

**CURRICULUM VITAE FOR ACADEMIC PROMOTION**  
**The Johns Hopkins University School of Medicine**

*Elana Fertig*

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Elana J Fertig

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April 6, 2015

**DEMOGRAPHIC INFORMATION**

**Current Appointments**

2013 - Present Assistant Professor, Department of Oncology, Johns Hopkins

**Personal Data**

Division of Biostatistics and Bioinformatics  
Department of Oncology  
550 N Broadway 1101E  
Baltimore, MD 21205  
phone: 410 955 4628  
e-mail: ejfertig@jhmi.edu

**Education and Training**

2003 B.S., Physics and Mathematics, Brandeis University, Waltham, MA  
2005 M.S., Applied Mathematics, University of Maryland, College Park, MD  
2007 PhD, Applied Mathematics, University of Maryland, College Park, MD  
2008-2010 Postdoctoral fellow, Department of Oncology, Johns Hopkins University, Baltimore, MD

**Professional Experience**

2007-2008 Analyst, Metron Inc, Reston, VA  
2010-2013 Instructor, Department of Oncology, Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University, Baltimore, MD  
2013-Present Assistant Professor, Department of Oncology, Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University, Baltimore, MD

**RESEARCH ACTIVITIES**

**Peer Reviewed Original Science Publications**

1. **Fertig EJ**‡ (corresponding author), Hunt BR, Szunyogh I, and Ott E. Assimilating nonlocal observations with a local ensemble Kalman filter. *Tellus A.* 2007;59:719-730.
2. **Fertig EJ**‡ (corresponding author), Harlim J, and Hunt BR. A comparative study of 4D-VAR and 4D-LETKF: Perfect model simulations with Lorenz-96. *Tellus A.* 2007; 59:96-101.
3. Liu J.‡, **Fertig EJ**‡ (one of three co-first authors), Li, H‡, Kalnay E, Hunt B, Kostelich E, Szunyogh I, and Todling R. Comparison between Local Ensemble Transform Kalman Filter and PSAS in the NASA finite volume GCM: perfect model experiments. *Nonlinear Processes in Geophysics.* 2008; 15:645-659.
4. **Fertig EJ**‡ (corresponding author), Baek S-J, Hunt BR, Szunyogh I, Ott E, Aravéquia JA, Kalnay E, Li H, and Liu J. Correcting observation bias with a local ensemble Kalman filter. *Tellus A.* 2009; 61:210-226.
5. Fertig, B, Carruthers, TJB, Dennison, WC, **Fertig, EJ**, and Altabet, MA. Variation of d<sup>15</sup>N in the eastern oyster (*Crassostrea virginica*) as a biological indicator of nitrogen sources: temporal, tissue, and modeling analysis. *Marine Pollution Bulletin.* 2010; 60:1288-1298.
6. Fertig, E.J., Ding, J., Favorov, A.V., Parmigiani, G., and Ochs, M.F. CoGAPS: an R/C++ package to identify patterns and biological process activity in transcriptomic data. *Bioinformatics.* 2010; 26:2792-3.
7. Li H, Liu J, **Fertig EJ**, Kalnay E, Kostelich EJ, and Szunyogh I. Improved analyses and forecasts with

