BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Rebecca A. Betensky	Professor of Biostatistics
eRA COMMONS USER NAME (credential, e.g., agency login)	
RBETENSKY	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
Harvard University, Cambridge, MA	A.B.	06/87	Mathematics
Stanford University, Stanford, CA	Ph.D.	09/92	Statistics

A. Personal Statement

Dr. Betensky plays an active role in the research training and teaching program of the Department of Biostatistics. She is the original director of the training grant (T32 NS048005), originally awarded by NINDS in 2004 and renewed through 2014, titled "Training in Neurostatistics and Neuroepidemiology." She has been a primary trainer on the Department of Biostatistics' cancer, AIDS and Psychiatric Epidemiology training grants for several years. She has been the advisor for 13 pre-doctoral students and 18 post-doctoral students, and has served on many thesis research committees. She was recently awarded a new T36 grant from NIGMS for training undergraduates and post-baccalaureate students from underrepresented minority backgrounds in Biostatistics. She is Director of the Biostatistics Program for the NIH sponsored Harvard Catalyst (Clinical and Translational Science Center), Co-Leader of the Biostatistics Program at the Dana-Farber/Harvard Cancer Center, Leader of the Biostatistics Cores of the Massachusetts Alzheimer's Disease Research Center and a Program Project from NINDS on stroke, and Director of Statistics for the Harvard Neuro-Discovery Center. Dr. Betensky has a strong record of methodological research in statistical methods related to cancer, neurology and genetics, with focus on survival data, clinical trials, and complex sampling models. Her statistical methods research focuses on issues of sampling bias and truncation, both of which are highly relevant in the proposed studies of association between cancer and AD. Dr. Betensky's current research also includes projects in biomarker and in the development of statistical methods for biomarkers in the presence of time varying endpoints with censoring and truncation. She has investigated biomarker studies in the absence of perfect gold standards and the limitations of currently available methods in this setting. She is also developing new statistical methods to optimally evaluate predictive biomarkers with regard to time to event outcomes with variable follow-up and censoring, such as survival or progression. She is extending these methods to handle very high dimensional biomarkers, such as gene expression arrays, for which standard methods break down. She has developed methods for prediction when there is a nested case control study, in addition to the original cohort study; she has applied this to prediction of hospital acquired pneumonia for acute stroke patients. She has also developed methods for efficient subject and endpoint selection in Alzheimer's disease clinical trials.

B. Positions and Honors
PROFESSIONAL EXPERIENCE:

1992-1993	**Postdoctoral Scholar**, Department of Health Research and Policy, Division of Epidemiology, Stanford University, Stanford, CA
1993-1994	**Assistant Professor**, Departments of Preventive Medicine and Statistics, Northwestern University, Chicago, IL
1994-1999	**Assistant Professor**, Department of Biostatistics, Harvard School of Public Health, Boston, MA
1998-2000	**Assistant Biostatistician**, Massachusetts General Hospital, Boston, MA
1999-2006	**Associate Professor**, Department of Biostatistics, Harvard School of Public Health, Boston, MA
2000-2007	**Associate Biostatistician**, Massachusetts General Hosptial, Boston, MA
2002- 2002-2005	**Director of Statistics**, Harvard NeuroDiscovery Center, Boston, MA
2010-	**Co-Leader** Biostatistics Program, Dana-Farber/Harvard Cancer Center, Boston, MA

2005-2009	**Leader** Biostatistics Program, Dana-Farber/Harvard Cancer Center, Boston, MA
2007-	**Biostatistician**, Massachusetts General Hospital, Boston, MA
2007-	**Professor,** Department of Biostatistics, Harvard School of Public Health, Boston, MA
2007-	**Member,** Affiliated Faculty, Harvard-MIT Division of Health Sciences and Technology (HST)
2008-	**Director,** Data and Statistics Core, Alzheimer's Disease Research Center, Massachusetts General Hospital, Boston,MA
2011-	**Director,** Harvard Catalyst Biostatistics Program, Harvard University, Boston, MA

HONORS and AWARDS:

