Richard Hayden Jones, Atul J Butte, Minnie M Sarwal. *Meta-analysis of Solid Organ Transplant Data Sets Identifies Differentially Expressed microRNAs common in Heart, Kidney and Liver Allografts*. American Transplant Congress, San Diego, USA, May 1-5, **2010**. (Selected for "Young Investigator Award")
17. **Purvesh Khatri**, Adi Laurentiu Tarca, Kashyap Amin, Arina Done, Calin Voichita, Constantin Georgescu, Roberto Romero, and Sorin Draghici. *A systems biology approach for steady-state analysis of signaling pathways*. 16th Annual International Conference on Intelligent Systems for Molecular Biology, Toronto, Canada, July 19-23, **2008**.
18. Sorin Draghici and **Purvesh Khatri**. *A systems biology approach for pathway level analysis*. Pacific Symposium on Biocomputing (PSB 2007). Wailea, Maui, January 3-7, **2007**.
19. Sorin Draghici, **Purvesh Khatri**, Constantin Georgescu, Adi Laurentiu Tarca. *A systems biology approach for pathway level analysis*. Pacific Symposium on Biocomputing (PSB 2007). Wailea, Maui, January 3-7, **2007**.
20. Sorin Draghici, Kashyap Amin, Arina Done, and **Purvesh Khatri**. *Beyond classical statistics - A systems biology approach for pathway level analysis*. 14th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), 2006. Fortaleza, Brazil, August 6-10, **2006**.
21. Sivakumar Sellamuthu, **Purvesh Khatri**, and Sorin Draghici. *Onto-Translate: Resolving name space issues in the existing biological annotation databases*. 10th Annual International Conference on Research in Computational Molecular Biology (RECOMB), Venice Lido, Italy. April 2-5, **2006**.
22. *Recent additions and improvements to the Onto-Tools*. Gene Ontology Consortium User Meeting. University of Bergen, Bergen, Norway, September 14-15, **2005**.
23. *Onto-Tools, A toolset for modern biologists: Onto-Express, Onto-Compare, Onto-Design, Onto-Translate and Onto-Miner*. Great Lakes Bioinformatics. Michigan State University, East Lansing, Michigan, Aug 19-20, **2003**.

Invited Talks (up to 2017)

1. Invited talk, 3rd international workshop on clinical tolerance, Stanford, CA. *Identification and validation of robust gene signatures for graft injury using heterogeneous public data*. September 8-9, **2017**.
2. Invited talk, 10th integrative biology symposium, Hanover, NH. *Adventures of a data parasite: accelerating translational medicine using public data*. May 23, **2017**
3. Invited talk, SystemX alliance workshop on Big Data, Diagnostic Devices and Bioelectric Interfaces in Medicine, Stanford, CA. *Leveraging heterogeneity in public data for precision medicine*. April 18, **2017**
4. Invited talk, Statistics and Genomics Seminar, University of California, Berkeley, CA. *Data Re-Use is Not Parasitism: Translational Medicine Using Public Data*. April 13, **2017**

