

CURRICULUM VITAE

Mary E. Shimoyama PhD

**Associate Professor
Department of Biomedical Engineering**

HOME ADDRESS:

5480 Olympia Dr
Greendale, WI 53129
Phone: 414-423-0013

OFFICE ADDRESS:

Curative Care Network
1000 N 92 St
Milwaukee, WI 53226
Phone: 414-955-7505
Email: shimoyama@mcw.edu

EDUCATION:

09/1973 - 12/1978 B.S., University of Miami, Miami, FL
08/1980 - 08/1981 M.S., Florida State University, Tallahassee, FL
01/2008 - 05/2011 Ph.D., University of Wisconsin-Milwaukee, Milwaukee, WI

FACULTY APPOINTMENTS:

09/01/2011 - 06/30/2016 Assistant Professor, Surgery, Medical College of Wisconsin, Milwaukee, WI
09/01/2011 - Present Adjunct Professor, Biomedical and Health Informatics, University of Wisconsin-Milwaukee, Milwaukee, WI
08/2014 - Present Adjunct Professor and Instructor, College of Health Sciences, Biomedical and Health Informatics, University of Wisconsin-Milwaukee and Medical College of Wisconsin
07/01/2016 - Present Associate Professor, Biomedical Engineering, Marquette University and Medical College of Wisconsin

ADMINISTRATIVE APPOINTMENTS:

12/10/2018 - Present Vice Chair of Research and Clinical Affairs, Biomedical Engineering, Medical College of Wisconsin

EDUCATIONAL ADMINISTRATIVE APPOINTMENTS:

09/2011 - Present Steering Committee Member, Doctoral Program in Biomedical and Health Informatics, University of Wisconsin-Milwaukee and Medical College of Wisconsin, Milwaukee, WI
01/2015 - Present Co-Director, Doctoral Program in Biomedical and Health Informatics, University of Wisconsin-Milwaukee and Medical College of Wisconsin, Milwaukee, WI
07/01/2016 - Present Graduate Committee, Biomedical Engineering, Marquette University and Medical College of Wisconsin, Milwaukee, WI
07/01/2016 - Present Co-Director, Master's Program in Bioinformatics, Marquette University and Medical College of Wisconsin, Milwaukee, WI
07/01/2016 - Present Graduate Studies Council, Medical College of Wisconsin, Milwaukee, WI

AWARDS AND HONORS:

01/2008 - Present Chancellor's Graduate Student Award, University of Wisconsin-Milwaukee
01/2008 - Present Chancellor's Graduate Student Award, University of Wisconsin-Milwaukee
01/2009 - Present Chancellor's Graduate Student Award, University of Wisconsin-Milwaukee
01/2009 - Present CGSA Computer Science Scholarship, University of Wisconsin-Milwaukee
07/2009 - Present Graduate Student Travel Fellowship, International Conference on Biomedical Ontology
07/2009 - Present Graduate Student Travel Fellowship, International Conference on Biomedical Ontology
09/2009 - Present CGSA Computer Science Scholarship, University of Wisconsin-Milwaukee
09/2009 - Present Chancellor's Graduate Student Award, University of Wisconsin-Milwaukee

MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:

07/2004 - 12/2012 International Society for Computational Biology
09/2004 - Present International Society for Biocuration
06/2011 - Present American Medical Informatics Association

EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:

Journal Review
10/2010 - Present Nucleic Acids Research
09/2013 - Present Scientific World Journal
03/2015 - Present Database (Oxford)
04/2015 - Present Physiological Genomics

NATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:

04/15/2018 - Present Co-leader, Design Guidelines Working Group, NIH Data Commons
06/2018 - Present Member, Scientific Advisory Board, Mouse Genome Database
06/2018 - Present Member, Scientific Advisory Board, NIDA Center for GWAS in Outbred Rats
07/2018 - Present Member, Scientific Advisory Board, Wormbase

RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS:

Active

Peer Review

Title: Rat Genome Database
Source: NIH
Role: Principal Investigator
Dates: 01/12/2015 - 12/31/2018
Direct Funds: \$5,119,630 (total for all years)

Title: Harmonizing Disease Annotation of Mouse and Rat Models through the Human Disease Ontology
Source: NIH
Role: Co-Investigator
PI: Dr. Janan Eppig, Jackson Laboratory
Dates: 09/01/2015 - 06/30/2016
Direct Funds: \$96,632

Title: Rat Genome Database (MOD) Commons Pilot Supplement
Source: NIH
Role: Principal Investigator
Dates: 09/2015 - 08/2016
Direct Funds: \$82,441

Title: Hybrid Rat Diversity Program

Source: NORIP
Role: Co-Investigator
PI: Melinda Dwinell
Dates: 08/01/2018 - 04/30/2022
Direct Funds: \$1,996,851

Title: Rat Genome Database
Source: NIH NHLBI
Role: Principal Investigator
PI: Mary Shimoyama
Dates: 01/04/2019 - 12/31/2022
Direct Funds: \$5,925,448