- AIRS temperature retrievals using the local ensemble transform Kalman filter. *Journal of tropical meteorology*. 2011; 17:43-49.
8. Aravéquia JA, Szunyogh I, **Fertig EJ**, Kalany E, Kuhl D, and Kostelich EJ. Evaluation of a strategy for the assimilation of satellite radiances with the local ensemble transform Kalman filter. *Monthly Weather Review*. 2011; 139:1932-1951.
  9. **Fertig EJ**‡ (one of two co-first authors), Danilova L‡, Favorov AV, and Ochs MF. Hybrid modeling of cell signaling and transcriptional reprogramming. *Frontiers in Bioinformatics and Computational Biology*. 2011; 2:77.
  10. Francis MR and **Fertig EJ**. Influence of coupling on the dynamics of biochemical network motifs. *PLoS One*. 2012;7:e29497. (*Accepted paper at RECOMB 2012*)
  11. Bedi A, Chang X, Noonan K, Pham V, **Fertig EJ**, Considine M, Califano JA, Borrello I, Chung CH, Sidransky D, and Ravi R. Inhibition of TGF-beta enhances the *in vivo* antitumor efficacy of EGF receptor-targeted therapy. *Molecular Cancer Therapy*, **11**: 2429-2439, 2012.
  12. **Fertig, E.J.**‡ (corresponding author), Ren, Q, Cheng, H., Hatakeyama, H., Dicker A.P., Rodeck, U., Considine, M., Ochs, M.F., and Chung, C.H. Gene expression signatures modulated by EGFR activation and their relationship to cetuximab resistance in head and neck squamous cell carcinoma. *BMC Genomics*, 2012; 13:160 (*Featured in BMC Medicine*).
  13. **Fertig, E.J.**, Favorov, A.V., and Ochs, MF Identifying context-specific transcription factor targets from prior knowledge and gene expression data. *IEEE Nanobioscience*: 2013; **12**:142-9. (*Winner of Best Paper Prize at 2012 IEEE BIBM*).
  14. Howard, J., Cheng, H., Perez, J., Ratner, E., **Fertig, E.J.**, Considine, M., Ochs, M.F., Slebos, R.J., Weidhass, J., and Chung, C.H. miRNA array analysis determines miR-205 is overexpressed in head and neck squamous cell carcinoma and enhances cellular proliferation. *Journal of Cancer Research & Therapy*. 2013; **1**:153-62.
  15. Bauman JE, Arias-Pulido H, Lee SJ, Fekrazad MH, Ozawa H, **Fertig E**, Howard J, Bishop J, Wang H, Olson GT, Spafford MJ, Jones DV, Chung CH. (2013) A phase II study of temsirolimus and erlotinib in patients with recurrent and/or metastatic, platinum-refractory head and neck squamous cell carcinoma. *Oral Oncology*, **49**:461-467.
  16. Gajula RP, Chettiar ST, Williams RD, Thiyagarajan S, Kato Y, Aziz K, Wang R, Gandhi N, Wild AT, Vesuna F, Ma J, Salih T, Cades J, **Fertig EJ**, Biswal S, Burns TF, Chung CH, Rudin CM, Herman JM, Hales RK, Raman V, An SS, Tran PT. (2013). The Twist Box Domain is Required for Twist1-induced Prostate Cancer Metastasis, *Molecular Cancer Research*, **11**:1387-400.
  17. Taylor, D., **Fertig, E.J.**, and Restrepo, JG. Dynamics in hybrid complex systems of switches and oscillators. *Chaos*. 2013; **23**:033142.
  18. **Fertig EJ**\*, Markovic A, Danilova LV, Gaykalova DA, Cope L, Chung CH, Ochs MF, and Califano JA. (2013) Preferential activation of the hedgehog pathway by epigenetic modulations in HPV negative HNSCC identified with meta-pathway analysis. *PLoS One*, **8**:e78127. (\* corresponding author)
  19. Sun W, Gaykalova DA, Ochs MF, Mambo E, Arnaoutakis D, Liu Y, Loyo M, Agarwal N, Howard J, Li R, Ahn S, **Fertig EJ**, Sidransky D, Houghton J, Buddavarapu K, Sanford T, Choudhary A, Darden W, Adai A, Latham G, Bishop J, Sharma R, Westra WH, Hennessey P, Chung CH, Califano JA. (2014) Activation of the NOTCH pathway in head and neck cancer. *Cancer Research*. 2014 Feb 15; **74**(4):1091-104.
  20. Li R, Ochs MF, Ahn SM, Hennessey P, Tan M, Soudry E, Gaykalova DA, Uemura M, Brait M, Shao C, Westra W, Bishop J, **Fertig EJ**, Califano JA (2014) Expression microarray analysis reveals alternative splicing of *LAMA3* and *DST* genes in head and neck squamous cell carcinoma. *PLoS One*, **9**:e91263.
  21. Guerrero-Preston R, Michailidi C, Marchionni L, Pickering CR, Frederick MJ, Myers JN, Yegnasubramanian S, Hadar T, Noordhuis MG, Zizkova V, **Fertig E**, Agrawal N, Westra W, Koch W, Califano J, Velculescu VE, Sidransky D. Key tumor suppressor genes inactivated by "greater promoter" methylation and somatic mutations in head and neck cancer. *Epigenetics*. 2014 Jul; **9**(7):1031-46.
  22. Chung CH, Zhang Q, Kong CS, Harris J, **Fertig EJ**, Harari PM, Wang D, Redmond KP, Shenouda G, Trotti A, Raben D, Gillison ML, Jordan RC, Le QT. p16 protein expression and human papillomavirus status as prognostic biomarkers of nonoropharyngeal head and neck squamous cell carcinoma. *J Clin*

