

## Purvesh Khatri

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### Academic Appointments

- 2014 Assistant Professor (October 1, 2014 – Present)  
Stanford Institute for Immunity, Transplant 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, Transplant 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 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](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.

## Reviewer

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

## Student Mentoring

- 2017 Aditya Rao, Immunology, PhD, Research advisor (January 2017 – Present)
- 2016 Madeleine Scott, MSTP, Research advisor (July 2016 – Present)
- 2016 Kelly McGill, Immunology, PhD, Research co-advisor (with PJ Utz; January 2016 – Present)
- 2016 Jiaying Toh, Immunology, PhD, Research co-advisor (with Olivia Martinez; April 2016 – Present)
- 2014 Winn Haynes, Biomedical Informatics, PhD, Research co-advisor (with PJ Utz; February 2014 – Present)
- 2014 Erika Bongen, Immunology, PhD, Research co-advisor (with PJ Utz; March 2014 – Present)

- 2013 Marta Andres-Terre, Immunology, PhD, Research co-advisor (with Denise Monack; December 2013 – Present)
- 2013 Tim Sweeney, Biomedical Informatics and resident (surgery), Research advisor (August 2013 – September 2015)
- 2013 Matthew Daniel Li, Stanford Medical Student, 2nd year, Research advisor (July 2013 – May 2016)
- 2012 Lichy Han, Volunteer, Research advisor (August 2012 - December 2012)
- 2012 William Strober, Volunteer, Research advisor (June 2012 - August 2012)
- 2012 Kevin Heath, Stanford SIMR program, Research advisor (June 2012 - August 2012)
- 2012 Skanda Koppula, Stanford SIMR program, Research advisor (June 2012 - August 2012)
- 2012 Roshan Agarwal, Stanford SIMR program, Research advisor (June 2012 - August 2012)
- 2012 Charles Liu, Volunteer and Stanford SIMR program, Research advisor (January 2012 – January 2014)
- 2011 Mark Nishimura, Stanford SIMR program, Research advisor (June 2011 – December 2011)
- 2010 Yuri Kim, MD student, Research advisor (June 2010 - July 2011)
- 2010 Andrew Liu, Stanford SIMR program, Research advisor (June 2010 - April 2011)

## Publications

### Peer-reviewed Journal Publications (indexed in PubMed)

- 2017 Timothy E. Sweeney, James L. Wynn, María Cernada, Eva Serna, Hector R. Wong, Henry V. Baker, Máximo Vento, and **Purvesh Khatri**. *Validation of the Sepsis MetaScore for Diagnosis of Neonatal Sepsis*. Journal of the Pediatric Infectious Diseases Society 2017 (Accepted for publication).
- 2017 Timothy E. Sweeney, Neal J Thomas, Judie A Howrylak, Hector R Wong, Angela J Rogers<sup>§</sup>, **Purvesh Khatri**<sup>§</sup>. *Multi-cohort analysis of whole-blood gene expression data does not form a robust diagnostic for ARDS*. Critical Care Medicine 2017 (Accepted for publication) <sup>§</sup>co-corresponding authors.
- 2017 Timothy E Sweeney, Shane Lofgren, **Purvesh Khatri**<sup>§</sup>, Angela J Rogers<sup>§</sup>. *Gene Expression Analysis to Assess the Relevance of Rodent Models to Human Lung Injury*. American Journal of Respiratory Cell and Molecular Biology 2017 (Accepted for publication) <sup>§</sup>co-corresponding authors.
- 2017 Mitchell E Garber, Alok Saldanha, Joel S Parker, Wendell D Jones, Katri Kaukinen, Kaija Laurila, Marja-Leena Lähdeaho, **Purvesh Khatri**, Chaitan Khosla, Daniel C Adelman, Markku Mäki. *A B-Cell Gene Signature Correlates with the Extent of Gluten-induced Intestinal Injury in Celiac Disease*. Cellular and Molecular Gastroenterology and Hepatology 2017 (Accepted for publication).
- 2017 William Yuan, Dadi Jiang, Dhanya K. Nambiar, Lydia P. Liew, Michael Patrick Hay, Joshua Bloomstein, Peter Lu, Brandon Turner, Quynh-The Le, Robert Tibshirani, **Purvesh Khatri**, Mark Gerard Moloney, and Albert C. Koong. *Chemical Space Mimicry for Drug Discovery*. Journal of Chemical Information and Modeling 2017 (Accepted for publication).
- 2017 Timothy E Sweeny and **Purvesh Khatri**. *Septic Cardiomyopathy: Getting to the Heart of the Matter*. Critical Care Medicine 2017, 45(3):556-557.
- 2017 Adrian Vallejo, Naiara Perurena, Elisabet Guruceaga, Pawel K Mazur, Susana Martinez-Canarias, Carolina Zanduetta, Karmele Valencia, Andrea Arricibita, Dana Gwinn, Leanne C Sayles, Chen-Hua Chuang, Laura Guembe, Peter Bailey, David K Chang, Andrew Biankin, Mariano Ponz-Sarvise, Jesper B Andersen, **Purvesh Khatri**, Aline Bozec, E Alejandro Sweet-Cordero, Julien Sage, Fernando Lecanda, Silve Vicent. *An integrative approach unveils FOSL1 as an oncogene vulnerability in KRAS-driven lung and pancreatic cancer*. Nature Communications 2017, 8:14294.

