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ACADEMIC HISTORY

- 2006–2014 Postdoctoral Research Fellow, Laboratory of Frederick P. (Fritz) Roth
Donnelly Centre for Cellular & Biomolecular Research, *University of Toronto*, Toronto,
ON, Canada (2010–2014)
Department of Biological Chemistry & Molecular Pharmacology, *Harvard Medical School*,
Boston, MA, USA (2006–2010)
- 1999–2006 Ph.D. in Computer Science (2006), Advised by Z. Meral Özsoyoğlu
Case Western Reserve University, Cleveland, OH, USA
- 1995–1999 B.Sc. (with Honors) in Computer Engineering (1999)
Case Western Reserve University, Cleveland, OH, USA

RESEARCH TOPICS OF SPECIALIZATION

Bioinformatics; Machine Learning & Statistical Inference; Protein-protein Interaction
Assays; Network Science & Graph Theory; Bicycles

HONORS & AWARDS

- 2010 Sage Commons Congress Fellowship
- 2006–2008 National Institutes of Health (NIH) National Research Service Award (NRSA) Fellow-
ship (F32)
- 2005 Case Western Reserve University Graduate Dean's Instructional Excellence Award
- 1999–2005 Case Western Reserve University School of Engineering Prime Fellowship

PRE-PUBLICATION MANUSCRIPTS (available upon request)

Murat Taşan, Gabriel Musso, Tong Hao, Marc Vidal, Calum A. MacRae, and Frederick P. Roth.

Selecting causal genes from genome-wide association studies via functionally-coherent subnetworks.

(accepted at *Nature Methods*)

Thomas Rolland, **Murat Taşan**, Samuel J. Pevzner, Benoit Charloteaux, Irma Lemmens, Celia Fontanillo, Roberto Mosca, Nidhi Sahni, Song Yi, Atanas Kamburov, Susan Ghiassian, Quan Zhong, Zinping Yang, Lila Ghamsari, Dawit Balcha, Pascal Braun, Martin P. Broly, Anne-Ruxandra Carvunis, Dan Convery-Zupan, Roser Corominas, Elizabeth Dann, Matija Dreze, Amélie Dricot, Changyu Fan, Eric Franzosa, Fana Gebreab, Bryan J. Gutierrez, Mike Jin, Shuli Kang, Ruth Kiros, Guan Ning Lin, Andrew MacWilliams, Jörg Menche, Ryan R. Murray, Matthew M. Poulin, Xavier Rambout, John Rasla, Patrick Reichert, Viviana Romero, Elien Ruysinck, Julie M. Sahalie, Annemarie Scholz, Akash A. Shah, Yun Shen, Stanley Tam, Shelley A. Trigg, Jean-Claude Twizere, Kerwin Vega, Jennifer Walsh, Michael E. Cusick, Yu Xia, Albert-László Barabási, Lilia Iakoucheva, Patrick Aloy, Javier De Las Rivas, Jan Tavernier, Michael A. Calderwood, David E. Hill, Tong Hao, Frederick P. Roth, and Marc Vidal.

New protein interaction map covers vast uncharted zones in human interactome.

(accepted at *Cell*)

Rahul C. Deo, Gabriel Musso, **Murat Taşan**, Paul Tang, Annie Poon, Christiana Yuan, Janine F. Felix, Ramachandran S. Vasan, Rameen Beroukhim, Teresa De Marco, Pui-Yan Kwok, Calum A. MacRae, and Frederick P. Roth.

Prioritizing Causal Disease Genes Using Unbiased Genomic Features.

(accepted at *Genome Biology*)

PUBLICATIONS

Murat Çokol, Zohar B. Weinstein, Kaan Yilancioglu, **Murat Taşan**, Allison Doak, Dilay Cansever, Beste Mutlu, Siyang Li, Raul Rodriguez-Esteban, Murodzhon Akhmedov, Aysegul Guvenek, Melike Çokol, Selim Cetiner, Guri Giaever, Ivan Iossifov, Corey Nislow, Brian Shoichet, and Frederick P. Roth.

Large-scale identification and analysis of suppressive drug interactions.

Chemistry & Biology, 21:541–551, April 2014.

Roser Corominas, Xiping Yang, Guan Ning Lin, Shuli Kang, Yun Shen, Lila Ghamsari, Martin Broly, Maria Rodriguez, Stanley Tam, Shelly A. Trigg, Changyu Fan, Song Yi, **Murat Taşan**, Irma Lemmens, Xingyan Kuang, Nan Zhao, Dheeraj Malhotra, Jacob J. Michaelson, Vladimir Vacic, Michael A. Calderwood, Frederick P. Roth, Jan Tavernier, Steve Horvath, Kourosh Salehi-Ashtiani, Dmitry Korkin, Jonathan Sebat, David E. Hill, Tong Hao, Marc Vidal, and Lilia M. Iakoucheva.