5. Keynote, Grand Challenges India, New Delhi, India. *Igniting Young Minds: translational medicine using public data*. March 24, **2017**
6. Invited talk, CHI Molecular Tri-Conference, San Francisco, CA. *Accelerating diagnosis and therapy of infectious diseases using public heterogeneous data*. February 20-22, **2017**
7. Invited talk, Madagascar: a crucible for science, health and the environment. Stanford, CA. *Leveraging heterogeneity in public data for translational medicine*. February 8, **2017**
8. Invited talk, Pacific Symposium on Biocomputing, Big Island Hawaii, HI. *Adventures of a "data parasite": translational medicine using heterogeneous data*. January 3, **2017**
9. Invited talk, Collaborative Centers for Human Immunology, Bethesda, MD. *Translational medicine using heterogeneous public data*. November 30-December 2, **2016**
10. Invited talk, American Medical Informatics Association, Chicago, IL. *Re-use is not parasitism*. November 13, **2016**
11. Invited talk, SCOT trial meeting, American College of Rheumatology, Washington, DC. *Integrated multi-cohort analysis of SSC skin*. November 12, **2016**
12. Invited talk, Cornell University, Ithaca, NY. *Adventures of a "data parasite": accelerating translational medicine using heterogeneous data*. November 11, **2016**
13. Invited talk, Grand Challenges, London, UK. *Adventures of a "data parasite": accelerating translational medicine using heterogeneous data*. October 26, **2016**
14. Invited talk, Cepheid, Sunnyvale, CA. *Host-response diagnostics for infectious diseases using public data*. September 9, **2016**
15. Invited talk, Grand rounds, Stanford University, Stanford, CA. *Adventures of a "data parasite": accelerating translational medicine using heterogeneous data*. August 10, **2016**
16. Invited talk, EternaCon, Stanford University, Stanford, CA. *Robust 3-gene signature for diagnosis of tuberculosis using public data*. July 16, **2016**
17. Invited talk, University of Alabama, Birmingham, AL. *Integrated multi-scale analysis of public data for translational medicine*. July 14-15, **2016**
18. Invited talk, Yale Symposium on Influenza, Yale University, New Haven, CT. *Accelerating translational medicine using public data*. June 24, **2016**
19. Invited talk, Summer school for computational immunology, Yale University, New Haven, CT. *Multi-cohort analysis of gene expression data*. June 22, **2016**
20. Invited talk, Summer school for computational immunology, Yale University, New Haven, CT. *Pathway analysis: current approaches and limitations*. June 21, **2016**
21. Invited talk, Grand rounds, University of Texas, Houston, TX. *Accelerating translational medicine using public data*. June 16-17, **2016**
22. Invited talk, 17th Annual UC Systemwide Bioengineering Symposium at University of California, San Francisco, CA. *Translational medicine using publicly available heterogeneous data*. June 14, **2016**
23. Invited talk, Big data bioinformatics, GLCbio, Boston, MA. *Accelerating biomarker discovery using public data*. May 25-27, **2016**
24. Invited talk, MedImmune, Mountain View, CA. *Leveraging heterogeneity in public data for translational medicine*. May 23, **2016**
25. Invited talk, One Health Symposium, Stanford, CA. *Accelerating translational medicine using heterogeneous public data*. April 30, **2016**
26. Invited talk, Grand rounds, Division of Infectious Diseases, Stanford University, Stanford, CA. *Adventures of a "data parasite": novel diagnostics and therapies using public data*. March 31, **2016**
27. Invited talk, Biomarkers in infectious diseases, GLCbio, San Diego, CA. *Accelerating biomarker discovery using public data*. March 21-23, **2016**
28. Invited talk, Scleroderma Research Foundation, San Francisco, CA. *Integrated multi-cohort analysis of systemic sclerosis*. March **2016**
29. Invited talk, CHI Molecular Tri-Conference (session chair and talk for infectious diseases diagnosis), San Francisco, CA. *Novel diagnostic approaches in infectious diseases*. March 7-9, **2016**

30. Invited talk, Arthritis Foundation, Atlanta, GA. *Systems approach for computational immunology*. February 23-24, **2016**
31. Invited talk, Grand rounds, Northwestern University, Chicago, IL. *Accelerating translational medicine using heterogeneous public data*. February 10-12, **2016**
32. Invited talk, Grand rounds, Pulmonary and Critical Care Medicine, Stanford, CA. *Translational medicine using public data*. September 18, **2015**
33. Invited talk, Big Data in Biomedicine, Stanford, CA. *Understanding immunology using public data*. May 20-22, **2015**
34. Invited talk, Arthritis Foundation, Atlanta, GA. *Framework for integrated multi-cohort analysis of molecular data*. May 13-14, **2015**
35. Invited talk, NIH Perinatology Research Branch, Detroit, MI. *Onto-Tools: toolkit for higher level analysis of gene expression data*. May **2013**
36. Keynote, Childhood Leukemia International Consortium, University of California, Berkeley, CA. *Translational medicine using multi-scale analysis of public data: studies in cancer and drug repositioning*. October 3, **2012**
37. Invited talk, Functional Genomics Data Society (FGED), Cambridge, MA. *Meta-analysis of public domain data sets for translational medicine*. January 25-26, **2012**
38. Invited talk, Institute for Digital Biology, Mississippi State University, Starkville, MS. *Onto-Tools: a toolkit for modern biologists*. May 20-22, **2008**
39. Invited talk, US Army Medical Research and Materiel Command, Fort Detrick, MD. *Onto-Expression: tool for identifying significant processes in high throughput gene expression data*. July 18, **2003**
40. Invited talk, The Frederick Forum on Bioinformatics and Chemoinformatics, National Cancer Institute and US Army Medical Research and Materiel Command, Fort Detrick, MD. *Data analysis for microarrays*. June 24-25, **2003**

