OMB No. 0925-0001/0002 (Rev. 08/12 Approved Through 8/31/2015)

EXPIRES 04/01/2015

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Russ B. Altman

eRA COMMONS USER NAME (credential, e.g., agency login): ALTMAN.RUSS

POSITION TITLE: Professor of Bioengineering, Genetics, & Medicine and, by courtesy, of Computer Science

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
Harvard College	A.B.	06/1983	Biochemistry & Molecular Biology
Stanford University Medical School	Ph.D.	06/1989	Medical Information Sciences
Stanford University Medical School	M.D.	06/1990	Medicine

A. Personal Statement

I am a Professor of Bioengineering, Genetics, Medicine and (by courtesy) Computer Science. My area of professional expertise is bioinformatics, the creation of methods to analyze molecular data of importance to problems in medicine and health. My specific application area of interest is drug action, including molecular analysis of protein structure and dynamics, datamining for discovery of unexpected drug actions, functional genomics (particularly pharmacogenomics) to understand drug action and the impact of human variation on drug response. The PharmGKB resource (http://www.pharmgkb.org/) is the premier repository of curated information about how human genetic variation impacts drug-response phenotypes. We use the contents of PharmGKB to create new applications in data mining, drug discovery and personal genomics. We develop and use a broad array of machine learning algorithms for natural language processing, clustering, classification and deep learning.

B. Positions and Honors

RESEARCH AND/OR PROFESSIONAL EXPERIENCE

1982 Undergraduate Research Assistant. Supervisor: Prof. William N. Lipscomb, Nobel Laureate, Harvard Department of Chemistry
1982-1983 Undergraduate Research Assistant. Supervisor: Prof. Stephen C. Harrison, Harvard Department of Biochemistry and Molecular Biology
1984-1988 Graduate Research Assistant to Bruce G. Buchanan, Stanford Dept. of Computer Science
1989-1992 Post-Doctoral fellow (part time). Prof. Oleg Jardetzky, Stanford Magnetic Resonance Laboratory
1990-1992 Intern and Resident, Stanford University Medical Center
1992 Assistant Professor of Medicine (& Computer Science, by courtesy), Stanford University
1993-1997 Member, Executive Steering Committee, San Diego Supercomputer Center
1994-1995 Organizing Committee, 2nd & 3rd Intl. Conf. on Intelligent Systems for Molecular Biology
1996- Organizing Committee, Pacific Symposium on Biocomputing
1996 Founding Board of Directors, International Society for Computational Biology (ISCB)
1997 Molecular Science Thrust Leader, National Partnership for Advanced Computer Infrastructure
1999 Associate Professor of Medicine (& Computer Science, by courtesy) tenure, Stanford University
2000- Director, Biomedical Informatics Program, Stanford University
2000-2002 President, International Society for Computational Biology
2003 Professor of Genetics, Bioengineering, & Medicine (& Comp. Sci., by courtesy) Stanford University
2007 Chair, Department of Bioengineering, Stanford University
2009-2012 Guidant Chair of Bioengineering, Stanford University
2012 President-Elect, American Society for Clinical Pharmacology and Therapeutics

2013 President, American Society for Clinical Pharmacology and Therapeutics
2013- Chair, Science Board to the Food and Drug Administration

HONORS AND AWARDS

1983 Phi Beta Kappa, Harvard College Chapter
1983 Summa Cum Laude, Harvard College
1983 NIH Medical Scientist Training Program pre-doctoral fellowship at Stanford
1987 Departmental Ph.D. oral exams passed "with high distinction"
1991 Howard Hughes Fellowship for Physicians
1993 Charles E. Culpeper Scholarship in Medical Science
1996 National Science Foundation CAREER Award
1997 U.S. Presidential Early Career Award for Scientists and Engineers (NIH)
1998 Western Society for Clinical Investigation, Annual Young Investigator Award
1998 Fellow, American College of Medical Informatics
1999 Fellow, American College of Physicians
2000 Stanford Graduate Teaching Award
2005 General Internal Medicine, Honorable Mention for Clinical Teaching
2009 Fellow, American Institute of Medical and Biological Engineering
2009 Member, Institute of Medicine of the National Academies
2010 Fellow, International Society for Computational Biology
2014 Stanford Medical School Mentorship Award
2014 Fellow, American Association for the Advancement of Science

C. Contribution to Science

For the purposes of this grant, my contributions to training are the most pertinent.

1. I have been the Director of the Stanford Biomedical Informatics program since 2000. During that time, we have had nearly 100 MS and PhD graduates who have taken leadership positions in academia and industry.
2. I have trained 22 PhD students in my laboratory, including faculty currently at Columbia, Harvard, Princeton, UCSF, U. Peking, and industry.
3. I have taught "Representations and Algorithms for Molecular Biology" (Biomedical Informatics 214 = Computer Science 274) for more than twenty years. The class had 130 students last fall, and introduces algorithms for sequence, structure and function analysis.
4. I teach Biomedical Informatics 212 = Introduction to methods of research in biomedical informatics, which is a project class, involving students in groups of 3-4 proposing, reviewing, executing and presenting a software projects in 2.5 months—about 20% of these projects are published in peer-reviewed proceedings.
5. I serve on the Biodiversity Committee at Stanford and am committed to diversity in biomedical sciences along all dimensions.