Protein interaction network of alternatively-spliced isoforms from brain links genetic risk factors for autism.

Nature Communications, 5:3650, March 2014.

Gabriel Musso, **Murat Taşan**, Christian Mosimann, John E. Beaver, Eva Plovie, Logan A. Carr, Hon Nian Chua, Julie Dunham, Khalid Zuberi, Harold Rodriguez, Quaid Morris, Leonard Zon, Frederick P. Roth, and Calum A. MacRae.

Novel cardiovascular gene functions revealed via systematic phenotype prediction in zebrafish.

Development, 141(1): 224–235, January 2014.

Orit Rozenblatt-Rosen, Rahul C. Deo, Megha Padi, Guillaume Adelmant, Michael A. Calderwood, Thomas Rolland, Amélie Dricot, Manor Askenazi, Maria Tavares, Samuel J. Pevzner, Fieda Abderazzaq, Danielle Byrdson, Anne-Ruxandra Carvunis, Alyce A. Chen, Jingwei Cheng, Mick Correll, Melissa Duarte, Changyu Fan, Mariet C. Feltkamp, Scott B. Ficarro, Rachel Franchi, Brijesh K. Garg, Natali Gulbahce, Tong Hao, Amy M. Holthaus, Robert James, Anna Korkhin, Larisa Litovchick, Jessica C. Mar, Theodore R. Pak, Sabrina Rabello, Renee Rubio, Yun Shen, Saurav Singh, Jennifer M. Spangle, **Murat Taşan**, Shelly Wanamaker, James T. Webber, Jennifer Roecklein-Canfield, Eric Johannsen, Albert-László Barabási, Rameen Beroukhim, Elliott Kieff, Michael E. Cusick, David E. Hill, Karl Münger, Jarrod A. Marto, John Quackenbush, Frederick P. Roth, James A. DeCaprio, & Marc Vidal.

Interpreting cancer genomes using systematic host network perturbations by tumour virus proteins.

Nature, 487(7408): 491–495, July 2012.

Murat Taşan, Harold J. Drabkin, John E. Beaver, Hon Nian Chua, Julie Dunham, Weidong Tian, Judith A. Blake, Frederick P. Roth.

A resource of quantitative functional annotation for *H. sapiens* genes.

Genes - Genomes - Genetics, 2(2): 223–233, February 2012.

Murat Çokol, Hon Nian Chua, **Murat Taşan**, Beste Mutlu, Zohar B. Weinstein, Yo Suzuki, Mehmet E. Nergiz, Michael Costanzo, Anastasia Baryshnikova, Guri Giaever, Corey Nislow, Chad L. Myers, Brenda J. Andrews, Charles Boone, Frederick P. Roth.

Systematic Exploration of Synergistic Drug Pairs.

Molecular Systems Biology, 7:544, November 2011.

Arabidopsis Interactome Mapping Consortium*.

Evidence for Network Evolution in an Arabidopsis Interactome Map.

Science, 333(6042): 601–7, July 2011.

M. Shahid Mukhtar, Anne-Ruxandra Carvunis, Matija Dreze, Petra Epple, Jens Steinbrenner, Jonathan Moore, **Murat Taşan**, Mary Galli, Tong Hao, Marc T. Nishimura, Samuel J. Pevzner, Susan E. Donovan, Lila Ghamsari, Balaji Santhanam, Viviana Romero, Matthew M. Poulin, Fana Gebreab, Bryan J. Gutierrez, Stanley Tam, Christopher J. Harbort, Nathan McDonald, Lantian Gai, Huaming Chen, EU Effectoromics Consortium, Frederick P. Roth, David E. Hill, Joseph R. Ecker, Marc Vidal, Jim Beynon, Pascal Braun, Jeffrey L. Dangl.

Independently Evolved Virulence Effectors Converge onto Cellular Hubs in a Plant Immune System Network.

Science, 333(6042): 596–601, July 2011.

Can Cenik, Hon Nian Chua, Hui Zhang, Stefan Tarnawsky, Abdalla Akef, Adnan Derti, **Murat Taşan**, Melissa J. Moore, Alexander F. Palazzo, Frederick P. Roth.

Genome analysis reveals interplay between 5'UTR introns and nuclear mRNA export elements of secretory and mitochondrial genes.

