ASHOK R. DINASARAPU

Senior Bioinformatics Analyst [09/2015 - till date]

Emory Vaccine Center, Emory University, Atlanta, Email: darphd@gmail.com

SUMMARY

Bioinformatics Scientist (Senior Bioinformatics Analyst) with an expertise in high dimensional data analysis including clinical and laboratory studies.

Integrated vaccine (flu) or substance use (marijuana) induced gene expression and, immune/clinical parameters in healthy or HIV-infected young adults, respectively. Integrated gene expression and lipidomics data from mouse macrophages stimulated with LPS/ATP.

Designed and developed databases, applications and semantic data exchange formats to store and disseminate biological data.

WORK EXPERIENCE

Senior Bioinformatics Analyst	**Emory University, Atlanta, USA**	**09/2015 – till date**

Integration of gene expression and immunological data of flu vaccination, with or without adjuvant at various time-points.

- Gene expression (microarray), Antigen-specific antibody titers (microneutralization, MN and hemagglutination inhibition assay, HAI), Plasmablasts (enzyme-linked immunospot, ELISPOT), Tfh-cell frequency (flow-cytometry) and Cytokine (luminex) data.

Postdoctoral Associate	**University of Florida, Gainesville, USA**	**11/2013 - 09/2015**

Integration of gene expression and clinical/recreational substance use data in HIV-infected young adults.

- Gene expression (microarray), HIV RNA (Plasma viral-load; VL), LPS and, toxicology assay (substance use; marijuana and tobacco) and alcohol use data.

Postdoctoral Fellow	**University of California San Diego, USA**	**03/2008 - 11/2013**

- LPS/ATP activated mouse macrophages. Designed and developed databases, applications and semantic data exchange formats to store and disseminate biological data.
- CMAP: Complement Map Database (http://www.complement.us/labweb/cmap/).
- UCSD Signaling Gateway [http://www.signaling-gateway.org/molecule/].
- ChromViz: Java-based data visualization tool [https://github.com/adinasarapu/chromviz].

COMPUTER/DATA SCIENCE SKILLS

Data science/programming skills applied in my previous work:

- Proficiency in R (Statistical Computing), Python and Java programming.
- Microarray (LIMMA, SAM, WGCNA, Clustering, PCA) analysis.
- RNA-seq (Samtools, Bamtools, Bowtie, TopHat, DESeq2 and Cufflinks) analysis.
- Functional pathway/gene set analysis: Hypergeometric test, Fisher's exact test, GSEA, Kolmogorov-Smirnov test. Ingenuity Pathway Analysis (IPA), JMP, MetaCore, BIOBASE (TRANSFAC) and IPA online analysis tools.

- Demonstrated fluency in UNIX/Linux computing environment. PBS scripting to run RNA-Seq analysis jobs on High-performance computing (HPC).
- Java/J2EE, Java/Swing, MySQL, XML, RDF, OWL, BioPAX and SBML
- Tomcat, OC4J, CVS, GitHub, Eclipse and Cygwin

Familiarity with public domain databases/tools:

- NCBI, KEGG, Reactome, NCI PID, BRENDA, TRANSFAC, Gene Ontology.
- UCSC Genome Browser and UCSD Molecule Pages.
- Data visualization, Circos.
- Gather/process external data by connecting to APIs.

EDUCATION

Ph.D	Biochemistry/Bioinformatics	University of Hyderabad, India	2003-2007
M.Tech	**Biotechnology**	**Anna University, India**	**2000-2002**
M.Sc	Biochemistry	University of Hyderabad, India	1998-2000
B.Sc	**Chemistry and Biology**	**Andhra Loyola College, India**	**1994-1997**

PH.D THESIS & M.TECH DISSERTATION

2003 – 2007: "Computational Analysis of Gene Regulatory Elements using Mutual Information" Department of Biochemistry, University of Hyderabad, India.

