Melanie Ruth Adams, M.D.
Curriculum Vitae
2/23/16

Date of Birth: June 2, 1956
Place of Birth: Champaign, Illinois
Address: 218 Castenada Ave
San Francisco, CA 94116

Email: adams@plessthan.com
Website: NuclearRNANetworks.com

Brief Bio

Dr Adams is a retired physician/scientist with a background in clinical Transfusion Medicine and in HIV gene transcription regulation. She began her study of RNA viruses at the KOVL Viral Oncology Labs in Chicago in 1978 and, during her medical training at State University of NY at Stony Brook and Beth Israel Hospital in NYC, she encountered some of the earliest patients with AIDS. Her interest in the regulation of RNA viruses such as HIV continued through her residencies in Human Pathology and Transfusion Medicine at the University of California San Francisco. While her two boys were young, she was the assistant Medical Director at Blood Centers of the Pacific in San Francisco. At this time, while studying small viral RNAs in HIV-infected blood cells she realized how human gene transcription could be regulated in a manner similar to HIV. These ideas gained traction with the discovery of small RNA-mediated transcriptional gene silencing in 2005. She has pursued her fascination with RNA-mediated transcription regulation ever since, beginning her studies of human gene transcription as a postdoctoral fellow in the laboratory of Dr David Peace at UCSF. Her initial contact with Brent Bishop was inspired by a need to communicate her visual scientific ideas; first to others within the field and then to a broader audience. Together, they translated her rough sketches into animated films that illustrate complex scientific concepts with efficiency and artistry.

Film Animations:

1. Nuclear RNA Networks
    - PART 1: Nodes & Edges
    - PART 2: Nodes & Cell Differentiation
    - PART 3: Nodes, PIWI, & Junk
        - I. Pause Point Creation
        - II. Jumping Genes & Networks
        - III. Inheritance & Diversity
2. Nuclear RIAC: RNA-Induced Activating Complex
    - PART 1: Intro
    - PART 2: Promoter Proximal Pausing
    - PART 3: Argonaute
    - PART 4: P-TEFb

3. The Wonders of RNA
   Pseudogenes & Adapting to Bad Smells
   Smooth vs Punctuate Changes in Evolution
   Lessons from HIV
   Transposable Elements, Germ Cells, & Evolution
   Alu Repeats & Inflammation
   Visualizing Science Through Animation
   RNA Networks
   Conventional & Innovative Theories

Recent Presentions:

1. Thoughts on 'Self' vs 'Other' and a Potential New Role for Transposable Elements in Primordial Germ Cells.
   Non-Coding RNA: New Mechanisms and Approaches
   May 18-19, 2015
   Joseph B. Martin Conference Center, Boston, US
2. RNA Repeat-Mediated Transcription Dosage Networks
   Small RNA Silencing: Little Guides, Big Biology (A6)
   January 24-28, 2016
   Keystone Resort – Keystone, Colorado USA

Full CV

Certification:

1983	Doctor of Medicine, State University of New York, Stony Brook, NY
1989.	Diplomat of the American Board of Pathology in Anatomic Pathology
1990.	Diplomat of the American Board of Pathology in Clinical Pathology
1993	Specialty Certification in Blood Banking/Transfusion Medicine

Licensure: California, #G54977

Education:

1974-1978	B.A. University of Chicago, Chicago, IL (Biology, with Honors)
1978-1979	Research Assistant to Dr. Sandra Panem, Kovler Viral Oncology Laboratories, University of Chicago
1979-1983	M.D. State University of New York, Stony Brook, NY
1983-1984	Internship in Medicine, Beth Israel Hospital, New York
1984-1988	Residency in Anatomic and Clinical Pathology, University of California, San Francisco (refs 1-4)
1988-1989	Research volunteer in the lab of Dr Luc Montagnier, Institut Pasteur, Paris (ref 5)

1990-1992	Transfusion Medicine Research Fellowship, Department of Laboratory Medicine UCSF, Laboratory of Dr. Matija Peterlin, Howard Hughes Medical Center, University of California, San Francisco. (refs 6, 8, 9, 10, 15)

Employment and Research:

1989-1990	Research Assistant to Dr. Michael Busch, Scientific Services, Irwin Memorial Blood Bank-Blood Centers of the Pacific, San Francisco (ref 6)
1993.	Blood Bank Fellowship, Irwin Memorial Blood Bank-Blood Centers of the Pacific, 270 Masonic Ave, San Francisco (refs 7, 9)
1995.	Research Associate, Irwin Memorial Blood Bank-Blood Centers of the Pacific, San Francisco, Laboratory of Dr Michael Busch (refs 7, 11)
1995-1999	Assistant Medical Director, Irwin Memorial Blood Bank-Blood Centers of the Pacific, San Francisco (refs 12, 16, 17, 18)
1999-2003	Post-doctoral Fellow, Laboratory of Dr. David Pearce, Dept of Nephrology, UCSF: supported by Nephrology Training Grant 5T32-DK07219-28 (Principal Investigator Dr. Harlan Ives). Topic of study: Transcriptional regulation of stress response genes by the Glucocorticoid Receptor. (ref 19)
2003 – current	Retired Research pathology for the Laboratory of Dr Aditi Bhargava (ref 20, 21)