PLoS Genetics, 7(4): e1001366, April 2011.

John E. Beaver, **Murat Taşan**, Frank Gibbons, Weidong Tian, Timothy R. Hughes, and Frederick P. Roth.

FuncBase: A resource for quantitative gene function annotation.

Bioinformatics, 26(14): 1806–7, 2010.

Gabriel F. Berriz, John E. Beaver, Can Cenik, **Murat Taşan**, and Frederick P. Roth

Next generation software for functional trend analysis.

Bioinformatics, 25(22): 3043–3044, November 2009.

Pascal Braun*, **Murat Taşan***, Matija Dreze*, Miriam Barrios-Rodiles, Irma Lemmens, Haiyuan Yu, Julie M. Sahalie, Ryan R. Murray, Luba Roncari, Anne-Sophie de Smet, Kavitha Venkatesan, Jean-Francois Rual, Jean Vandenhautte, Michael E. Cusick, Tony Pawson, David E. Hill, Jan Tavernier, Jeffrey L. Wrana, Frederick P. Roth, and Marc Vidal.

An experimentally derived confidence score for binary protein-protein interactions.

Nature Methods, 6(1): 91–97, January 2009.

Nicolas Simonis*, Jean-François Rual*, Anne-Ruxandra Carvunis*, **Murat Taşan***, Irma Lemmens*, Tomoko Hirozane-Kishikawa, Tong Hao, Julie M. Sahalie, Kavitha Venkatesan, Fana Gebreab, Sebiha Cevik, Niels Klitgord, Changyu Fan, Pascal Braun, Ning Li, Nono Ayivi-Guedehoussou, Elizabeth Dann, Nicolas Bertin, David Szeto, Amélie Dricot, Muhammed A Yildirim, Chenwei Lin, Anne-Sophie de Smet, Huey-Ling Kao, Christophe Simon, Alex Smolyar, Jin Sook Ahn, Muneesh Tewari, Mike Boxem, Stuart Milstein, Haiyuan Yu, Matija Dreze, Jean Vandenhautte, Kristin C. Gunsalus, Michael E. Cusick, David E. Hill, Jan Tavernier, Frederick P. Roth, and Marc Vidal.

Empirically controlled mapping of the *Caenorhabditis elegans* protein-protein interactome network.

Nature Methods, 6(1): 47–54, January 2009.

Gregory D. Lewis, Ru Wei, Emerson Liu, Elaine Yang, Xu Shi, Maryann Martinovic, Laurie Farrell, Aarti Asnani, Marco Cyrille, Arvind Ramanathan, Oded Shaham, Gabriel F. Berriz, P.A. Lowry, Igor F. Palacios, **Murat Taşan**, Frederick P. Roth, Jiangyong Min, Christian Baumgartner, Hasmik Keshishian, Terri Addona, Vamsi K. Mootha, Anthony Rosenzweig, Steven Aa Carr, Michael A. Fifer, Marc S. Sabatine, and Robert E. Gerszten.

Metabolite profiling of blood from individuals undergoing planned myocardial infarction reveals early markers of myocardial injury.

Journal of Clinical Investigation, 118(10): 3503–3512, October 2008.

Weidong Tian, Lan V. Zhang, **Murat Taşan**, Francis D. Gibbons, Oliver D. King, Julie Park, Zeba Wunderlich, J. Michael Cherry, and Frederick P. Roth.

Combining guilt-by-association and guilt-by-profiling to predict *Saccharomyces cerevisiae* gene function.

Genome Biology, 9 Suppl 1:S7 (2008).

Murat Taşan*, Weidong Tian*, David P. Hill, Francis D. Gibbons, Judith A. Blake, and Frederick P. Roth.

An *en masse* phenotype and function prediction system for *Mus musculus*.

Genome Biology, 9 Suppl 1:S8 (2008).

Lourdes Pena-Castillo, **Murat Taşan**, Chad L. Myers, Hyunju Lee, Trupti Joshi, Chao Zhang, Yuanfang Guan, Michele Leone, Andrea Pagnani, Wan Kyu Kim, Chase Krumpelman, Weidong Tian, Guillaume Obozinski, Yanjun Qi, Sara Mostafavi, Guan Ning Lin, Gabriel Berriz, Frank Gibbons, Gert Lanckriet, Jian Qiu, Charles Grant, Zafer Barutcuoglu, David P. Hill, David Warde-Farley, Chris Grouios, Debajyoti Ray, Judith A. Blake, Minghua Deng, Michael Jordan, Willian S. Noble, Quaid Morris, Judith Klein-Seetharaman, Ziv Bar-Joseph, Ting Chen, Fengzhu Sun, Olga G. Troyanskaya, Edward M. Marcotte, Dong Xu, Timothy R. Hughes, and Frederick P. Roth.