Title: Dissemination and Coordinating Center for the SCGE Consortium
Source: NIH OD
Role: Principal Investigator
PI: Mary Shimoyama, Melinda Dwinell
Dates: 02/01/2019 - 11/30/2023

Non-Peer Review

Title: Microvesicle Affinity Group
Source: CVC AHW
Role: Mentor-Bioinformatics
PI: Dr. Brian Hoffman
Dates: 07/01/2015 - 06/30/2016
Direct Funds: \$50,000

INVITED LECTURES/WORKSHOPS/PRESENTATIONS:

Local

Mary Shimoyama, Moving Research Software to the Clinic, CTSI Workshop on Personalized Medicine, Milwaukee, 2012

Mary Shimoyama, Technology and Data, Genomics and Ethics, Milwaukee, 2013

Mary Shimoyama, Moving Research Software to the Clinic, CTSI Workshop on Personalized Medicine, Milwaukee, WI 2012

Mary Shimoyama, Technology and Data, Genomics and Ethics, Milwaukee, WI 2013

Regional

Mary Shimoyama, Ontology Based Tools, Third Coast Consortium for Biomedical and Health Informatics, Milwaukee, WI 2015

National

Mary Shimoyama, Melinda Dwinell, Toxicology Related Data at RGD, NIEHS Keystone Science Lecture, Durham, NC, 2014

Mary Shimoyama, Toxicology Related Data at the Rat Genome Database, Society of Toxicology, Phoenix, AZ, 2013

PEER REVIEWED WORKSHOPS/PRESENTATIONS:

National

Shimoyama M, Nigam R, Rice T, Sanders-McIntosh L, Nagarajan R, Rao DC, Dwinell MR, Multiple Ontologies for Integrating Complex Phenotype Datasets, AMIA Joint Summits on Translational Science, San Francisco, CA, 03/2011

Mary Shimoyama, Jeff de Pons, Gene Annotator, American Medical Informatics Association 2012 Symposium, Chicago, IL, 11/03/2012 - 11/07/2012

- M. Shimoyama, S. Laulederkind, J. De Pons, M. Tutaj, V. Petri, G. Hayman, S. Wang, J. Smith, J. Thota, O. Ghiasvand, M. Tutaj, M. Dwinell, Finding Gene Connections and Interactions at the Rat Genome Database (RGD), AMIA, Chicago, 11/12/2016 - 11/16/2016
- M. Shimoyama, S. Laulederkind, J. De Pons, M. Tutaj, V. Petri, G. Hayman, S. Wang, J. Smith, J. Thota, O. Ghiasvand, M. Tutaj, M. Dwinell, Disease Connections at RGD, AMIA Joint Summits, San Francisco, 03/27/2017 - 03/30/2017
- Mary Shimoyama, Toxicology Related Data at the Rat Genome Database, Society of Toxicology, Phoenix, AZ, - 2013
- Mary Shimoyama, Tomasz Adamusiak, ClinMiner: Ontology Based Clinical Data Portal, AMIA Joint Summits on Translational Science, San Francisco, CA, - 2014
- Mary Shimoyama, G.Thomas Hayman, Stan Laulederkind, Rajni Nigam, Victoria Petri, Jennifer R. Smith, Shur-Jen Wang, Jeff De Pons, Pushkala Jayaraman, Weisong Liu, Marek Tutaj, Elizabeth Worthey, Melinda Dwinell, Howard Jacob, Pharmacogenomic Analysis of Pathways in Multiple Rat Strains: Implications for Drug Testing in Models, AMIA Joint Summits on Translational Science, San Francisco, CA, - 2014