- Oncol.* 2014 Dec 10; **32**(35):3930-8.
23. Zhang K, Jones L, Lim S, Maher CA, Adkins D, Lewis J, Kimple RJ, **Fertig EJ**, Chung CH, Van Tine BA, Ellis MJ, Herrlich A, Michel LS. Loss of Trop2 causes ErbB3 activation through a neuregulin-1-dependent mechanism in the mesenchymal subtype of HNSCC. *Oncotarget.* 2014 Oct 15; **5**(19):9281-94.
  24. Chung CH, Lee JW, Slebos RJ, Howard JD, Perez J, Kang H, **Fertig EJ**, Considine M, Gilbert J, Murphy BA, Nallur S, Paranjape T, Jordan RC, Garcia J, Burtneess B, Forastiere AA, Weidhaas JB. A 3'-UTR KRAS-variant is associated with cisplatin resistance in patients with recurrent and/or metastatic head and neck squamous cell carcinoma. *Ann Oncol.* 2014 Nov; **25**(11):2230-6.
  25. Parker HS, Leek JT, Favorov AV, Considine M, Xia X, Chavan S, Chung CH, and **Fertig EJ\***. Preserving biological heterogeneity with a permuted surrogate variable analysis for genomics batch correction. *Bioinformatics.* 2014 Oct; **30**(19):2757-63. (\* corresponding author)
  26. Fortin JP, Labbe A, Lemire M, Zanke BW, Hudson TJ, **Fertig EJ**, Greenwood CM, Hansen KD. Functional normalization of 450k methylation array data improves replication in large cancer studies. *Genome Biol.* 2014 Dec 3; **15**(12):503.
  27. Fortin JP, **Fertig E**, Hansen K. shinyMethyl: interactive quality control of Illumina 450k DNA methylation arrays in R. Version 2. *F1000Res.* 2014 Jul 30 [revised 2014 Sep 19]; **3**:175.
  28. Lee E, **Fertig EJ**, Jin K, Sukumar S, Pandey NB, Popel AS. Breast cancer cells condition lymphatic endothelial cells within pre-metastatic niches to promote metastasis. *Nat Commun.* 2014 Sep 2; **5**:4715.
  29. Afsari B, **Fertig EJ**, Geman D, Marchionni L. switchBox: an R package for k-Top Scoring Pairs classifier development. *Bioinformatics.* 2015 Jan 15; **31**(2):273-4.
  30. Gajula RP, Chettiar ST, Williams RD, Nugent K, Kato Y, Wang H, Malek R, Taparra K, Cades J, Annadanam A, Yoon AR, **Fertig E**, Firulli BA, Mazzacurati L, Burns TF, Firulli AB, An SS, Tran PT. Structure-function studies of the bHLH phosphorylation domain of TWIST1 in prostate cancer cells. *Neoplasia.* 2015 Jan; **17**(1):16-31.

#### Invited Reviews

1. Ochs, MF and **Fertig, EJ.** (2012) Matrix factorization for transcriptional network inference. *2012 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB):* 387-396.
2. Afsari B, Geman D, **Fertig EJ\***. Learning dysregulated pathways in cancers from differential variability analysis. *Cancer Informatics.* 2014;**13**:61-67. (\* corresponding author)