- 2017 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.
- 2017 Madeleine Scott, Francesco Vallania, **Purvesh Khatri**. *Meta-analysis of continuous phenotypes identifies a gene signature that correlates with COPD disease status*. Pacific Symposium on Biocomputing 2017, 22:266-275.
- 2017 Winston A Haynes, Francesco Vallania, Charles Liu, Erika Bongen, Aurelie Tomczak, Marta Andres-Terrè, Shane Lofgren, Andrew Tam, Cole A Deisseroth, Matthew D Li, Timothy E Sweeney, **Purvesh Khatri**. *Empowering multi-cohort gene expression analysis to increase reproducibility*. Pacific Symposium on Biocomputing 2017, 22:144-153.
- 2016 Shane Lofgren, Monique Hinchcliff, Mary Carns, Tammara Wood, Kathleen Aren, Esperanza Arroyo, Peggie Cheung, Alex Kuo, Antonia Valenzuela, Anna Haemel, Paul J Wolters, Jessica Gordon, Robert Spiera, Shervin Assassi, Francesco Boin, Lorinda Chung, David Fiorentino, Paul J Utz, Michael Whitfield, **Purvesh Khatri**. *Integrated, Multi-cohort Analysis of Systemic Sclerosis Identifies Robust Transcriptional Signature of Disease Severity*. JCI Insight 2016, 1(21):e89073.
- 2016 Brooke A Napier, Sky W Brubaker, Timothy E Sweeney, Patrick Monette, Gregory H Rothmeier, Nina A Gertsvolf, Andreas Puschnik, Jan E Carette, **Purvesh Khatri**, Denise M Monack. *Complement pathway amplifies caspase-11-dependent cell death and endotoxin-induced sepsis severity*. Journal of Experimental Medicine 2016 213(11): 2365-2382.
- 2016 Timothy E Sweeney, Winston A Haynes, Francesco Vallania, John P Ioannidis, **Purvesh Khatri**. *Methods to increase reproducibility in differential gene expression via meta-analysis*. Nucleic Acids Research 2016:gkw797.
- 2016 Timothy E Sweeney and **Purvesh Khatri**. *Benchmarking sepsis gene expression diagnostics using public data*. Critical Care Medicine 2016, 45(1):1-10. (Accompanied by an editorial)
- 2016 Timothy E Sweeney, Lindsay Braviak, Cristina M Tato, **Purvesh Khatri**. *Genome-wide expression for diagnosis of pulmonary tuberculosis: a multicohort analysis*. Lancet Respiratory Medicine 2016 4(3):213-224. (Accompanied by an editorial)
- 2015 Marta Andres-Terre, Helen M McGuire, Yannick Pouliot, Erika Bongen, Timothy E Sweeney, Cristina M Tato, **Purvesh Khatri**. *Integrated, multi-cohort analysis identifies conserved transcriptional signature across multiple respiratory viruses*. Immunity 2015 43:1199-1211. (Accompanied by an editorial)
- 2015 Timothy E Sweeney and **Purvesh Khatri**. *Comprehensive Validation of the FAIM3: PLAC8 Ratio in Time-matched Public Gene Expression Data*. American Journal of Respiratory and Critical Care Medicine 2015 192(10):1260-1261.
- 2015 Mark Musen, Carol A Bean, Kei-Hoi Cheung, Michel Dumontier, Kim A Durante, Olivier Gevaert, Alejandra Gonzalez-Beltran, **Purvesh Khatri**, Steven H Kleinstein, Martin J O'Connor, Yannick Pouliot, Philippe Rocca-Serra, Susanna-Assunta Sansone, Jeffrey A Wiser. *The center for expanded data annotation and retrieval*. Journal of the American Medical Informatics Association 2015 22(6):1148-1152.
- 2015 Pawel K Mazur, Alexander Herner, Stephano S Mello, Matthias Wirth, Simone Hausmann, Francisco J Sánchez-Rivera, Shane M Lofgren, Timo Kuschma, Stephan A Hahn, Deepak Vangala, Marija Trajkovic-Arsic, Aayush Gupta, Irina Heid, Peter B Noël, Rickmer Braren, Mert Erkan, Jörg Kleeff, Bence Sipos, Leanne C Sayles, Mathias Heikenwalder, Elisabeth Heßmann, Volker Ellenrieder, Irene Esposito, Tyler Jacks, James E Bradner, **Purvesh Khatri**, E Alejandro Sweet-Cordero, Laura D Attardi, Roland M Schmid, Guenter Schneider, Julien Sage, Jens T Siveke. *Combined inhibition of BET family proteins and histone deacetylases as a potential epigenetics-based therapy for pancreatic ductal adenocarcinoma*. Nature Medicine 2015 21:1163-1171.
- 2015 Timothy E. Sweeney, Aaditya Shidham, Hector R. Wong, **Purvesh Khatri**. *A Comprehensive Time-Course-Based Multi-Cohort Analysis of Sepsis and Sterile Inflammation Reveals a Robust Diagnostic Gene Set*. Science Translational Medicine 2015 7(287):287ra71.