Patent: 1996	U.S. Patent Award #5,576,176; 11/19/96: Marker and an assay for detection and monitoring of human immunodeficiency virus latency and activation

Grants:

1990-1992	Transfusion Medicine and Hematology NIH Research Training Grant # HL07100-16
1994	Academic Research Enhancement Award; NIAID 1 R15 AI37971-01: The Role of HIV-1 Tat Protein in Clinical Latency
1995	University of California Universitywide AIDS Research Program Award # R95-FFS-093: Tat Activity and A Critical Evaluation of HIV Latency

Current Activities:

1. I am exploring models of Transposable Element-mediated gene transcription self-feedback and gene-to-gene network formation. (NuclearRNANetworks.com)

2. Film animations

Nuclear RNA Networks

PART 1: Nodes & Edges

PART 2: Nodes & Cell Differentiation
PART 3: Nodes, PIWI, & Junk
I. Pause Point Creation
II. Jumping Genes & Networks
III. Inheritance & Diversity

Nuclear RIAC: RNA-Induced Activating Complex
PART 1: Intro
PART 2: Promoter Proximal Pausing
PART 3: Argonaute
PART 4: P-TEFb

The Wonders of RNA
Pseudogenes & Adapting to Bad Smells
Smooth vs Punctuate Changes in Evolution
Lessons from HIV
Transposable Elements, Germ Cells, & Evolution
Alu Repeats & Inflammation
Visualizing Science Through Animation
RNA Networks
Conventional & Innovative Theories

3. Research Pathology

Ref 20: Adams M, Bhargava A. RNA Interference by long dsRNA: A Technical Trick Reveals An Ancient Force in Gene Regulation. Cellscience Rev , 2006; 2(4), April 30: ISSN 17428130

Ref 21: Chang J, Adams MR, Clifton MS, Liao M, Brooks JH, Hasdemir B, Bhargava A Urocortin 1 modulates immunosignaling in a rat model of colitis via corticotropin-releasing factor receptor 2.
Am J Physiol Gastrointest Liver Physiol. 2011 May;300(5):G884-94. doi: 10.1152/ajpgi.00319.2010. Epub 2011 Feb 17

Teaching Experience:

1997. Adjunct Faculty, Center for Biomedical and Laboratory Science, State University of San Francisco, SF, CA
Designed and taught the course: “Clinical Laboratory Medicine and HIV Disease”

Administrative Experience:

1989-1990 Supervisor, Cell Separation Laboratory, Irwin Memorial Blood Bank, Blood Centers of the Pacific, San Francisco

1992. Coordinator, Transfusion Medicine Weekly Research Seminar, UCSF

1995	Interim Medical Director, Irwin Memorial Blood Centers, Blood Centers of the Pacific, San Francisco (June -October)
1995-1999	Assistant Medical Director, Blood Centers of the Pacific, San Francisco

Hobbies:

Figure Sculpture in wax/bronze
Enameled silver and copper
Classical Piano
Romani Dance

Publications:

1. Adams M, Smuckler EA. Whipple's Disease confined to the Central Nervous System. Ann Neur 1987; 21:104-108
2. Damon L, Adams M, Stricker RB, Ries C. Intracranial bleeding during treatment with hydroxyethyl starch (Letter to the Editor). N Engl J Med 1987; 317:964
3. Safrin S, Morris JG Jr, Adams M, Pons V, Jacobs R, Conte JE Jr. Non-01 Vibrio Cholerae Bacteremia: Case Report and Review. Rev Inf Dis 1988; 10:1012-7
4. Adams M, Reid ME, Toy PTCY. Exposure of cryptantigens on red blood cell membranes in patients with acquired immunodeficiency syndrome and AIDS-related complex. J Acquir Immune Defic Syndr 1989; 2:224-8
5. Montagnier L, Guetard D, Rame V, Olivier R, Adams M. Virological and immunolgical factors of AIDS pathogenesis. Quatrieme Colloque des Cent Gardes 1989; 11-17.
6. Lee T-H, El-Amad Z., Reis M, Adams M, Donegan EA, O'Brien TR, Moss AR, Busch MP. Absence of HIV-1 DNA in high-risk seronegative persons using high-input PCR. AIDS 1991; 5:1201-7
7. Adams M, Lee T-H, Busch MP, Heitman J, Marshall GJ, Gjerset GF, Mosley JW and the Transfusion Safety Study Group. Rapid freezing of whole blood or buffy coat samples for PCR and cell culture analysis: application to detection of HIV in blood donor and recipient repositories, Transfusion 1993; 33:504-8
8. Peterlin BM, Adams M, Alonso A, Bauer A, Ghosh S, Lu X, Luo Y. Tat Trans-activator, The Molecular Biology of Human Retroviruses, Ed. Bryan Cullen, ILR-Oxford University Press, Oxford, UK.1993; 75-100
9. Adams M, Sharmeen L, Kimpton J, Romeo JM, Garcia JV, Peterlin BM, Groudine M, Emerman M. Cellular latency in human immunodeficiency virus-infected individuals with high CD4 levels can be detected by the presence of promoter-proximal transcripts. Proceedings of the National Academy of Sciences of the United States of America 1994; 91(9):3862-6.
10. Adams M, Peterlin M. AIDS, Transcriptional regulation of HIV, Encyclopedia of Molecular Biology and Biotechnology, Ed. R.A. Meyers, VCH Publishers, Inc., NYC, 1995; 10-15
11. Adams M, Johnson D, Busch M, Schembri C, Hartz T, Heaton W. Automatic volumetric capillary cytometry for counting white cells in white cell-reduced plateletpheresis components. Transfusion 1997; 37:29-37.