International

- Shimoyama, M., Lu, J., Pasko, D., Long, H., Twigger, S., Tonellato, P.J., High Through-put Analysis in Model Organism Genomics: the bulk data pipeline to the rat genome database, Physiological Genomics and Rat Models, Cold Spring Harbor, NY, 12/2001
- Shimoyama, M., Mathis, J., Datta, M., Twigger, S., Lu, J., Chen, C.-F., Nigam, R., Ramachandran, H., Gopinathrao, G., Bromberg, S., Pasko, D., Long, H., Chen, J., Chen, D., Nie, J., Ruotti, V., Jacob, H., Tonellato, P, Rat Genome Database (RGD) – Disease Oriented Research Resource, Genome Sequencing Biology, Cold Spring Harbor, NY, 05/2002
- Shimoyama M, Li D, Nigam R, Patzer A, Petri V, Rood W, Smith J, White R, Twigger S, Kwitek A, Jacob H, The Rat Genome Database: Integrated Data Platform, International Mammalian Genome Conference, Charleston, SC, 10/2006
- Shimoyama M, Patzer A, Kowalski, G, Petri V, Laulederkind S, Smith J, Nigam R, Reilly, Jin W, Chen J, Li D, Zuniga-Meyer, A, Twigger S, Kwitek A, Jacob H, Disease Portals: A Platform for Genetic and Genomic Research, Biology of Genomes, Cold Spring Harbor, NY, 05/2007
- Shimoyama M, Laulederkind S, Lowry T, Nigam R, Petri V, Smith J, Bakir B, dePons J, Stoddard A, Worthey E, Twigger S, Dwinell M, Jacob H, Rat Genome Database Disease Portals, Intelligent Systems for Molecular Biology, Toronto, Canada, 07/2008
- Shimoyama M, Dwinell M, Jacob H, Multiple Ontologies for Integrating Complex Phenotype Datasets, Intelligent Systems for Molecular Biology, Toronto, Canada, 07/2008
- Shimoyama M, Smith J, dePons J, Stoddard A, Bakir B, Twigger S, Dwinell M, Jacob H, Curating the Rat Genome: RGD's Automated Data Integration Pipelines Maximize Coverage, Genome Informatics, Hinxton, UK, 09/2008
- Shimoyama M, Exploring Pathway Data Through Interactive Diagrams and Ontology at RGD, Genome Informatics, Hinxton, UK, 09/2008
- Shimoyama M, Laulederkind S, Lowry T, Petri V, Smith J, dePons J, Stoddard A, Twigger S, Dwinell M, Jacob H, Increasing Curation Efficiency: RGD's Software Suite, Genome Informatics, Hinxton, UK, 09/2008
- Shimoyama M, Multiple Ontologies for Complex Phenotype Data, CASIMIR Workshop on Describing and Reporting Phenotypes, Cambridge, UK, 2008
- Shimoyama M, The Rat Genome Database: Integrated Data Platform for Research, Society of Toxicology, Seattle, WA, 2008
- Shimoyama M, Multiple Ontologies for Integrating Complex Phenotype Datasets, International Conference on Biomedical Ontology, Buffalo, NY, 07/2009
- Shimoyama M, Stoddard A, Twigger S, Dwinell M, Munzenmaier D, Jacob H; the RGD Team, RGD's Phenotype Database and Data Mining Tool, Rat Genomics and Models, Cold Spring Harbor, NY, 12/2009
- Shimoyama M, Worthey E, Smith J, Nigam R, Petri V, Laulederkind S, Lowry T, Hayman T, Wang S-J, DePons J, Jayaraman P, Tutaj M, Liu W, Munzenmaier D, Dwinell M, Twigger S, Jacob H, Ontology Based Phenotype Database and Mining Tool, Intelligent Systems for Molecular Biology, Boston, MA, 07/2010
- Shimoyama M, Nigam R, Dwinell M; RGD Team, PhenoMiner: Integrating Phenotype Measurement Values