- 2014 Matthew D Li, Terry C Burns, Alexander A Morgan, and **Purvesh Khatri**. *Integrated Multi-Cohort Transcriptional Meta-Analysis of Neurodegenerative Diseases*. *Acta Neuropathologica Communications* 2014 2(1):1-23.
- 2014 Pawel K. Mazur\*, Nicolas Reynoird\*, **Purvesh Khatri**, Pascal W.T.C. Jansen, Alex Wilkinson, Shichong Liu, Olena Barbash, Glenn S. Van Aller, Michael Huddleston, Peter J. Tummino, Ryan G. Kruger, Benjamin Garcia, Atul J. Butte, Michiel Vermeulen, Julien Sage, and Or Gozani. *SMYD3 links methylation of MAP3K2 to Ras-driven cancer*. *Nature* 2014 510:283-287.
- 2014 Ron Chen\*, **Purvesh Khatri\***, Pawel K. Mazur, Melanie Polin, Yanyan Zheng, Dedeepya Vaka, Chuong D. Hoang, Joseph Shrager, Yue Xu, Silvestre Vicent, Atul Butte, and Alejandro Sweet-Cordero. *A meta-analysis of lung cancer gene expression identifies PTK7 as a survival gene in lung adenocarcinoma*. *Cancer Research* 2014 74(10): 2892-2902. \*Co-first authors.
- 2014 Alexander A. Morgan, Matthew D Li, Achal S Achrol, **Purvesh Khatri**, and Samuel H Cheshier. *Multiplex meta-analysis of medulloblastoma expression studies with external controls*. *Pacific Symposium on Biocomputing* 2014, 19:99-109.
- 2013 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.
- 2013 **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* 210:2205-2221, 2013. (Identified as “moving the field towards finishing line” in the accompanying editorial.)
- 2012 Silvestre Vicent, 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.
- 2012 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* 12(10): 2710-2718, 2012. (Identified as “a landmark in furthering diagnosis of acute rejection in renal transplant” in the accompanying Editorial.)
- 2012 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* 23 (4), 750-763, 2012.
- 2012 **Purvesh Khatri**, Marina Sirota, and Atul J. Butte. *10 years of Functional Pathway Analysis: Current Approaches and Unaddressed Challenges*. *PLoS Computational Biology* 8(2): e1002375, 2012. (Most cited paper of 2012 across all PLoS journals; Faculty of 1000 “Must read” paper in [top 2%](#) of papers published in biology and medicine; viewed more than [35,000](#) times on PLoS Computational Biology web site within the first two years of publication.)
- 2011 Tara Sigdel, Sang Woo, Hong Dai, **Purvesh Khatri**, Bryan Myers, Minnie Sarwal, Richard Lafayette. *Integrative Antibiomics Identifies Novel Autoantibody Biomarkers for IgA nephropathy*. *Clinical Journal of the American Society of Nephrology* 6 (12), 2775-2784, 2011.
- 2011 **Purvesh Khatri**, Minnie Sarwal, Atul Butte. *Applications of Translational Bioinformatics in Transplantation*. *Clinical Pharmacology & Therapeutics* 90 (2), 323-327, 2011. (Cited by [6](#) articles)