A critical assessment of *Mus musculus* gene function prediction using integrated genomic evidence.

Genome Biology, 9 Suppl 1:S2 (2008).

Denis Dupuy, Nicolas Bertin, Cesar A. Hidalgo, Kavvitha Venkatesan, Domena Tu, David Lee, Jennifer Rosenberg, Nenad Svrzikapa, Aurelie Blanc, Alain Carnec, Anne-Ruxandra Carvunis, Rock Pulak, Jane Shingles, John Reece-Hoyes, Rebecca Hunt-Newbury, Ryan Viveiros, William A. Mohler, **Murat Taşan**, Frederick P. Roth, Christian Le Peuch, Ian A. Hope, Robert Johnsen, Donald G. Moerman, Albert-László Barabási, David Baillie, and Marc Vidal.

Genome-scale analysis of *in vivo* spatiotemporal promoter activity in *Caenorhabditis elegans*.

Nature Biotechnology, 25(6): 663–668, June 2007.

Murat Taşan.

Distance-Based Indexing: Observations, Applications, and Improvements.

Ph.D. Thesis (Computer Science, Case Western Reserve University), January, 2006.

Z. Meral Özsoyoğlu, Joseph H. Nadeau, Gultekin Özsoyoğlu, and **Murat Taşan**.
Towards an Integrated Software System for Biological Pathways.
IEEE Bulletin of the Technical Committee on Data Engineering, 27(4): 57–67, 2004.

Emre Karakoc, Z. Meral Özsoyoğlu, S. Cenk Sahinalp, **Murat Taşan**, and Xiang Zhang.
Novel Approaches to Biomolecular Sequence Indexing.
IEEE Bulletin of the Technical Committee on Data Engineering, 27(3): 40–47, 2004.

Murat Taşan and Z. Meral Özsoyoğlu.
Improvements in Distance-Based Indexing.
Proceedings of the IEEE 16th International Conference on Scientific and Statistical Database Management (SSDBM 2004), pages 161–170, 2004.

S. Cenk Sahinalp, **Murat Taşan**, Jai Macker, and Z. Meral Özsoyoğlu.
Distance-Based Indexing for String Proximity Search.
Proceedings of the IEEE 19th International Conference on Data Engineering (ICDE 2003), pages 125–136, 2003.

Wanhong Xu, Lakshmi Krishnamurthy, **Murat Taşan**, Gultekin Özsoyoğlu, Joseph H. Nadeau, Z. Meral Özsoyoğlu, and Greg Schaeffer.
Pathways Database System: An Integrated Set of Tools for Biological Pathways.
Proceedings of the 2003 ACM Symposium on Applied Computing (SAC 2003), pages 96–102, 2003.

Lakshmi Krishnamurthy, Joseph H. Nadeau, Gultekin Özsoyoğlu, Z. Meral Özsoyoğlu, Greg Schaeffer, **Murat Taşan**, and Wanhong Xu.
Pathways Database System: An Integrated System for Biological Pathways.
Bioinformatics, 19(8): 930–937, 2003.

(*) indicates equal contribution to the work amongst first authors.

TEACHING HISTORY

- 2005 Full Instructor, “Introduction to Database Systems”, Case Western Reserve University
- 2004–2005 Case Western Reserve University’s Computer Science Curriculum Committee
- 2002–2005 Regular Guest Lecturer, “Algorithms & Data Structures”, “Introduction to Database Systems”, “Data Structures & Files”, Case Western Reserve University
- 2001 Teaching Assistant, “Algorithms & Data Structures”, Case Western Reserve University
- 2000 Teaching Assistant, “Intelligent Systems I”, Case Western Reserve University
- 2000 Teaching Assistant, “Introduction to Operating Systems”, Case Western Reserve University

NON-ACADEMIC EMPLOYMENT HISTORY

- 2014 Data Scientist, Sympoz, Inc., Denver, CO, USA
- 1999 Software Engineer, Hexagram Systems, Beachwood, OH, USA
- 1998 Software Design Engineer in Test, Microsoft Corporation, Redmond, WA, USA
- 1997 Software Engineer, Passkey Systems LLC, Quincy, MA, USA
- 1995–2002 Lifeguard, Case Western Reserve University, Cleveland, OH, USA