- for Multiple Strains, , XVIIIth International Workshop on Genetic Systems in the Rat, Kyoto, Japan, 11/2010
- Shimoyama M, Nigam R, Dwinell M., Using Multiple Ontologies to Annotate and Integrate Phenotype Records from Multiple Sources, Intelligent Systems for Molecular Biology, Vienna, Austria, 07/2011
- Mary Shimoyama, Stan Laulederkind, GT Hayman, Timothy Lowry, Rajni Nigam, Victoria Petri, Jennifer Smith, Shur-Jen Wang, Jeff de Pons, Weisong Liu, Pushkala Jayaraman, Marek Tutaj, Diane Munzenmaier, Melinda Dwinell, Liz Worthey, Howard Jacob, Navigating RGD to Link Phenotypes to Genotypes, Rat Genomics and Models 2011, Cold Spring Harbor, NY, 12/03/2011 - 12/06/2011
- Mary Shimoyama, Tomasz Adamusiak, Jeff de Pons, Weisong Liu, ClinMynEHR: Ontology Based Clinical Data Portal, Intelligent Systems in Molecular Biology, Long Beach, CA, 07/15/2012 - 07/17/2012
- Mary Shimoyama, Jeff de Pons, Gene Annotator, Intelligent Sytems in Molecular Biology, Long Beach, CA, 07/15/2012 - 07/17/2012
- Mary Shimoyama, Jeff de Pons, Melinda Dwinell, Howard Jacob, RGD Team, Cross-Species Functional Analysis of Gene Sets: The Gene Annotator, Rat Genomics and Models 2012, Cambridge, UK, 12/03/2012 - 12/06/2012
- Mary Shimoyama, Jeff de Pons, RGD Team, Cross-Species Functional Analysis of Gene Sets: The Gene Annotator, Biocuration 2013, Cambridge, UK, 04/07/2013 - 04/10/2013
- Mary Shimoyama, Rajni Nigam, Leslie McIntosh, Treva Rice, DC Rao, Melinda Dwinell, Three ontologies to define phenotype measurement data, International Conference on Biomedical Ontology, Montreal, CA, 2013
- Mary Shimoyama, RGD Team, The Gene Annotator Tool, International Conference on Biocuration, Cambridge, UK, 2013
- Mary Shimoyama, Jeff De Pons, G. Thomas Hayman, Stan Laulederkind, Rajni Nigam, Victoria Petri, Jennifer Smith, Marek Tutaj, Shur-Jen Wang, Elizabeth Worthey, Melinda R. Dwinell, Howard Jacob, Identifying Genomic and Phenotype Profiles to Define Rat Models, Rat Genomics and Models, Hinxton, UK, 12/01/2014 - 12/04/2014
- Mary Shimoyama, Jeff De Pons, G. Thomas Hayman, Stan Laulederkind, Rajni Nigam, Victoria Petri, Jennifer Smith, Marek Tutaj, Shur-Jen Wang, Elizabeth Worthey, Melinda R. Dwinell, Howard Jacob, Identifying Genomic and Phenotype Profiles to Define Rat Models, Rat Genomics and Models, Hinxton, UK, 12/2014
- Mary Shimoyama, Alex Stoddard, Garth Ehrlich, Lauren Bakaletz, Joseph Kerschner, An Otitis Media Researcher's Guide to Chinchilla Genomics: Background, Applications, Tools and Opportunities, 06/07/2015 - 06/11/2015
- Mary Shimoyama, Victoria Petri, Marek Tutaj, Stan Laulederkind, Jeff De Pons, Rajni Nigam, Jennifer Smith, G. Thomas Hayman, Shur-Jen Wang, Melinda Dwinell, Finding Gene Connections and Interactions at the Rat Genome Database (RGD), Rat Genomics and Models, Cold Spring Harbor Laboratory, 12/2015
- M Shimoyama, S Laulederkind, J De Pons, M tutaj, Jyothi Thota, O Ghiasvand, JR Smith, GT Hayman, SJ Wang, MR Dwinell, discovering Interactions and Connections with Bioinformatics tools at RGD, Experimental Biology, Chicago, 04/22/2017 - 04/26/2017
- Mary Shimoyama, Stanley Laulederkind, Jeff De Pons, Marek Tutaj, Jyothi Thota, Omid Ghiasvand, Victoria Petri, Jennifer R Smith, G. Thomas Hayman, Shur-Jen Wang, and Melinda Dwinell, Discovering Interactions and Connections with Bioinformatics Tools at RGD, Experimental Biology, Chicago, 04/22/2017 - 04/26/2017
- Mary Shimoyama, Laura Saba, Rat Genome Database and PhenoGen Workshop, Complex Trait Community/Rat Genomics Community, Memphis, 06/13/2017 - 06/17/2017
- Mary Shimoyama, Stanley Laulederkind, Jeff De Pons, Elizabeth Bolton, Omid Ghiasvand, G. Thomas Hayman, Matthew Hoffman, Jennifer Smith, Jyothi Thota, Marek Tutaj, Monika Tutaj, Yiqing Zhao, Melinda Dwinell, Creating a Multi-Organism Disease Model Resource at RGD, Plant and Animal Genome XXVI, San Diego, 01/13/2018 - 01/17/2018
- Mary Shimoyama, Stanley Laulederkind, Jeff DePons, Elizabeth Bolton, Omid Ghiasvand, G. Thomas Hayman, Matthew Hoffman, Jennifer R. Smith, Jyothi Thota, Marek Tutaj, Monika Tutaj, Yizing Zhao, Melinda Dwinell, Creating a Multi-Organism Disease Model Resource at RGD, AMIA Informatics Summit, San Francisco, 03/12/2018 - 03/15/2018
- Mary Shimoyama, RGD Team, The Gene Annotator Tool, International Conference on Biocuration, Cambridge, UK, 2013
- Shimoyama M, The Rat Genome Database: Integrated Data Platform for Research, Society of Toxicology,

Seattle, WA, 2008
Shimoyama M, Multiple Ontologies for Complex Phenotype Data, CASIMIR Workshop on Describing and Reporting Phenotypes, Cambridge, UK, 2008

COMMITTEE SERVICE:

Medical College

04/01/2016 - Present member, Research Compute Cluster Committee

01/01/2017 - Present member, Governance Committee, Biomedical Engineering, Marquette University and Medical College of Wisconsin

EXTRAMURAL TEACHING:

Graduate Student Education

01/21/2014 - 05/10/2014 University of Wisconsin-Milwaukee, Biomedical Ontologies and Terminologies

01/2014 - 05/2015 University of Wisconsin-Milwaukee, Biomedical and Healthcare Ontology and Terminology Course

09/03/2014 - 12/12/2014 University of Wisconsin-Milwaukee, Health Documentation

01/28/2015 - 05/07/2015 University of Wisconsin-Milwaukee, Health Documentation

01/28/2015 - 05/07/2015 University of Wisconsin-Milwaukee, Biomedical Ontologies and Terminologies

MCW STUDENTS, FACULTY, RESIDENTS AND CLINICAL/RESEARCH FELLOWS MENTORED:

Faculty

Meredith Adams, Medical College of Wisconsin, 07/01/2016 - Present

EXTRAMURAL STUDENTS, FACULTY, RESIDENTS, AND CLINICAL/RESEARCH FELLOWS MENTORED:

Graduate Students

PhD Committees

Nazanin Tabesh, University of Wisconsin-Milwaukee, 11/2013 - 01/2015

PhD Students Advised

Yiqing Zhao, University of Wisconsin-Milwaukee, 01/2015 - 05/20/2018 Quantitative Phenotype Analysis to Identify, Validate and Compare Rat Disease Models

Cagatay Dursun, Marquette University and Medical College of Wisconsin, 01/15/2017 - Present

PROGRAMMATIC DEVELOPMENTS:

Educational Programs

Student

08/2012 - Present Medical Genomics, Wisconsin Alliance for Minority Participation (WiscAMP) grant funded program

BIBLIOGRAPHY

Refereed Journal Publications/Original Papers

1. Twigger S, Lu J, Shimoyama M, Chen D, Pasko D, Long H, Ginster J, Chen CF, Nigam R, Kwitek A, Eppig J, Maltais L, Maglott D, Schuler G, Jacob H, Tonellato PJ. Rat Genome Database (RGD): mapping disease onto the genome. *Nucleic Acids Res.* 2002 Jan 01;30(1):125-8. PMID: PMC99132
2. Twigger SN, Nie J, Ruotti V, Yu J, Chen D, Li D, Mathis J, Narayanasamy V, Gopinath GR, Pasko D, Shimoyama M, De La Cruz N, Bromberg S, Kwitek AE, Jacob HJ, Tonellato PJ. Integrative genomics: in silico coupling of rat physiology and complex traits with mouse and human data. *Genome Res.* 2004 Apr;14(4):651-60. PMID: PMC383309
3. Imanishi T, Itoh T, Suzuki Y, O'Donovan C, Fukuchi S, Koyanagi KO, Barrero RA, Tamura T, Yamaguchi-Kabata Y, Tanino M, Yura K, Miyazaki S, Ikeo K, Homma K, Kasprzyk A, Nishikawa T, Hirakawa M, Thierry-Mieg J, Thierry-Mieg D, Ashurst J, Jia L, Nakao M, Thomas MA, Mulder N, Karavidopoulou Y, Jin L, Kim S, Yasuda T, Lenhard B, Eveno E, Suzuki Y, Yamasaki C, Takeda J, Gough C, Hilton P, Fujii Y, Sakai H, Tanaka S, Amid C, Bellgard M, Bonaldo Mde F, Bono H, Bromberg SK, Brookes AJ, Bruford E, Carninci P, Chelala C, Couillault C, de Souza SJ, Debily MA, Devignes MD, Dubchak I, Endo T, Estreicher A, Eyraas E, Fukami-Kobayashi K, Gopinath GR, Graudens E, Hahn Y, Han M, Han ZG, Hanada K, Hanaoka H, Harada E, Hashimoto K, Hinz U, Hirai M, Hishiki T, Hopkinson I, Imbeaud S, Inoko H, Kanapin A, Kaneko Y, Kasukawa T, Kelso J, Kersey P, Kikuno R, Kimura K, Korn B, Kuryshev V, Makalowska I, Makino T, Mano S, Mariage-Samson R, Mashima J, Matsuda H, Mewes HW, Minoshima S, Nagai K, Nagasaki H, Nagata N, Nigam R, Ogasawara O, Ohara O, Ohtsubo M, Okada N, Okido T, Oota S, Ota M, Ota T, Otsuki T, Piatier-Tonneau D, Poustka A, Ren SX, Saitou N, Sakai K, Sakamoto S, Sakate R, Schupp I, Servant F, Sherry S, Shiba R, Shimizu N, Shimoyama M, Simpson AJ, Soares B, Steward C, Suwa M, Suzuki M, Takahashi A, Tamiya G, Tanaka H, Taylor T, Terwilliger JD, Unneberg P, Veeramachaneni V, Watanabe S, Wilming L, Yasuda N, Yoo HS, Stodolsky M, Makalowski W, Go M, Nakai K, Takagi T, Kanehisa M, Sakaki Y, Quackenbush J, Okazaki Y, Hayashizaki Y, Hide W, Chakraborty R, Nishikawa K, Sugawara H, Tateno Y, Chen Z, Oishi M, Tonellato P, Apweiler R, Okubo K, Wagner L, Wiemann S, Strausberg RL, Isogai T, Auffray C, Nomura N, Gojobori T, Sugano S. Integrative annotation of 21,037 human genes validated by full-length cDNA clones. *PLoS Biol.* 2004 Jun;2(6):e162. PMID: PMC393292