- 2011 Silke Roedder, Matthew Vitalone, **Purvesh Khatri**, and Minnie M Sarwal. *Biomarkers in solid organ transplantation: establishing personalized transplantation medicine*. *Genome Medicine*, 3:37 June 2011.
- 2011 Maarten Naesens, **Purvesh Khatri**, Li Li, Tara Sigdel, Rong Chen, Atul Butte, Oscar Silvatierra, Minnie Sarwal. *Progressive histological damage in renal allografts is associated with expression of innate and adaptive immunity genes*. *Kidney International* 80, 1364-1376, 2011.
- 2010 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*, 11(Suppl 9): S6, 2010.
- 2010 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* 15 (5), 687-702, 2010.
- 2010 Kumaran Kandasamy *et al.* *NetPath: a public resource of curated signal transduction pathways*. *Genome Biology*, 11(1): R3, 2010.
- 2010 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*, 7(4): 287-289, April 2010.
- 2009 **Purvesh Khatri** and Minnie Sarwal. *Using Gene Arrays in Diagnosis of Rejection*. *Current Opinions in Organ Transplant*, 14(1): 34-39, February 2009.
- 2009 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*, 25(1): 75-82, January 2009.
- 2008 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 Feb; 91-99.
- 2007 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 Oct; 17(10): 1537-1545.
- 2007 **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 Jul; 35:W206-W211.
- 2006 **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.
- 2006 Sorin Draghici, Sivakumar Sellamuthu, and **Purvesh Khatri**. *Babel's tower revisited: a universal resource for cross-referencing across annotation databases*. *Bioinformatics*, 2006 22(23): 2934-2939.
- 2006 **Purvesh Khatri**, Valmik Desai, Adi L. Tarca, Sivakumar Sellamuthu, Derek E. Wildman, Roberto Romero, and Sorin Draghici. *New Onto-Tools: Promoter-Express, nsSNPCounter, and Onto-Translate*. *Nucleic Acids Research*, 2006 Jul; 34:W626-W631.
- 2005 Sorin Draghici, **Purvesh Khatri**, Aron C. Eklund, and Zoltan Szallasi. *Reliability and reproducibility issues in DNA microarray measurements*. *Trends in Genetics*, 2006 Feb; 22(2): 101-109.
- 2005 **Purvesh Khatri** and Sorin Draghici. *Ontological analysis of gene expression data: current tools, limitations, and open problems*. *Bioinformatics*, 2005 Sep; 21(18): 3587-3595. (Received "Fast Breaking Paper" award by ISI Thompson, <http://esi-topics.com/fbp/fbp-october2006.html>).
- 2005 **Purvesh Khatri**, Bogdan Done, Archana Rao, Arina Done, and Sorin Draghici. *A semantic analysis of the annotations of the human genome*. *Bioinformatics*, 2005 Aug; 21(16): 3416-3421.