2000 – 2002: "Identification of Wolbachia Bacteria in Patients with Bancroftian Filariasis using Polymerase Chain Reaction" and "Expression and Production of Filarial Recombinant Protein WbSXP". Center for Biotechnology, Anna University, Chennai, India

RESEARCH GRANTS

"Plasma lipid profiling using mass-spectrometry to study the effects of marijuana use in HIV-positive young adults" [grant not availed]
Experimental Pathology Innovation Grants [EPIG, 2014-2015] at University of Florida
Role: Principal Investigator, Total amount: $5000

INVITED TALKS

1. 2015 - Systems biology approach predicts immune-modulatory role of recreational marijuana use by HIV-infected young adults. Systems biology and Bioinformatics interest group, Emory University, Atlanta, GA, November 4, 2015.
2. 2015 - Recreational marijuana use effectively reduces HIV-1/ART induced immune activation in young adults. SHARC group meeting, Gainesville, FL, March 12, 2015.
3. 2014 - Whole blood transcriptome (bioinformatics) analysis of substance use by healthy and HIV+ human subjects. 2014 Bioinformatics Seminar Series, University of Florida, Gainesville, May 1, 2014.
4. 2007 - Analysis of Gene Regulatory Elements Using Mutual Information. Genome Biology Group, University of Texas Arlington, TX, May 13-16, 2007.

PUBLICATIONS

Book Chapters/Journal Reviews

1. Bioinformatics and systems biology of the lipidome. S Subramaniam, E Fahy, S Gupta, M Sud, RW Byrnes, D Cotter, AR Dinasarapu, MR Maurya (2011). *Chemical reviews,* 111 (10), 6452-6490.
2. Omics approaches to macrophage biology. S Gupta, AR Dinasarapu, MJ Gersten, MR Maurya, S Subramaniam. (2014). *Macrophages: Biology and Role in the Pathology of Diseases*, 587-615.
3. Biological data integration and dissemination on semantics web – a perspective. AR Dinasarapu**,** S Gupta (2015). *Journal of Bioinformatics and Intelligent control* (*in press*).

Journal Research Papers

4. Systems biology approach predicts immune-modulatory role of recreational marijuana use in HIV-infected young adults. Dinasarapu AR et al., [under preparation].
5. Statistical insights into major human muscular diseases. S Gupta, SM Kim, Y Wang, AR Dinasarapu, S Subramaniam (2014). *Human molecular genetics*, 23(14): 3772-8.
6. A combined omics study on activated macrophages—enhanced role of STATs in apoptosis, immunity and lipid metabolism. AR Dinasarapu, S Gupta, MR Maurya, E Fahy, J Min, M Sud, MJ Gersten, CK Glass, S Subramaniam (2013). *Bioinformatics*, 29 (21), 2735-2743.
7. Analysis of inflammatory and lipid metabolic networks across RAW264. 7 and thioglycolate-elicited macrophages. MR Maurya, S Gupta, X Li, E Fahy, AR Dinasarapu, M Sud, HA Brown, CK Glass, RC Murphy, DW Russell, EA Dennis, S Subramaniam (2013). *Journal of lipid research*, 54 (9), 2525-2542.
8. MicroRNA 203 modulates glioma cell migration via Robo1/ERK/MMP-9 signaling. R Dontula, A Dinasarapu, C Chetty, P Pannuru, E Herbert, H Ozer, SS Lakka (2013) *Genes & cancer*, 4(7-8):285-96.
9. CMAP: Complement Map Database. K Yang, AR Dinasarapu, ES Reis, RA DeAngelis, D Ricklin, S Subramaniam, JD Lambris (2013) *Bioinformatics*, 29 (14), 1832-1833.
10. Signaling gateway molecule pages—a data model perspective. AR Dinasarapu, B Saunders, I Ozerlat, K Azam, S Subramaniam (2011). *Bioinformatics*, 27 (12), 1736-1738.
11. Comparative analysis of core promoter region: Information content from mono and dinucleotide substitution matrices. DA Reddy, B Prasad, CK Mitra (2006). *Computational biology and chemistry*, 30 (1), 58-62.
12. Comparative analysis of transcription start sites using mutual information. DA Reddy, CK Mitra (2006). *Genomics, proteomics & bioinformatics*, 4 (3), 189-195.
13. Functional classification of transcription factor binding sites: information content as a metric. DA Reddy, B Prasad, CK Mitra (2006). *Journal of Integrative Bioinformatics*, 3 (1), 20.