Patent Applications and Disclosures

1. Biomarker for use in prognosis of severity in dengue-infected patients (Licensed to BioMeme)
2. Biomarkers for use in prognosis of mortality in critically ill patients. US patent 10,344,332 and 10,648,033. (Licensed to Inflammatrix, Inc.)
3. Methods for diagnosis of tuberculosis. US 10,920,275. European patent 3362579. (Licensed to Cepheid)
4. Methods for diagnosis of sepsis. US patent 10,533,224, European patent 3268499. (Licensed to Inflammatrix, Inc.)
5. Protein and Gene Biomarkers for Rejection of Organ Transplants. US provisional patent no. 9,535,075. Canadian patent 2,794,255, European patent 2803735. (Licensed to Organ-i)
6. Methods for diagnosis of bacterial and viral infections. US provisional application no. 62/346,962 (Licensed to Inflammatrix, Inc.)
7. Biomarkers of ovarian cancer. US provisional patent application no. 14/914, 245. (Licensed to mProbe, Inc.)
8. Identification of new therapeutic uses for known therapeutic agents US provisional patent no. 14/361,668
9. Onto-Express: A Tool for Functional Profiling of Bioinformatics Data. January 2, 2002. US Patent Application No. 60/347,383.

Note: These disclosures to Stanford Office of Technology and Licensing amount to >20 issued patents in the USA and other jurisdictions.

Funding

Note: Amounts represent total cost per year for Dr. Khatri's group in each proposal.

ACTIVE

- Bill & Melinda Gates Foundation (Khatri, PI) 10/2014 – 09/2024 0.24 calendar
Global Health-Vaccine Accelerator Program Infrastructure
Major Goals: The goal of this project is to build a technological and computational framework for accelerating vaccine development for infectious diseases.
- Bill & Melinda Gates Foundation (Khatri, PI) 06/2021 – 09/2023 0.6 calendar
Systems Immunology analysis of COVID-19 longitudinal cohort at AHRI
Major Goals: Understanding the effects of HIV and TB co-infection on COVID-19 disease dynamics would inform the public health response and has the potential to change the response depending on whether or not HIV or TB co-infection is a risk factor for more severe disease outcome, higher levels of or longer SARS-CoV-2 shedding, or a differing immune response to infection which may also lead to differences in vaccine efficacy
- Bill & Melinda Gates Foundation (Khatri, PI) 06/2021 – 09/2023 0.6 calendar
Malaria as a risk factor for COVID-19 in western Kenya and Burkina Faso
Major Goals: To determine if the antimalarial pyronaridine, or the fixed dose combination of pyronaridine-artesunate, has a positive, negative or negligible effect on COVID-19 disease progression or duration of viral carriage and the seroconversion rate to SARS-CoV-2.
- Bill & Melinda Gates Foundation (Khatri, Pulendran PI) 10/2021 – 03/2024 1.2 calendar
CVIA 078 Malaria vaccine study
Major Goals: The project aims to evaluate the cellular immune response prior to drug treatment to collect information regarding the baseline response in subjects with and without *P. falciparum* (Pf) infection.
- Bill & Melinda Gates Foundation (Khatri, PI) 10/2019 – 09/2023 0.24 calendar
RNA-seq analysis of BCG vaccine in non-human primates
Major goal: To identify correlates of protection following BCG vaccine
- Bill & Melinda Gates Foundation (Khatri, PI) 10/2019 – 09/2023 0.24 calendar
Transcriptomic analysis of RhCMV vector vaccines in NHP SIV and TB Challenge Studies
Major Goal: To determine protective gene signatures induced by RhCMV/SIV and RhCMV/TB vaccination in rhesus macaque challenge studies. A key future question outside the scope of this project but dependent upon its success is whether validated gene signatures that track with protection in non-human primates are reproduced in the first-in-human study of the hCMV vectors.
- Bill & Melinda Gates Foundation (Khatri, PI) 10/2019 – 09/2023 0.24 calendar
Understanding Role of NK cells in tuberculosis
Major Goals: The goal of this project is to identify the biological mechanisms in NK cells driving tuberculosis disease.
- NIH/NIAID (Davis, PI) 04/2019 – 03/2024 1.2 calendar
Influenza responses and repertoire in vaccination, infection and tonsil organoids
Major Goals: The major goal of this project is to understand the fundamental processes with which the human immune system responds to vaccination and combat influenza infection. Dr. Khatri lead the bioinformatics and data management core.
- NIH/NIAID (Davis, PI) 04/2019 – 03/2024 0.24 calendar
Influenza responses and repertoire in vaccination, infection and tonsil organoids
Major Goals: The major goal of this project is to understand the fundamental processes with which the human immune system responds to vaccination and combat influenza infection (Project 1).
- NIH/NHLBI (Levy/Khatri, PI) 09/2019 – 06/2024 1.2 calendar
Immunometabolic phenotypes in adult severe asthma and disease progression