#### Inventions, Patents, Copyrights

None

#### Extramural Sponsorship (current, pending, previous)

##### Current Grants

7/1/10 – 6/30/15	Identifying Malignant Cell Signaling from Protein Interactions and Polyomic Data K25CA141053 NIH/NCI \$392,247 PI: Fertig EJ, 45%
7/1/14 – 6/30/19	Dynamical Models of Cetuximab Resistance in HNSCC Based on Serial Genomics Data R01CA177669 NCI \$1,250,000 PI: Fertig, 30%
1/1/15 – 12/31/15	Supplement to Genome wide Multiplatform Studies in Adenoid Cystic Carcinoma

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90056858  
ACCR Foundation  
\$60,000  
PI: Ha  
Role: Co-Investigator, 5%

Pending

9/1/15 – 8/31/18      Hardwiring Mechanism into Predicting Cancer Phenotypes by Computational Learning  
R01CA200859  
NLM  
\$426,250  
PI: Marchionni L  
Role: Co-Investigator, 13%

7/1/15 – 6/30/16      Discovery of Novel Alternative Splicing in HPV-related HNSCC  
ID  
American Academy of Otolaryngology AF  
\$9,091  
PI: Guo  
Role: Co-Investigator, 5%

7/1/15 – 6/30/17      Characterizing Genome-Wide Alternative Splicing in HPV Related HNSCC  
R21DE025398  
NIDCR  
\$150,000  
PI: Gaykalova  
Role: Co-Investigator, 15%

4/1/15 – 3/31/20      Alternative Splice Expression in Oral Cancer  
R01DE025031  
NCI  
\$312,299  
PI: Califano  
Role: Co-Investigator, 20%

4/1/15 – 3/31/18      W81XWH-14-BCRP-BREAKTHROUGH12  
Congressionally Directed Medical Research  
\$229,947  
PI: Popel  
Role: Co-Investigator, 5%

7/1/15 – 6/30/20      Multidisciplinary Integrative Genomic Approach to Distinguish Lethal from Indolent  
Prostate Cancer in Men of European and African Ancestry  
U01CA196390  
NCI  
\$500,000  
PI: Schaeffer  
Role: Co-investigator, 5%

Previous

9/1/08 - 08/31/10      An Open-Source Algorithm Isolating Signatures in Microarray Data

R21 LM 009382  
NIH/NLM  
PI: Ochs MF  
Research Fellow, 100%

- 1/1/11 - 06/30/11      Damon Runyon Clinical Investigator Award  
Damon Runyon Clinical Research Foundation  
PI: Chung CH
- 9/1/10 - 8/31/12      Inferring MAPK signaling in EGFR sensitive and resistant head and neck cancers  
Pilot Project  
Sidney Kimmel Comprehensive Cancer Center Head and Neck SPORE  
\$25,000  
PI: Fertig EJ
- 9/1/13 – 8/31/14      A Centralized, Fully Normalized Head and Neck Molecular Database  
Pilot Project  
Sidney Kimmel Comprehensive Cancer Center Head and Neck SPORE  
\$25,000  
PI: Fertig EJ\* (took over role for Ochs MF in May 2013)
- 7/1/13 – 6/30/15      Dynamical models of cetuximab resistance drivers in HNSCC with serial omics data  
Helen Masenhimer Fellowship, Cleveland Foundation  
\$75,000  
PI: Fertig EJ

### **Research Program Building / Leadership**

- 06/13 - Present      Statistician on Head and Neck Tissue Allocation Committee.
- 12/11 - 5/12      Retreat coordinator, Quantitative Sciences, Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University. In my capacity, I was responsible for planning the scientific and programmatic agenda for the research program retreat.

### **EDUCATIONAL ACTIVITIES**

#### **Educational Publications**

Peer-reviewed, original, education publications: None

Review Articles: None

Editorials: None

Case Reports: None

#### Book Chapters

1. **Fertig, E.J.**, Danilova, LV, and Ochs, MF (2011) Cancer Systems Biology, Chapter 25 in Lu H.H-S. Schölkopf, S., and Zhao, H., Editors, Handbook of Computational Biostatistics: Statistical Bioinformatics, Springer Verlag
3. **Fertig, E.J.**, Slebos, R., and Chung, C.H. (2012) Genomics and proteomics technology in biomarker discovery. *2012 ASCO Educational Book*.
4. **Fertig E.J.**, Stein-O'Brien G, Jaffe A, and Colantuoni C (2014) Pattern identification in time-course gene

expression data with the CoGAPS matrix factorization pp 87-112 in Ochs MF, Editor, Gene Function Analysis, Methods in Molecular Biology, Humana Press.