4. de la Cruz N, Bromberg S, Pasko D, Shimoyama M, Twigger S, Chen J, Chen CF, Fan C, Foote C, Gopinath GR, Harris G, Hughes A, Ji Y, Jin W, Li D, Mathis J, Nenasheva N, Nie J, Nigam R, Petri V, Reilly D, Wang W, Wu W, Zuniga-Meyer A, Zhao L, Kwitek A, Tonellato P, Jacob H. The Rat Genome Database (RGD): developments towards a phenome database. *Nucleic Acids Res.* 2005 Jan 01;33(Database issue):D485-91. PMID: PMC540004
5. Twigger SN, Pasko D, Nie J, Shimoyama M, Bromberg S, Campbell D, Chen J, de la Cruz N, Fan C, Foote C, Harris G, Hickmann B, Ji Y, Jin W, Li D, Mathis J, Nenasheva N, Nigam R, Petri V, Reilly D, Ruotti V, Schauburger E, Seiler K, Slyper R, Smith J, Wang W, Wu W, Zhao L, Zuniga-Meyer A, Tonellato PJ, Kwitek AE, Jacob HJ. Tools and strategies for physiological genomics: the Rat Genome Database. *Physiol Genomics.* 2005 Oct 17;23(2):246-56. PMID: PMC4505745
6. Twigger SN, Shimoyama M, Bromberg S, Kwitek AE, Jacob HJ, RGD Team. The Rat Genome Database, update 2007--easing the path from disease to data and back again. *Nucleic Acids Res.* 2007 Jan;35(Database issue):D658-62. PMID: PMC1761441
7. Khodiyar VK, Maltais LJ, Ruef BJ, Sneddon KM, Smith JR, Shimoyama M, Cabral F, Dumontet C, Dutcher SK, Harvey RJ, Lafanechère L, Murray JM, Nogales E, Piquemal D, Stanichi F, Povey S, Lovering RC. A revised nomenclature for the human and rodent alpha-tubulin gene family. *Genomics.* 2007 Aug;90(2):285-9.
8. Genome Information Integration Project And H-Invitational 2, Yamasaki C, Murakami K, Fujii Y, Sato Y, Harada E, Takeda J, Taniya T, Sakate R, Kikugawa S, Shimada M, Tanino M, Koyanagi KO, Barrero RA, Gough C, Chun HW, Habara T, Hanaoka H, Hayakawa Y, Hilton PB, Kaneko Y, Kanno M, Kawahara Y, Kawamura T, Matsuya A, Nagata N, Nishikata K, Noda AO, Nurimoto S, Saichi N, Sakai H, Sanbonmatsu R, Shiba R, Suzuki M, Takabayashi K, Takahashi A, Tamura T, Tanaka M, Tanaka S, Todokoro F, Yamaguchi K, Yamamoto N, Okido T, Mashima J, Hashizume A, Jin L, Lee KB, Lin YC, Nozaki A, Sakai K, Tada M, Miyazaki S, Makino T, Ohyanagi H, Osato N, Tanaka N, Suzuki Y, Ikeo K, Saitou N, Sugawara H, O'Donovan C, Kulikova T, Whitfield E, Halligan B, Shimoyama M, Twigger S, Yura K, Kimura K, Yasuda T, Nishikawa T, Akiyama Y, Motono C, Mukai Y, Nagasaki H, Suwa M, Horton P, Kikuno R, Ohara O, Lancet D, Eveno E, Graudens E, Imbeaud S, Debily MA, Hayashizaki Y, Amid C, Han M, Osanger A, Endo T, Thomas MA, Hirakawa M, Makalowski W, Nakao M, Kim NS, Yoo HS, De Souza SJ, Bonaldo Mde F, Niimura Y, Kuryshev