Major Goals: For this project, Dr. Khatri and his team will perform integrated, multi-site systems biology analysis of the molecular data generated by this proposal. He serves as a PI for the systems immunology analysis for the multi-site project

NIH/NLM (Musen, PI) 05/2021 – 01/2025 0.6 calendar
The Metadata Powerwash – Integrated tools to make biomedical data FAIR

Major Goals: Our goal is to create methods and tools that improve the quality of scientific metadata hosted in public repositories, and thus enhance the discoverability and re-use of public biomedical datasets. Making data more accessible through scientifically rigorous metadata will accelerate the ability to make transformative data-driven biomedical discoveries using public data archives.

Ralph & Marian Falk Medical Research Trust (Einav/Khatri) 12/2018 – 12/2023 1.2 calendar

Towards predicting and preventing the development of severe dengue

Major goal: To identify and validate host response-based gene signature for predicting progression to severe dengue at presentation.

NIH/NIAID (Pulendran, PI) 04/2022 – 03/2027 1.2 calendar
Systems biological assessment of vaccination-induced protective immunity in African children

Major Goals: The major goal of this project is to perform detailed immunological characterization of host responses, and state-of-the-art computational models of immunity to define a baseline signature to predict the immunogenicity and efficacy of RTS,S vaccination. Dr. Khatri leads the bioinformatics and data management core.

NIH/NIAID (Pulendran, PI) 04/2022 – 03/2027 1.2 calendar
Systems biological assessment of innate and adaptive immunity to vaccination

Major Goals: To use a systems biological approach to assess immunity to the Pfizer BNT162b2 vaccine in allergic subjects, and to assess the impact of the microbiome on vaccine immunity. Dr. Khatri leads the bioinformatics analysis and data management.

AI172061 (Khatri, PI) 07/01/2022 - 06/30/2024 1.2 calendar

Epigenetic Histone Landscape Profiles in HIV

Major Goals: To investigate whether DNA vaccine for HIV induces long term memory in innate immune cells via epigenetic reprogramming

N93022C0005 NIH/NIAID (Pulendran, PI) 09/01/2022 – 08/31/2027 1.2 calendar

A Molecular Atlas for Benchmarking Adjuvants (NIH Contract Title: Adjuvant Comparison and Characterization)

Major Goals: To use a systems biological approach to create a molecular atlas for benchmarking adjuvants.

COR963372 Eli Lilly and Company (Khatri, PI) 03/01/2023 – 08/31/2024 1.2 calendar

Predicting response to Baricitinib and identifying endotypes in lupus patients

Major Goals: 1. To correlate previously described 93-gene signature distinguishes patients with SLE based on SLEDAI or other clinical scores. 2. To cluster patients based on baseline WB RNA data to project a higher response in a clinical trial using baricitinib or IL2-treatment. 3. To associate transcripts from specific endotypes of SLE/Lupus at baseline that may predict response to baricitinib or IL2-treatment to specific immune cell types.

INV-037517 Bill & Melinda Gates Foundation (Aghaeepour, PI) 05/11/2022 – 04/30/2025 0.24 calendar

MOMI scale up: multiomics analysis

Major Goals: To perform largescale multiomics analysis of pregnancy

W911NF2320019 DARPA (Pulendran, PI) 12/15/2022 – 06/14/2027 1.2 calendar

Systems Biological Assessment of the Durability of Vaccine Responses

Major Goals: To develop signatures of vaccine response and protection through systems immunology profiling of healthy subjects vaccinated with different vaccines

PATHO-PH2-SUB_14_23 NIH (Khatri, PI) 03/01/2023 – 02/29/2024 1.2 calendar

Understanding adaptive and innate immune cell dysfunction in patients with PASC

Major Goals: to determine whether exposure to COVID-19 induces adaptive and innate immune memory.

