

**David L Gibbs**  
ISB Science  
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## **Education**

*PhD*, Bioinformatics, Oregon Health and Science University, 2012  
Dissertation Title: Integrated Signatures of Disease Using Network Methods  
Advisor: Shannon K McWeeney

*Postbac*, Computer Science, Portland State University, 2005 - 2008

*B.A.*, Chemistry, Reed College, 1999

## **Experience**

*Senior Research Scientist*: ISB Science, 2019-present  
Working on predictive cytokine networks, the NCI cancer genomics cloud resource, and the iAtlas immune oncology resource, single cell RNA-seq analysis.

*Research Scientist*: The Institute for Systems Biology, 2017-2019  
Employed with Shmulevich Lab at ISB working on TCGA PanCancer immune response project and the NCI cancer genomics cloud pilot.

*Postdoctoral Fellow*: The Institute for Systems Biology, 2015-2017  
Employed with Shmulevich Lab at ISB working on a large multi-site collaboration with Inova and a project with the Cancer Genome Atlas group.

*Postdoctoral Fellow*: OHSU & The Institute for Systems Biology, 2012-2015  
External collaborator with the Shmulevich Lab at ISB working on a large multi-site collaboration researching the genetic regulatory basis underlying preterm birth.

*Graduate Research Assistant*: OHSU, OCTRI 2011-2012  
Bioinformatics programming and analysis on large multi-center proteomics collaboration.

*Research Assistant*: OHSU, OCTRI 2009  
Performed copy number variant analysis of SNP array data in a Leukemia study for Beth Wilmot.

*Teaching Assistant*: OHSU, DMICE 2009  
Met with students and graded homework in Introduction to Java for Michelle Hribar.

*Research Assistant*: OHSU, Center for Hematologic Malignancies, Summer 2009

Provided computational support in cancer research collaboration.

*Grader*: Portland State University, Computer Science Dept. 2005-2006  
Graded Introduction to Computer Science I & II, and Data Structures for Karla Fant.

## **Publications**

Knijnenburg TA, Vockley JG, Chambwe N, Gibbs DL, Humphries C, Huddleston KC, Klein E, Kothiyal P, Tasseff R, Dhankani V, Bodian DL. Genomic and molecular characterization of preterm birth. *Proceedings of the National Academy of Sciences*. 2019 Mar 19;116(12):5819-27.

Danziger SA, Gibbs DL, Shmulevich I, McConnell M, Trotter MW, Schmitz F, Reiss DJ, Ratushny AV. ADAPTS: Automated Deconvolution Augmentation of Profiles for Tissue Specific cells. *bioRxiv*. 2019 Jan 1:633958.

Hmeljak J, Sanchez-Vega F, Hoadley KA, Shih J, Stewart C, Heiman D, Tarpey P, Danilova L, Drill E, Gibb EA, Bowlby R. et al. Integrative molecular characterization of malignant pleural mesothelioma. *Cancer discovery*. 2018 Dec 1;8(12):1548-65.

Echlin M, Aguilar B, Notarangelo M, Gibbs D, Shmulevich I. Flexibility of Boolean Network Reservoir Computers in Approximating Arbitrary Recursive and Non-Recursive Binary Filters. *Entropy*. 2018 Dec;20(12):954.

Thorsson V, Gibbs DL, Brown SD, Wolf D, Bortone DS, Yang TH, Porta-Pardo E, Gao GF, Plaisier CL, Eddy JA, Ziv E. The immune landscape of cancer. *Immunity*. 2018 Apr 17;48(4):812-30.

Ding L, Bailey MH, Porta-Pardo E, Thorsson V, Colaprico A, Bertrand D, Gibbs DL, Weerasinghe A, Huang KL, Tokheim C, Cortés-Ciriano I. Perspective on oncogenic processes at the end of the beginning of cancer genomics. *Cell*. 2018 Apr 5;173(2):305-20.

Bailey MH, Tokheim C, Porta-Pardo E, Sengupta S, Bertrand D, Weerasinghe A, Colaprico A, Wendl MC, Kim J, Reardon B, Ng PK. Comprehensive characterization of cancer driver genes and mutations. *Cell*. 2018 Apr 5;173(2):371-85.

Reynolds S, Miller M, Lee P, Leinonen K, Paquette S, Rodebaugh Z, Hahn A, Gibbs DL, Slagel J, Longabaugh W, Dhankani V, Reyes M, Pihl T, Backus M, Bookman M, Deflaux N, Bingham J, Pot D, Shmulevich I. The ISB Cancer Genomics Cloud: A Flexible Cloud-based Platform for Cancer Genomics Research, *Cancer Research*. Published

Gibbs DL, Shmulevich I. Solving the influence maximization problem reveals regulatory organization of the yeast cell cycle. *PLoS computational biology*. 2017; 13(6):e1005591.

Poole W, Gibbs DL, Shmulevich I, Bernard B, Knijnenburg TA. Combining dependent P-values with an empirical adaptation of Brown's method. *Bioinformatics* (Oxford, England). 2016; 32(17):i430-i436.