- V, Schupp I, Wiemann S, Bellgard M, Shionyu M, Jia L, Thierry-Mieg D, Thierry-Mieg J, Wagner L, Zhang Q, Go M, Minoshima S, Ohtsubo M, Hanada K, Tonellato P, Isogai T, Zhang J, Lenhard B, Kim S, Chen Z, Hinz U, Estreicher A, Nakai K, Makalowska I, Hide W, Tiffin N, Wilming L, Chakraborty R, Soares MB, Chiusano ML, Suzuki Y, Auffray C, Yamaguchi-Kabata Y, Itoh T, Hishiki T, Fukuchi S, Nishikawa K, Sugano S, Nomura N, Tateno Y, Imanishi T, Gojobori T. The H-Invitational Database (H-InvDB), a comprehensive annotation resource for human genes and transcripts. *Nucleic Acids Res.* 2008 Jan;36(Database issue):D793-9. PMID: PMC2238988
9. Shimoyama M, Petri V, Pasko D, Bromberg S, Wu W, Chen J, Nenasheva N, Kwitek A, Twigger S, Jacob H. Using multiple ontologies to integrate complex biological data. *Comp Funct Genomics.* 2005;6(7-8):373-8. PMID: PMC2447497
 10. Dwinell MR, Worthey EA, Shimoyama M, Bakir-Gungor B, DePons J, Laulederkind S, Lowry T, Nigram R, Petri V, Smith J, Stoddard A, Twigger SN, Jacob HJ, RGD Team. The Rat Genome Database 2009: variation, ontologies and pathways. *Nucleic Acids Res.* 2009 Jan;37(Database issue):D744-9. PMID: PMC2686558
 11. Gene Ontology Consortium. The Gene Ontology in 2010: extensions and refinements. *Nucleic Acids Res.* 2010 Jan;38(Database issue):D331-5. PMID: PMC2808930
 12. Shimoyama M, Hayman GT, Laulederkind SJ, Nigam R, Lowry TF, Petri V, Smith JR, Wang SJ, Munzenmaier DH, Dwinell MR, Twigger SN, Jacob HJ, RGD Team. The rat genome database curators: who, what, where, why. *PLoS Comput Biol.* 2009 Nov;5(11):e1000582. PMID: PMC2775909
 13. Shimoyama M, Smith JR, Hayman T, Laulederkind S, Lowry T, Nigam R, Petri V, Wang SJ, Dwinell M, Jacob H, RGD Team. RGD: a comparative genomics platform. *Hum Genomics.* 2011 Jan;5(2):124-9. PMID: PMC3222152
 14. Laulederkind SJ, Shimoyama M, Hayman GT, Lowry TF, Nigam R, Petri V, Smith JR, Wang SJ, de Pons J, Kowalski G, Liu W, Rood W, Munzenmaier DH, Dwinell MR, Twigger SN, Jacob HJ, RGD Team. The Rat Genome Database curation tool suite: a set of optimized software tools enabling efficient acquisition, organization, and presentation of biological data. *Database (Oxford).* 2011;2011:bar002. PMID: PMC3041158
 15. Petri V, Shimoyama M, Hayman GT, Smith JR, Tutaj M, de Pons J, Dwinell MR, Munzenmaier DH, Twigger SN, Jacob HJ, RGD Team. The Rat Genome Database pathway portal. *Database (Oxford).* 2011;2011:bar010. PMID: PMC3072770
 16. Taniya T, Tanaka S, Yamaguchi-Kabata Y, Hanaoka H, Yamasaki C, Maekawa H, Barrero RA, Lenhard B, Datta MW, Shimoyama M, Bumgarner R, Chakraborty R, Hopkinson I, Jia L, Hide W, Auffray C, Minoshima S, Imanishi T, Gojobori T. A prioritization analysis of disease association by data-mining of functional annotation of human genes. *Genomics.* 2012 Jan;99(1):1-9.
 17. Gene Ontology Consortium. The Gene Ontology: enhancements for 2011. *Nucleic Acids Res.* 2012 Jan;40(Database issue):D559-64. PMID: PMC3245151
 18. Laulederkind SJ, Tutaj M, Shimoyama M, Hayman GT, Lowry TF, Nigam R, Petri V, Smith JR, Wang SJ, de Pons J, Dwinell MR, Jacob HJ. Ontology searching and browsing at the Rat Genome Database. *Database (Oxford).* 2012;2012:bas016. PMID: PMC3308169
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Books, Chapters, and Reviews