COMPLETED

Bill & Melinda Gates Foundation (Khatri, PI) 10/2021 – 09/2022 0.6 calendar

Longitudinal immune correlates studies icddr.b

Major Goals: The goal of this project is to characterize the cellular and humoral immune response to SARS-COV-2 in COVID-19+ individuals in a longitudinal cohort in Bangladesh. The focus is on understanding the relationship of T, B and humoral immune parameters to disease severity, as well as longitudinal changes in the magnitude and quality of the immune response that may be associated with durable protection. The Stanford GH-VAP collaboration will complement the study with systems immunology analysis using multi-omics read-outs and, if sample volumes permit, ancillary mechanistic studies.

Bill & Melinda Gates Foundation (Khatri, PI) 10/2021 – 09/2022 0.6 calendar

Defining the landscape of BCG- and M.tb-induced trained immunity

Major Goals: The goal of this project is to profile the epigenetic landscape in blood leukocytes induced by BCG vaccination and natural M.tb infection and to identify links between functional and phenotypic features of immune cells and epigenetic modifications.

EMD Serono Stanford SLE Collaboration (Khatri/Utz, PI) 03/2018 – 03/2022 0.24 calendar

Major Goals: The purpose of this collaboration is to perform multi-cohort analysis of transcriptome data from rheumatoid arthritis patients.

Department of Defense (Einav, PI) 09/2019 - 09/2022 1.2 calendar

Immune mechanisms of pathogenesis and viral clearance in dengue patients

Major Goals: The major goal goals are to: i) define and validate a transcriptomic signature for the early prediction of severe dengue and; ii) characterize the kinetics and quality of host immune responses during the course of natural dengue infection and of treatment with a novel antiviral approach we have developed.

R01ES03225301 (Nadeau, PI) 08/01/2020 - 05/31/2022 0.18 calendar

Pregnancy due to Ambient Air Pollution Exposure

Major Goals: The goal is to understand the effect of air pollution on pregnant women and outcome of pregnancy.

R01 AI125197 (Utz, PI) 08/2016 - 07/2021 1.50 calendar

NIH NIAID

Giant Magneto Resistive (GMR) Sensors for Measuring Influenza Vaccine

Dr. Khatri served as a co-investigator on this proposal and will be responsible for analysis of data generated in each of the three aims for performing systems biology analysis of influenza vaccination.

Role: Co-I

1U19AI109662 (Glenn) 04/2014 – 03/2020 2.4 calendar

NIH/NIAID

Project 5: Accelerating novel countermeasures against RNA viruses through repurposing. Advancing Broad Spectrum Host Targeting Antiviral Strategies to the Clinic

R01 HL128734 (Spiekerkoetter, PI) 05/2016 – 04/2021 0.6 calendar

NIH/NHLBI

Targeting Novel BMP2 modifiers in Pulmonary Hypertension with Repurposed Drugs

U19 AI057229 (Davis) 05/2014 – 04/2024 1.2 calendar

NIH/NIAID		
Adaptive and innate immunity, memory and Repertoire in Vaccination and infection		
W81XWH-18-1-0253 (Cantanzaro)	09/2018 – 09/2021	0.6 calendar
Department of Defense		
A Rapid Blood Test to Differentiate Latent Tuberculosis from Active Disease		
Vir Biotechnology (Khatri)	06/2017 – 06/2018	2.4 calendar
Strategic efforts in computational immunology using public data		
U54I117925 (Musen)	09/2014 – 08/2018	1.8 calendar
NIH		
Center for Expanded Data Annotation and Retrieval		
Bill & Melinda Gates Foundation (Davis)	09/2016 – 08/2019	0.6 calendar
Analysis of the immune state of latent Mtb infection and its progression to active disease		
Bill & Melinda Gates Foundation (Khatri)	07/2015 – 06/2017	0.6 calendar
Optimization and validation of a whole-blood transcriptional signature to distinguish bacterial infections from viral infections in resource-limited settings		
Integrative Omics of Macrophage-vascular interaction in pulmonary hypertension (Rabinovitch)	04/2015 – 03/2019	1.2 calendar
NIH		
U01AI089859 Infrastructure Opportunity Fund (Khatri)	01/2014 – 06/2015	1.2 calendar
NIH/NIAID		
Development of HIPC data standards to support cross-center projects		
Proposal to enhance Cell Ontology (Musen/Khatri)	07/2015 – 06/2016	0 calendar
NIH		
AMP RA/SLE leadership center (Utz)	06/2015 – 05/2017	0.6 calendar
NIAMS/NIH		