SELECTED CONFERENCE/MEETING ABSTRACTS

1. AR Dinasarapu, C Mavian, A Riva, S Appelberg, J Williams, JW Sleasman, and MM Goodenow. Immunomodulatory effects of recreational marijuana use in youth living with HIV-1. CROI 2016: Boston, February 22 - 25, 2016.
2. AR Dinasarapu, K-F Chang, X Zhang, A Riva, JW Sleasman, MM Goodenow. Recreational Substance Use Modulates Anti-Viral Response through Cell Surface Receptors in Youth Living With HIV-1 and Antiretroviral Therapy. 2015 SHARC Conference, Gainesville, Florida, January 28-29, 2015.
3. A Dinasarapu, K-F Chang, A Riva, J Sleasman, M Goodenow. Alcohol and Substance use in youth living with HIV-1 and anti-retroviral therapy modulates anti-viral response through immune cell-surface receptors. University of Florida Celebration of Research, February 9-13, 2015.
4. A Dinasarapu, K-F Chang, M Karki, J Williams, X Zhang, Y Li, J Sleasman, M Goodenow.

Effects of substance use by HIV-infected young adults on whole blood transcriptional profiling. University of Florida Celebration of Research March 31 - April 1, 2014.

5. AR Dinasarapu, K-F Chang, M Karki, X Zhang, JC Williams; KS Appelberg, Y-Y Chi, Y Li, JW Sleasman, MM Goodenow. Effects of substance use by healthy and HIV- infected young adults by systems biology. CHAART Scientific meeting, Washington DC, May 14-16, 2014.
5. MR Maurya, AR Dinasarapu, S Gupta, E Fahy, M Sud, S Subramaniam. An omics study of oxidized phospholipid activated RAW 264.7 cells. LIPID MAPS Annual Meeting 2013, La Jolla, CA, May 7-8, 2013.
6. AR Dinasarapu, A Chandrasekhar, S Subramaniam. A comprehensive map of the human complement system from signaling gateway molecule pages. 45th Annual Meeting of The Society for Leukocyte Biology, Maui, Hawaii, October 28-30, 2012.
7. S Gupta, AR Dinasarapu, MR Maurya, E Fahy, M Sud, S Subramaniam. Integrated transcriptomic and lipidomic study of macrophage response to liver X receptor ligand 25-hydroxy-cholesterol. 2012 AIChE Annual Meeting, Pittsburg, PA, October 28-November 2, 2012.
6. AR Dinasarapu, S Gupta, MR Maurya, E Fahy, SJ Min, M Sud, MJ Gersten, S Subramaniam. Transcriptomic and lipidomic data analysis of macrophages stimulated with KLA/ATP reveals enhanced role of STATs in apoptosis, immunity and lipid metabolism. LIPID MAPS Annual Meeting 2012, La Jolla, CA, May 7-8, 2012.
8. AR Dinasarapu, K Azam, B Saunders, S Subramaniam. Signaling Gateway Molecule Pages. The Hackthon on Resources for Modeling in Biology (HARMONY)-2011, New York City, April 18-22, 2011.

GitHub:	https://github.com/adinasarapu
Twitter:	https://twitter.com/adinasarapu
Publons:	https://publons.com/author/193718/
Google Citations:	http://scholar.google.com/citations?user=b6GBykAAAAAJ&hl=en