- 2005 **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 Jul; 33:W762-W765.
- 2005 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. Big Island of Hawaii, Jan 4-8, 2005.
- 2004 **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 Jul; 32:W449-W456.
- 2003 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 Jul; 31 (13):3775-3781.
- 2003 Sorin Draghici, **Purvesh Khatri**, Abhik Shah, and Michael Tainsky. *Assessing the functional bias of commercial microarrays using the Onto-Compare database*. Biotechniques, 2003 Mar; Suppl: 55-61.
- 2003 Sorin Draghici, **Purvesh Khatri**, Rui P. Martins, G. Charles Ostermeier, and Stephen A. Krawetz. *Global functional profiling of gene expression*. Genomics, 2003 Feb; 81(2): 98-104.
- 2002 G. Charles Ostermeier, David J. Dix, David Miller, **Purvesh Khatri**, and Stephen A. Krawetz. *Spermatozoal RNA profiles of normal fertile men*. Lancet, 2002 Sep; 360 (9335): 772-777.
- 2002 **Purvesh Khatri**, Sorin Draghici, G. Charles Ostermeier, and Stephen A. Krawetz. *Profiling Gene Expression Utilizing Onto-Express*. Genomics, 2002 Feb; 79(2):266-270.

## Book Chapters

- 2014 **Purvesh Khatri**. *Knowledge Base-Driven Pathway Analysis*. A Bioinformatics Guide for Molecular Biologists Cold Spring Harbor Laboratory Press 2014.
- 2011 **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.
- 2007 **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.
- 2005 **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

- 2008 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.
- 2007 **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.
- 2007 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.
- 2005 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

- 2017 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.
- 2017 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.
- 2017 Erika Bongen, Francesco Vallania, PJ Utz, Timothy Sweeney, **Purvesh Khatri**. *Sex differences in immune system gene expression*. AMIA-TBI March 27, 2017.
- 2017 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.
- 2017 Aurelie Tomczak, Jonathan Mortensen, Rainer Winnenburger, 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.
- 2017 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.
- 2015 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.
- 2015 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 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.
- 2014 Michael Januszkyk, 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.
- 2012 **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). March 19-23, 2012, San Francisco, CA.
- 2012 **Purvesh Khatri**. *A common immune response module for acute rejection across multiple organs can reposition novel therapeutics for organ transplantation*. 3<sup>rd</sup> International Conference on Transplantomics and Biomarkers in Organ Transplantation. March 8-10, 2012, La Jolla, CA.
- 2010 **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.
- 2010 **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")
- 2008 **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.
- 2007 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.
- 2007 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.
- 2006 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.
- 2006 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.
- 2005 *Recent additions and improvements to the Onto-Tools*. Gene Ontology Consortium User Meeting. University of Bergen, Bergen, Norway, September 14-15, 2005.
- 2003 *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

- 2017 Invited talk, 3<sup>rd</sup> 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
- 2017 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
- 2017 Keynote, Grand Challenges India, New Delhi, India. *Igniting Young Minds: translational medicine using public data*. March 24, 2017
- 2017 Invited talk, CHI Molecular Tri-Conference, San Francisco, CA. *Accelerating diagnosis and therapy of infectious diseases using public heterogeneous data*. February 20-22, 2017
- 2017 Invited talk, Madagascar: a crucible for science, health and the environment. Stanford, CA. *Leveraging heterogeneity in public data for translational medicine*. February 8, 2017
- 2017 Invited talk, Pacific Symposium on Biocomputing, Big Island Hawaii, HI. *Adventures of a "data parasite": translational medicine using heterogeneous data*. January 3, 2017
- 2016 Invited talk, Collaborative Centers for Human Immunology, Bethesda, MD. *Translational medicine using heterogeneous public data*. November 30-December 2, 2016
- 2016 Invited talk, American Medical Informatics Association, Chicago, IL. *Re-use is not parasitism*. November 13, 2016
- 2016 Invited talk, SCOT trial meeting, American College of Rheumatology, Washington, DC. *Integrated multi-cohort analysis of SSC skin*. November 12, 2016
- 2016 Invited talk, Cornell University, Ithaca, NY. *Adventures of a "data parasite": accelerating translational medicine using heterogeneous data*. November 11, 2016
- 2016 Invited talk, Grand Challenges, London, UK. *Adventures of a "data parasite": accelerating translational medicine using heterogeneous data*. October 26, 2016
- 2016 Invited talk, Cepheid, Sunnyvale, CA. *Host-response diagnostics for infectious diseases using public data*. September 9, 2016