Books, Textbooks: None

Letters, correspondence: None

Other media (films, videos, CD-ROMs, slide sets, etc.)

**Teaching**

Classroom instruction

- 2005 Introduction to Probability (Math 111), instructor for undergraduate, 3 credit semester-long course, University of Maryland, College Park, MD
- 2006 Linear Algebra (Math 240), discussion section leader for undergraduate, 3 credit semester-long course, University of Maryland, College Park, MD
- 2011 - 2013 Introduction to Unix course, instructor of 3 hour course given every semester to graduate students and postdoctoral fellows, Center for Computational Genomics, Johns Hopkins University, Baltimore, MD
- 2011 - present Statistics and Data Analysis using R, instructor in the five week course formerly offered through the Center for Computational Genomics and now as through the School of Medicine (ME:510.707), Johns Hopkins University, Baltimore, MD

Clinical instruction: None

CME instruction: None

Workshops/seminars

- 8/18-20/2013 Practical Genomics: From Biology to Biostatistics, Instructor, curriculum development, and recruitment, Center for Computational Genomics, Johns Hopkins University, Baltimore, MD
- 8/26-28/2013 Practical Genomics: From Biology to Biostatistics, Instructor, curriculum development, and recruitment, Center for Computational Genomics, Johns Hopkins University, Baltimore, MD
- 10/1-3/2012 Practical Genomics: From Biology to Biostatistics, Instructor, curriculum development, and recruitment, Center for Computational Genomics, Johns Hopkins University, Baltimore, MD
- 8/8-10/11 Practical Genomics: From Biology to Biostatistics, Instructor, curriculum development, and recruitment, Center for Computational Genomics, Johns Hopkins University, Baltimore, MD

Mentoring

Postdoctoral Fellow

7/2013 - Present Bahman Afsari

Thesis Committees

- 5/2012 Hilary Parker, PhD candidate in Biostatistics, Johns Hopkins University SPH  
*Non-voting member of PhD committee, supervised applied research project*
- 12/2013 – Present Jane Welch, PhD candidate in IGM, Johns Hopkins University  
*Voting member of PhD committee*
- 1/2013 – Present Genevieve Stein-O’Brien, PhD candidate in IGM, Johns Hopkins University  
*Voting member of PhD committee, supervise development and application of computational methods*

Training grant participation: None

**Education Program Building / Leadership**

Service

- 2009 - 2011 Community Science Day, Spring 2009 and 2010  
Lead “Can you beat the game show?” statistics lab for Baltimore area middle school students.
- 2013 – 2014 Member of New Curriculum Committee for the Summer Science Program.
- 2014 – present Co-authored two proposals for an interdisciplinary genomics curriculum for a high school summer program, the Summer Science Program. One of these proposals, focused on marine metagenomics, was selected as one of two finalists from 12 proposals. Serving as a consultant to oversee the development of this curriculum.

**Educational Extramural Funding:** None

**CLINICAL ACTIVITIES**

Certification

Medical, other state/government licensure: None

Boards, other specialty certification: None

**Clinical (Service) Responsibilities:** None

**Clinical Program Building/Leadership:** None

**Clinical Extramural Funding:** None

**SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES** Not Applicable

**ORGANIZATIONAL ACTIVITIES**

**Institutional Administrative Appointments:** None

**Editorial Activities**

**Editorial Activities:** None

Journal Review Editor

2011 - present *Frontiers in Non-Coding RNA*

Journal Reviewer

- 2009 – present *Tellus A* (2)  
2011 – present *BMC Bioinformatics* (3)  
2011 – present *Nucleic Acids Research* (1)  
2012 – present *Frontiers in Non-Coding RNA* (2)  
2012 – present *BMC Systems Biology* (1)  
2012 - present *IEEE Signal Processing Letters* (1)  
2013 - present *PLoS One* (1)  
2014 – present *Nature Communications* (1)