D. Research Support

Active

2 R01 LM05652 (PI: Altman) 09/01/04 – 08/31/15
NIH / NLM
Annotating Functional Sites in 3D Biological Structures
The main goal is to apply methods and develop methods for annotating biological structures so that active sites, binding sites and interaction sites in biological structures can be automatically identified and annotated.
Role: PI

5 U01 GM061374 (PI: Altman) 08/08/05-06/30/15
NIH / NIGMS
PharmGKB: From Association to Mechanism
The Stanford Pharmacogenomics Knowledge Base (PharmGKB, http://www.pharmgkb.org/), an integrated data resource to support the NIGMS Pharmacogenetic Research Network and Database Initiative focuses on how genetic variation contributes to variation in the response to drugs, and will produce data from a wide range

of sources, therefore interlinking genomic, molecular, cellular and clinical information about gene systems important for modulating.
Role: PI

U54 GM072970 (PI: Altman) 09/15/04-8/31/15
NIH/NIGMS
Physics-Based Simulation of Biological Structures
The goal of this project is to establish a National Center for Simulation of Biological Structures (Simbios). The center develops, disseminates, and supports a simulation toolkit (SimTK) that enables users to create and visualize accurate models and simulations of biological structures at a large range of scales–from molecules to organisms.
Role: PI

NIH/University of Florida 08/01/10 - 07/31/15
Subcontract
Pharmacogenomic Evaluation of Antihypertensive Drugs
The goal of this position is to provide design, implementation and maintenance for all content and educational materials for NIH Pharmacogenomics Research Network (PGRN) scientific website and act as the PharmGKB - PGRN liaison.

Role: PI

1 P50 MH094267
NIH/University of Chicago 09/22/11 - 06/30/16
Subcontract
Conte Center for Computational Systems Genomics of Neuropsychiatric Phenotypes
The goal is to consolidate in a single modeling framework a number of disparate approaches for analysis of complex neuropsychiatric disorders.
Role: PI

U10 HL105198
NIH/University of Maryland, Baltimore 8/30/2011 – 6/30/2015
Subcontract
Translational Pharmacogenetics Program
The overall goal of the TPP is to operationalize the work of the PGRN Clinical Pharmacogenomics Implementation Committee (CPIC) by translating widely accepted actionable pharmacogenetic discoveries into real-world clinical practice.
Role: PI

U54-HL117798
NIH/University of Pennsylvania 08/01/2012-05/31/2015
Subcontract
Personalization of Therapeutic Efficacy and Risk
The goal is to build an integrated network of genes, drugs and phenotypes that will be an important asset in integrating information from multiple integrated efforts to understand the individual response to NSAIDs.
Role: PI

R01 GM102365
NIH/NIGMS 09/01/2012 - 05/31/2017
Combining systems biology and structural biology to find new therapeutics
Goal: To combine systems biology approaches with structure-based approaches to find new purposes for existing drugs, and to better predict off-target effects of drugs.
Role: PI

R01 GM10734001 (PI: Delp, Scott)
NIH 09/01/2013 - 04/30/2017

Simtk.org: A Resource to Enable Collaboration & Reproducibility of Biosimulations
Simtk.org is the home of the software framework initiated and developed by Simbios, the National NIH Center for Biomedical Computing focusing on Physics-based Simulation of Biological Structures. Dr. Altman is funded on the parent grant.
Role: Co-Investigator

U54 EB020405 (PI: Delp, Scott)
NIH 09/29/2014 – 09/30/2018
Mobility Data Integration to Insight
This project will transform mobility research by developing tools for data analysis and releasing software that will advance research to prevent, diagnose, and improve impairments that limit human movement
Role: Co-Investigator

UCSF / FDA 04/15/2014 – 03/31/2017
Subcontract
UCSF-Stanford Center of Excellence in Regulatory Science and Innovation
Goal: Stanford will engage in research collaborations with UCSF and FDA scientists to pursue projects in the area of regulatory science, with a focus on informatics.
Role: PI

IC2014-1387 (PI: Altman) 11/17/14-11/16/15
Pfizer
Strategic Effort in Precision Immunology –I-GPS
The vision for this collaboration is to create analytic methods for understanding drug response at the molecular level and quantitatively based on retrospective and prospective data analysis.

COMPLETED
PARSA Community Foundation (PI: Altman) 11/01/10 - 10/31/14
Iranian Genome Project
An initiative for better understanding of the genes of the Iranian population.
Role: PI

1S10RR026647 8/1/2010 – 7/31/2012
Tesla GPU Cluster
This is a multi-investigator hardware-only grant for a cluster. I am the nominal PI only, and it is run by a faculty committee who are devoted to high performance computing.
NOTE: This grant provides no funds or research support for my lab.
Role: PI

HHS-NIH-LM-RDS-10-121-KP 9/27/10-9/26/12
NIH
Computational thinking for pharmacogenomics curation and discovery
The long term vision for this work is to build a system capable of reasoning about genes, drugs and drug response phenotypes.
Role: PI