Gibbs DL\*, Dhankani V\*, Knijnenburg T, Kramer R, Vockley J, Niederhuber J, Shmulevich I, Bernard B. Using Incomplete Trios to Boost Confidence in Family Based Association Studies. *Frontiers in genetics*. 2016; 7:34. (\*co-first-authors)

Gibbs DL, Gralinski L, Baric RS, McWeeney SK. Multi-omic network signatures of disease. *Frontiers in genetics*. 2014; 4:309.

Gibbs DL, Baratt A, Baric RS, Kawaoka Y, Smith RD, Orwoll ES, Katze MG, McWeeney SK. Protein co-expression network analysis (ProCoNA). *Journal of clinical bioinformatics*. 2013; 3(1):11.

Siegel DH, Shieh JT, Kwon EK, Baselga E, Blei F, Cordisco M, Dobyns WB, Duffy KJ, Garzon MC, Gibbs DL, Grimmer JF, Hayflick SJ, Krol AL, Kwok PY, Lorier R, Matter A, McWeeney S, Metry D, Mitchell S, Pope E, Santoro JL, Stevenson DA, Bayrak-Toydemir P, Wilmot B, Worthey EA, Frieden IJ, Drolet BA, Broeckel U. Copy number variation analysis in 98 individuals with PHACE syndrome. *The Journal of investigative dermatology*. 2013; 133(3):677-84.

## **Journal Reviews**

Bioinformatics

Computers in Biology and Medicine

## **Podium Presentations**

Gibbs, DL, ISB-CGC Team, Cancer Informatics for Cancer Centers, CI4CC 2018

Gibbs, DL, Shmulevich, I (2016). Solving the maximum influence problem on biological networks. ISMB, Late Breaking Research, Orlando.

Gibbs, DL, Shmulevich, I (2014). Using information flow models and ant optimization to solve the influence maximization problem on biological networks as line digraphs. OHSU Research Week.

Gibbs, DL, McWeeney, S (2013). Mind the gap: strategies for integrating proteomic data. ISMB Berlin, Mass Spec Special Interest Group.

Gibbs, DL, McWeeney, S (2013). Multi-omic network signatures of disease. NLM Informatics Training Conference, Bethesda MD, Plenary session.

Gibbs, DL, McWeeney, S (2013). Multi-omic network signatures of disease. OHSU Research Week.

Gibbs, DL, McWeeney, S, (2012). Peptides, Proteins and Networks: Removing obstacles and getting on the road to systems integration. OHSU Research Week.

Gibbs, DL, Bankhead III, A (2011). Reducing Variability in Co-Expression Network Construction. NLM Informatics Training Conference, Bethesda MD.

### **Poster Presentations**

Gibbs DL, ISB-CGC Team, BigQuery for Bioinformatics, TCGA Legacy Symposium, 2018

Gibbs, DL, Chambwe N, Humphries C, Tasseff R, Dhankani V, Miller M, Bernard B, Knijnenberg T, Shmulevich I, ITMI (2016). Genomic and Molecular Characterisation of Preterm Birth. ISMB, Poster session, Orlando.

Gibbs DL, Shmulevich I (2014) Solving the Influence Maximization Problem with network flows, ant optimization, and regulatory line graphs. ISB Retreat.

Lee CG, Baraff A, Smith R, Baker E, Petyuk V, Cawthon PM, Bauer DC, Gibbs DL, Baratt A, McWeeney SK, Lapidus J, Orwoll ES (2013). Novel Markers of Obesity: a Population-Based Proteomic Approach. ENDO

Gibbs DL, McWeeney S, (2012). Peptides, Proteins and Networks: Removing obstacles and getting on the road to systems integration. ISMB, Boston.

Vingara LK, Gibbs DL, Bankhead III A, Boudreau E (2012). Robust Information Recovery for Statistical Spectroscopy. Experimental NMR Conference.

Baratt A, Baraff A, Petyuk V, Gibbs DL, Woffedin C, Sarver S, Sandoval J, Anderson F, Smith R, Lapidus J, McWeeney SK, Orwoll ES (2011). Statistical and Bioinformatic Considerations for Population Level Proteomic Biomarker Studies. RECOMB Satellite Conference on Computational Proteomics.

Gibbs DL, Bankhead III A (2011). Managing Variability in Co-Expression Network Construction. AMIA Summit on Translational Bioinformatics, San Francisco.

Siegel D, Gibbs DL, Frieden I, Drolet B, Broeckel U. (2011). Copy number variation analysis in PHACE syndrome. Society for Investigative Dermatology Annual Meeting, Phoenix AZ.

Wilmot B, Gibbs DL, Hsieh PH, McWeeney SK. (2009). Considerations for Algorithm Selection and Experimental Design in Detection of Copy Number Variation in Cancer” ISMB.

### **Awards**

NLM Postdoctoral Fellowship, 2012  
ISCB Travel Fellowship, Long Beach Meeting 2012  
NLM Predoctoral Fellowship (ARRA Grant) 2009-2011

### **Teaching**

Bio-Algorithms, OHSU BMI 550, Mentored and gave two lectures.

Bioinformatics seminar, OHSU BMI 553, class co-lead, focus on Bayesian networks.

### **Professional Activities**

Member of the International Society for Computational Biology (ISCB) 2010-current

ISB Retreat committee member 2017-2018

ISB Postdoc Board Member 2015-2016

Member of student council ISCB 2013-2014