12. Blackbourn D, Ambroziak J, Lennette E, Adams M, Ramachandran B, Levy J. Infectious human herpesvirus 8 in a healthy North American blood donor. The Lancet 1997; 349:609-611
13. Adams M, Heaton WA. The use and quality control of leukocyte-depleted cell concentrates. Vox Sanguinis, 1997;
14. Adams M, Dumont LJ, McCall M, Heaton WA. Clinical trial and local process evaluation of an apheresis system for preparation of leukocyte-reduced platelet products. Transfusion, 1998; 38:966-974
15. Adams M, Wong C, Wang D, Romeo J. Limitation of Tat-associated transcriptional processivity in HIV-infected PBMC. Virology, 1999; 257: 397-405
16. Adams MR, Hirschler NV, Papenfus L, Heaton WA. Detecting failed WBC-reduction processes: a quality assurance program introduced in a blood center. Transfusion, 2000; Dec;40(12):1434-41
17. Adams MR, Fisher DM, Dumont LJ, Dzik WH, Heaton WA. Detecting failed WBC-reduction processes: computer simulations of intermittent and continuous process failure. Transfusion, 2000; Dec;40(12):1427-33
18. Hambleton J, Wages D, Radu-Radulescu L, Adams M, MacKenzie M, Shafer S, Lee M, Smyers J, Wiesehahn G, Corash L. Pharmacokinetic study of FFP photochemically treated with amotosalen (S-59) and UV light compared to FFP in healthy volunteers anticoagulated with warfarin. Transfusion, 2002 ;Oct;42(10): 1302-7
19. Adams M, Meijer OC, Wang J, Bhargava A, Pearce D. Homodimerization of the glucocorticoid receptor is not essential for response element binding: activation of the phenylethanolamine N-methyltransferase gene by dimerization-defective mutants. Mol Endocrinol, 2003; Dec;17(12):2583-92.
20. Adams M, Bhargava A. RNA Interference by long dsRNA: A Technical Trick Reveals An Ancient Force in Gene Regulation. Cellscience Rev , 2006; 2(4), April 30: ISSN 17428130 (www.cellscience.com/journal/journalindex.asp) See Appendix
21. Adams M, Bhargava A. Kinetics of Urocortin 1 secretion in unstimulated vs inflamed colon and the requirement for its primary receptor CRF-R2 in acute inflammation. Am J Physiol Gastrointest Liver Physiol. 2011 May;300(5):G884-94. Epub 2011 Feb 17.

22. Wellcome Trust Peoples Award application registered 10/28/15, #42464

"RNA & EVOLUTION" Animated Film & Interactive Installation

The Concept

RNA & Evolution is an animated short film and interactive gallery installation telling the story of RNA and its emerging importance in understanding the Evolution of Life. This project is intended to educate and entertain a diverse audience, from students and enthusiasts to colleagues in the scientific community.

This exhibit combines charismatic, hand-drawn artwork, cutting edge theory, conversational language, and humor to make sophisticated theories accessible

to a wide audience. Its presentation includes an animated film, documentary interviews from the scientists behind the theories, engaging visual displays, and a hands-on touchscreen experience introducing molecular main “characters.” biology’s

Created in collaboration by renowned Cambridge molecular biologist Dr. Eric Miska, San Francisco molecular biologist Dr. Melanie Adams, and Los Angeles filmmaker Brent Bishop, this project shares a cutting-edge view of the powerful role of RNA in life’s origins and diversity.

The Science
This exhibit transports visitors through the 4 billion year journey of Life on Earth, from RNAs’ ancient beginnings as the first replicating molecule in pockets of‘Primordial Soup’, to the diverse lifeforms of today that inhabit almost every ecological niche on planet earth. Powered by state of the art research, the installation expands the traditional view of RNA a messenger between DNA and protein, revealing the latest cutting edge theorys in which RNA takes center stage as the communication dynamo of the cell. Tiny RNA guide strands direct vast networks of gene expression with great precision. But RNA, by ‘jumping’ DNA into unexpected places, also fuels the genetic instability required for the evolutionary leaps necessary for the persistence of life in an unstable world.