**Advisory Committees, Review Groups/Study Sections**

10/21/2014 NCI ZCA1 GRB-I (J1) S, Study section member

11/6-11/7/2014 NCI ZCA1 RPRB-B (J1) S, Study section member  
03/18/2015 NCI ZCA1 RPRB-O (M2) S, Study section member

**Professional Societies**

2004-present Member, Society for Industrial and Applied Mathematics (SIAM)  
2004-present Member, Association for Women in Mathematics (AWM)  
2004-present Member, American Mathematical Society (AMS)  
2005-2007 Member, American Meteorological Society (AMS)  
2011-present Member, International Society for Computational Biology (ISCB)  
2012-present Active Member, American Association for Cancer Research (AACR)

**Conference Organizer, Session Chair:** None

**Consultantships**

2014 – present Summer Science Program, Consulting Faculty  
Overseeing the development of a marine metagenomics curriculum as a summer enrichment program for gifted high school students.

**RECOGNITION****Awards, Honors**

2012 Best Paper Award at IEEE International Conference on Bioinformatics and Biomedicine (BIBM).  
2013 – 2014 Accepted participant in Emerging Women Leadership Program, Johns Hopkins University, Baltimore, MD.  
2013 Lead winning team of DREAM8 HPN-DREAM Breast Cancer Network Inference Challenge, Subchallenge 2a.  
2014 Winner of the Summer Science Program New Curriculum Prize.

**Invited Talks, Panels**

2003 Keynote Speaker, Brandeis University Stephan Berko Symposium, “Statistical Topography of Noisy Self-Affine Surfaces,” Waltham, MA.  
2006 JCSDA/NCEP Seminar, “Comparison between Local Ensemble Transform Kalman Filter and PSAS in NASA finite volume GCM,” Camp Springs, MD.  
2006 NASA Goddard GMAO Seminar, “The Local Ensemble Transform Kalman Filter (LETKF) on the GOES4 model: comparison with PSAS,” Greenbelt, MD.  
2007 THORPEX International Science Symposium, “Assessing the Local Ensemble Transform Kalman Filter and its assimilation of AIRS,” Landshut, Germany.  
11/4/2010 Keynote Speaker, NASA Sounder Science Team Meeting, “Assimilating Satellite Radiance Observations with a local ensemble Kalman filter,” Greenbelt, MD.  
6/21/2011 Keynote Speaker, 6<sup>th</sup> International EnKF Workshop, “Indirect observations and ensemble Kalman filters: assimilating satellite observations with a local ensemble Kalman filter,” Ulvik, Norway.  
11/28/2011 Novartis, “Integrating gene expression measurements with prior knowledge of transcription factor targets to infer pathway activity,” Cambridge, MA.  
2/23/2012 Integrated Mathematical Oncology at Moffitt Cancer Center, “Modeling complex biochemical systems: lessons from numerical weather prediction,” Tampa, FL.  
10/29/2012 University of Michigan School of Dentistry, Ann Arbor, MI  
“An integrated matrix factorization algorithm for personalized genomic signatures in HNSCC.”  
11/28/2012 North Carolina State University Mathematics Department, Raleigh NC.  
Differential Equations Seminar, “Analysis of the dynamics of networks of coupled switches and oscillators” and Applied Mathematics Club, “The role of networks in biological systems”  
10/8/2013 6<sup>th</sup> Annual RECOMB/ISCB conference on Regulatory and Systems Genomics, with Dream



Challenges, Toronto, Ontario, Canada

Presented winning results for DREAM8 HPN-DREAM Breast Cancer Network Inference Challenge Subchallenge 2A “Prediction for Time-Course Proteomics”

2/12/2014

CSCAMM, University of Maryland, College Park, MD

Center for Scientific Computation and Mathematical Modeling Seminar “Sparse non-negative matrix factorization with Markov chain Monte Carlo with applications to cancer genomics”