- 2016 Invited talk, Grand rounds, Stanford University, Stanford, CA. *Adventures of a "data parasite": accelerating translational medicine using heterogeneous data*. August 10, 2016
- 2016 Invited talk, EternaCon, Stanford University, Stanford, CA. *Robust 3-gene signature for diagnosis of tuberculosis using public data*. July 16, 2016
- 2016 Invited talk, University of Alabama, Birmingham, AL. *Integrated multi-scale analysis of public data for translational medicine*. July 14-15, 2016
- 2016 Invited talk, Yale Symposium on Influenza, Yale University, New Haven, CT. *Accelerating translational medicine using public data*. June 24, 2016
- 2016 Invited talk, Summer school for computational immunology, Yale University, New Haven, CT. *Multi-cohort analysis of gene expression data*. June 22, 2016
- 2016 Invited talk, Summer school for computational immunology, Yale University, New Haven, CT. *Pathway analysis: current approaches and limitations*. June 21, 2016
- 2016 Invited talk, Grand rounds, University of Texas, Houston, TX. *Accelerating translational medicine using public data*. June 16-17, 2016
- 2016 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
- 2016 Invited talk, Big data bioinformatics, GLCbio, Boston, MA. *Accelerating biomarker discovery using public data*. May 25-27, 2016
- 2016 Invited talk, MedImmune, Mountain View, CA. *Leveraging heterogeneity in public data for translational medicine*. May 23, 2016
- 2016 Invited talk, One Health Symposium, Stanford, CA. *Accelerating translational medicine using heterogeneous public data*. April 30, 2016
- 2016 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
- 2016 Invited talk, Biomarkers in infectious diseases, GLCbio, San Diego, CA. *Accelerating biomarker discovery using public data*. March 21-23, 2016
- 2016 Invited talk, Scleroderma Research Foundation, San Francisco, CA. *Integrated multi-cohort analysis of systemic sclerosis*. March 2016
- 2016 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
- 2016 Invited talk, Arthritis Foundation, Atlanta, GA. *Systems approach for computational immunology*. February 23-24, 2016
- 2016 Invited talk, Grand rounds, Northwestern University, Chicago, IL. *Accelerating translational medicine using heterogeneous public data*. February 10-12, 2016
- 2015 Invited talk, Grand rounds, Pulmonary and Critical Care Medicine, Stanford, CA. *Translational medicine using public data*. September 18, 2015
- 2015 Invited talk, Big Data in Biomedicine, Stanford, CA. *Understanding immunology using public data*. May 20-22, 2015
- 2015 Invited talk, Arthritis Foundation, Atlanta, GA. *Framework for integrated multi-cohort analysis of molecular data*. May 13-14, 2015
- 2013 Invited talk, NIH Perinatology Research Branch, Detroit, MI. *Onto-Tools: toolkit for higher level analysis of gene expression data*. May 2013
- 2012 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
- 2012 Invited talk, Functional Genomics Data Society (FGED), Cambridge, MA. *Meta-analysis of public domain data sets for translational medicine*. January 25-26, 2012
- 2008 Invited talk, Institute for Digital Biology, Mississippi State University, Starkville, MS. *Onto-Tools: a toolkit for modern biologists*. May 20-22, 2008

- 2003 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
- 2003 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