1. Shimoyama M, Smith JR, Hayman GT, Petri V, Nigam R Model organism databases in behavioral neuroscience. *Int Rev Neurobiol.* 2012;104:25-46
2. Rat Genomics, Hayman, G.Th., Smith, J.R., Dwinell, M.R., Shimoyama, M.(Eds) 2019
3. Rat Genome Databases, Repositories, and Tools, Chapter 3, Rat Genomics, Stanley J.F. Laulederkind, G. Thomas Hayman, Shur-Jen Wang, Matthew J. Hoffman, Jennifer R. Smith, Elizabeth R. Bolton, Jeff De Pons, Marek A. Tutaj, Monika Tutaj, Jyothi Thota, Melinda R. Dwinell, Mary Shimoyama, 2019

Database, Video, or Other Research/Clinical Contributions

1. Databases
2. Mary Shimoyama, Melinda Dwinell: Rat Genome Database <http://rgd.mcw.edu/>
3. Joseph Kerschner, Mary Shimoyama: Next-Gen Chinchilla <http://ngc.mcw.edu/>
4. Biomedical Ontology Development
5. Mary Shimoyama, Melinda Dwinell and RGD Staff: Ontology Development - used in multiple applications worldwide
6. a. Rat Strain Ontology <http://bioportal.bioontology.org/ontologies/RS> (PMCID:PMC4177145)
7. b. Clinical Measurement Ontology <http://bioportal.bioontology.org/ontologies/CMO> (PMCID: PMC3361058, PMID:PMC2447497, PMID:PMC3882879)
8. c. Measurement Method Ontology <http://bioportal.bioontology.org/ontologies/MMO> (PMCID: PMC3361058, PMID:PMC2447497, PMID:PMC3882879)
9. d. Experimental Conditions Ontology <http://bioportal.bioontology.org/ontologies/XCO> (PMCID: PMC3361058, PMID:PMC2447497, PMID:PMC3882879)
10. e. Pathway Ontology <http://bioportal.bioontology.org/ontologies/PW> (PMCID:PMC3072770, PMID:PMC4177145, PMID:PMC3598722)
11. Mary Shimoyama, James Reecy, Janan Eppig: Vertebrate Trait Ontology <http://bioportal.bioontology.org/ontologies/VT> (PMCID:PMC3851175)
12. Official Genomic and Genetic Nomenclature Assignment
13. Mary Shimoyama, Melinda Dwinell and RGD Staff: Official Nomenclature Assignment for all rat genes, strains, QTLs and other genomic elements <http://rgd.mcw.edu/nomen/nomen.shtml> (PMID:17543498, PMID:PMC2775909)
14. Video Tutorials
15. Mary Shimoyama, Melinda Dwinell and RGD Staff: Introduction to Biological Nomenclature Video Series <http://rgd.mcw.edu/wg/home/the-introduction-to-biomedical-nomenclature-video-series>
16. Mary Shimoyama, Melinda Dwinell and RGD Staff: Introduction to Biomedical Ontologies Video Series <http://rgd.mcw.edu/wg/home/the-introduction-to-biomedical-ontologies-video-series>
17. Mary Shimoyama, Melinda Dwinell and RGD Staff: RGD Tool and Website Tutorials

Software, Software Modules

1. Mary Shimoyama: ClinMiner - research portal for clinical and diagnostic data standardized through terminologies to integrate data from the EHR via a clinical data warehouse, manually entered data and other electronic data files, <https://clinminer.hmgc.mcw.edu/clinminer/> (PMCID:PMC4288084, PMCID:PMC4333703)
2. Mary Shimoyama, Marek Tutaj, RGD Staff: Ontology Browser - allows users to search multiple ontologies simultaneously and navigate ontologies easily <http://rgd.mcw.edu/rgdweb/ontology/search.html> (PMCID:PMC3308169)
3. Mary Shimoyama, Melinda Dwinell, RGD Staff: Phenominer - integrates clinical measurements for laboratory rat across experiments, provides data mining and visualization tools <http://rgd.mcw.edu/phenotypes/> (PMCID:PMC4309021, PMCID:PMC3630803, PMCID:PMC3882879)
4. Mary Shimoyama, Melinda Dwinell, RGD Staff: Curation Software Suite - sophisticated suite of software tools to provide greater efficiency and accuracy of data curation (non-public) <http://pipelines.rgd.mcw.edu/curation/> (PMCID: PMC3041158)
5. Mary Shimoyama, Melinda Dwinell, RGD Staff: OntoMate-text mining tool that annotates all PUBMED abstracts with genes, proteins, organisms, mutations and terms from 10 ontologies and provides search, mining and ranking functions, integrated fully into curation software suite, non-public tool <http://morgan.hmgc.mcw.edu/QueryBuilder/> (PMCID:PMC4305386)
6. Mary Shimoyama, Melinda Dwinell, RGD Staff: Genome Viewer - provides genome wide view of datasets, ontology based search tool for defining datasets <http://rgd.mcw.edu/rgdweb/gTool/Gviewer.jsp>
7. Mary Shimoyama, Melinda Dwinell, Jeff De Pons, RGD Staff: Gene Annotator - provides search and retrieval of gene datasets for human, mouse rat using genomic positions, gene lists, ontology terms, IDs or marker, presents users with comprehensive functional information, analysis of gene sets for commonalities and presentation of heatmap analysis tool and genome viewer <http://rgd.mcw.edu/rgdweb/ga/start.jsp>
8. Mary Shimoyama, Melinda Dwinell, Jeff De Pons, RGD Staff: Variant Visualizer - allows users to retrieve genomic variants across multiple rat strains, search by gene list, strain, ontology terms or genomic position, provides visualization and detailed information on variants returned <http://rgd.mcw.edu/rgdweb/front/config.html>
9. Mary Shimoyama, Melinda Dwinell, Jeff De Pons, RGD Staff: OLGA-Object List Generator & Analyzer - users can create subsets of genes and interactions among subsets of genes using searches with symbols, genomic regions or ontology terms and analyze data using Gene Annotator, Variant Visualizer, Genome Viewer or download data <http://rgd.mcw.edu/rgdweb/generator/list.html>
10. Mary Shimoyama, Jeff De Pons: Skygen - tool developed for geneticists working with clinical sequencing, integrates OntoMate, ClinVar variants and other functions to allow physician to input patient phenotypes, and/or genes with variants and search PUBMED, OMIM, ClinVar, associates individual phenotypes with complex syndromes for improved retrieval, non-public tool <http://rivera.hmgc.mcw.edu:8080/skygen/login.jsp;jsessionid=932769B9FA4588E7BF67005D93B40EE7>