### Posters Presentations

- 2002 Sharp N. and **Klein EJ**. Analysis of Mayall 4m Environment Poster 102.05 at 199th annual meeting of American Astronomical Society, Washington, DC.
- 2005 **Klein EJ**, Li H, Liu J, Szunyogh I, Hunt B, Kalnay E, Kostelich E, and Todling R. Data assimilation on the NASA fvGCM with the local ensemble transform Kalman filter Poster 1.68 at the 17th AMS Conference on Numerical Weather Prediction, Washington, DC.
- 2006 **Fertig EJ**, Liu J, Li H, Kalnay E, Szunyogh I, Kostelich E, and Todling R. Data assimilation with the local ensemble transform Kalman filter on NASA fvGCM Poster 35 at Dynamics Days 2006, Bethesda, MD.
- 2007 **Fertig EJ**. Improving forecasts for chaotic physical processes by improving initial conditions. AWM Poster at the SIAM Annual Meeting, Boston, MA.
- 2011 **Fertig EJ**, Ding, J, Favorov, AV, Parmigiani G, and Ochs, MF. Inferring coordinated gene activity in pattern sets. Pacific Symposium on Biocomputing, Big Island of HI, HI.
- 2011 **Fertig EJ**, Danilova, L, Favorov, AV, and Ochs, MF. Hybrid stochastic modeling of phenotypic decisions by cell signaling and transcriptional reprogramming. Gordon Conference on Stochastic Physics in Biology, Ventura, CA.
- 2011 Hatakeyama H, Cheng H, **Fertig EJ**, Considine M, Dahlman KB, Su Z, Slebos R, Pao W, Chung CH. Epithelial-to-mesenchymal transition and cetuximab resistance in head and neck squamous cell carcinoma. NCI Translational Science meeting, Abst #158.
- 2012 **Fertig EJ** and Francis, MF. Quantifying the dynamics of coupled networks of switches and oscillators. Dynamics Days, Baltimore, MD.
- 2012 Danilova LV, **Fertig EJ**, Favorov, AV, and Ochs MF. Predicting cellular fate decisions in *C. elegans* by integrating a graphical model of cell signaling with a continuous model of transcriptional reprogramming. Dynamics Days, Baltimore, MD.
- 2012 Cheng H, **Fertig EJ**, Ozawa H, Hatakeyama H, Considine M, Perez J, Ochs, Chung CH. Smad4 inactivation correlates with EMT and cetuximab resistance in head and neck squamous cell carcinoma. American Association for Cancer Research, Annual Meeting, Abst #1889.
- 2012 Bauman JE, Arias-Pulido H, Lee SJ, Considine M, Fekrazad MH, Howard J, Bishop JA, Olson GT, Jones DV, **Fertig EJ**, Chung CH. Phase II study of temsirolimus and erlotinib in patients (pts) with recurrent/ metastatic (R/M), platinum-refractory head and neck squamous cell carcinoma (HNSCC). *J Clin Oncol* 30, 2012 (suppl; abstr 5549).
- 2012 **Fertig EJ**, Favorov, AV, and Ochs, MF. Identifying context-specific transcription factor targets from prior knowledge and gene expression data. Systems Biology: Global regulation of gene expression, Cold Spring Harbor, NY.
- 2013 **Fertig EJ**, Markovic A, Danilova LV, Gaykalova DA, Cope L, Chung CH, Ochs, MF, and Califano JA. (2013) An integrated matrix factorization algorithm for DNA methylation and gene expression identifies HNSCC clinical subtypes and *GLI1* signaling specific to HPV-negative HNSCC. *Abstract #2901 at AACR Annual Meeting 2013*, Washington DC.
- 2013 **Fertig EJ**, Markovic A, Danilova LV, Gaykalova DA, Cope L, Chung CH, Califano JA, Ochs MF. Integrated meta-pathway algorithm infers epigenetic modulations that distinguish HNSCC clinical subtypes and hedgehog signaling specific to HPV-negative HNSCC. *Abstract SB36 at 2013 RECOMB/ISCB Conference on Regulatory and Systems Genomics, with DREAM Challenges*. Toronto, Ontario, Canada.
- 2014 Considine M, Parker HS, Wei Y, Xia XX, Cope C, Ochs MF, **Fertig EJ**. Interactive pipeline for reproducible genomics analyses. Abstract #LB317 at AACR Annual Meeting 2014, San Diego, CA.

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**ELANA FERTIG**

Oral Presentations: None

OTHER PROFESSIONAL ACCOMPLISHMENTS: None