- 2016 Biomarkers for use in prognosis of mortality in critically ill patients. US provisional application no. 62/354,789
- 2015 Methods for diagnosis of bacterial and viral infections. US provisional application no. 62/346,962  
Methods for diagnosis of tuberculosis. US provisional application no. 62/241,506.
- 2015 Methods for diagnosis of sepsis. WO2016/145426A1
- 2012 Biomarkers of ovarian cancer. US provisional patent application no. 14/914, 245.  
Identification of new therapeutic uses for known therapeutic agents US provisional patent no. 14/361,668
- 2011 Protein and Gene Biomarkers for Rejection of Organ Transplants. US provisional patent no. 9,535,075. WO/2011/119980
- 2002 Onto-Express: A Tool for Functional Profiling of Bioinformatics Data. January 2, 2002. US Patent Application No. 60/347,383.

## Funding

### ACTIVE

<b>1U19AI109662 (Glenn)</b> NIH Project 5: Accelerating novel countermeasures against RNA viruses through repurposing. Advancing Broad Spectrum Host Targeting Antiviral Strategies to the Clinic	04/01/2014 – 03/31/2018 Role Co-I	3.6 calendar
<b>U19 AI057229 (Davis)</b> NIH Adaptive and innate immunity, memory and Repertoire in Vaccination and infection	05/01/2014 – 04/30/2019 Role: Co-I	1.2 calendar
<b>U54I117925 (Musen)</b> NIH Center for Expanded Data Annotation and Retrieval	09/01/2014 – 08/31/2018 Role: Co-I	2.4 calendar
<b>Gates Foundation (Khatri)</b> Gates Foundation Optimization and validation of a whole-blood transcriptional signature to distinguish bacterial infections from viral infections in resource-limited settings	07/01/2015 – 06/30/2017 Role: PI	0.07 calendar
<b>Integrative Omics of Macrophage-Vascular Interaction in Pulmonary Hypertension (Rabinovitch)</b> NIH Integrative Omics of Macrophage-Vascular Interaction in Pulmonary Hypertension	04/01/2015 – 03/31/2019 Role: Co-I	1.2 calendar
<b>Influenza Vaccine Prediction using GMR sensors (Utz/Wang)</b> NIH	07/01/2016 – 06/30/2021 Role: Co-I	1.2 calendar

<b>Analysis of the immune state of latent Mtb infection and its progression to active diseases</b> Gates Foundation	09/01/2016 – 08/31/2018 Role: Co-I	0.6 calendar
<b>Global Health-Vaccine Accelerator Program Infrastructure (Davis)</b> Gates Foundation	10/01/2016 – 09/30/2018 Role: Co-I	1.2 calendar
<b>Multidimensional Analysis of Immune Status of Latent M. Tuberculosis Infection (Chien)</b> NIH/NIAID	07/01/2016 – 06/30/2018 Role: Co-I	0.24 calendar
<b><u>COMPLETED</u></b>		
<b>U01AI089859 Infrastructure Opportunity Fund (Khatri)</b> NIH Development of HIPC data standards to support cross-center projects	01/01/2014 -06/30/2015	1.2 calendar
<b>Proposal to enhance Cell Ontology (Khatri)</b> NIAID/NIH	07/01/2015 – 06/30/2016	0 calendar
<b>AMP RA/SLE leadership center (Utz)</b> NIAMS/NIH	06/15/2015 – 05/31/2017 Role: Co-I	0.6 calendar
<b>Vaccination and Infection: Indicators of immunological health and responsiveness (Davis)</b> NIAID/NIH Role: Co-I	07/15/2015 – 06/30/2016	0.5 calendar
<b>Northrop Grumman (Khatri)</b> Northrup Grumman	04/01/2015 – 09/29/2015	0.01 calendar
<b>Protein Methyltransferases in pancreatic cancer (Sage)</b> Lustgarten Foundation	01/01/2015 – 12/31/2015	0.2 calendar
<b>Prospective Validation of a Three-Gene Set for Diagnosis of Tuberculosis and Prognosis of Treatment Response (Khatri/Andrews)</b> SPADA	01/01/2016 – 12/31/2016 Role: PI	0% effort
<b>Strategic effort in precision immunology – I-GPS (Altman)</b> Pfizer	11/17/2015 – 11/16/2016	0% effort