1987	A.B. Harvard University, *cum laude* in Mathematics
1996	Schering-Plough Junior Faculty Award
1998	NIH FIRST Award
2003	Fellow of the American Statistical Association
2005	Mortimer Spiegelman Award for "outstanding contributions to health statistics" from the American Public Health Association
2007	Elected Member, International Statistical Institute

Associate Editor: *Biostatistics (2008-2012), Biometrics (2000-2006), Statistics in Medicine (2002-2008), Lifetime Data Analysis (2001-2004), Neuro-Oncology (2000-2005)*

Statistical Consultant: *New England Journal of Medicine* (2009-2010)

Member*: Cancer Biomarkers Study Section* (CBSS) (2009-2013); *Biostatistical Methods and Research Design (BMRD)* Study Section, NIH (2003-2007); Institute of Medicine Committee on TBI (2011-12) and Committee on Health Effects of Agent Orange (2012-13).

C. Selected Peer-reviewed Publications

Macklin EA, Blacker D, Hyman BT, **Betensky RA**. Improved design of prodromal Alzheimer's disease trials through cohort enrichment and surrogate endpoints. J Alzheimers Dis. 2013 Apr 29. [Epub ahead of print]. NIHMSIDID 478926

Segal MM, Williams MS, Gropman AL, Torres AR, Forsyth R, Connolly AM, El-Hattab AW, Perlman SJ, Samanta D, Parikh S, Pavlakis SG, Feldman LK, **Betensky RA**, Gospe SM Jr. Evidence-Based Decision Support for Neurological Diagnosis Reduces Errors and Unnecessary Workup. J Child Neurol. 2013 Apr 10. [Epub ahead of print]. (not supported by NIH funds)

Mandel M, Mercier F, Eckert B, Chin P, **Betensky RA**. Estimating time to disease progression comparing transition models and survival methods-an analysis of multiple sclerosis data. Biometrics. 2013 Mar;69(1):225-34. NIHMSID 478925

Mi MY, **Betensky RA**. An analysis of adaptive design variations on the sequential parallel comparison design for clinical trials. Clin Trials. 2013;10(2):207-15. PMCID: PMC3612388

Clark, D. E., Qian, J., Winchell, R. J. and **Betensky, R. A.** Hazard regression models of early mortality in trauma centers. Journal of the American College of Surgeons. 2012 Dec;215(6):841-9. NIHMSID 478924

Clark, D. E., Qian, J., Sihler, K. C., Hallagan, L. D. and **Betensky, R. A.** The distribution of survival times after injury. World J Surg. 2012 Jul;36(7):1562-70. NIHMSID 478929

Rudinskiy N, Hawkes JM, **Betensky RA**, Eguchi M, Yamaguchi S, Spires-Jones TL, Hyman BT. Orchestrated experience-driven Arc responses are disrupted in a mouse model of Alzheimer's disease. Nat Neurosci. 2012 Oct;15(10):1422-9. PMCID:PMC3458168

Hirasawa H, **Betensky RA**, Raviola E. Corelease of dopamine and GABA by a retinal dopaminergic neuron. J Neurosci. 2012 Sep 19;32(38):13281-91. PMCID: PMC3489011

Okereke OI, Pantoja-Galicia N, Copeland M, Hyman BT, Wanggaard T, Albert MS, **Betensky RA**, Blacker D. The SIST-M: predictive validity of a brief structured clinical dementia rating interview. Alzheimer Dis Assoc Disord. 2012 Jul-Sep;26(3):225-31. PMCID: PMC3257375

Desantis SM, Houseman EA, Coull BA, Nutt CL, **Betensky RA**. Supervised Bayesian latent class models for high-dimensional data. Stat Med. 2012 Jun 15;31(13):1342-60. NIHMSID 478932

Serrano-Pozo A, Mielke ML, Gómez-Isla T, **Betensky RA**, Growdon JH, Frosch MP, Hyman BT. Reactive glia not only associates with plaques but also parallels tangles in Alzheimer's disease. Am J Pathol. 2011 Sep;179(3):1373-84. PMCID: PMC3157187

Stamoulis C and **Betensky RA**. (2011). A novel signal processing approach for detection of copy-number variations in the human genome. Bioinformatics 27**:**2338-2345. PMCID: PMC3157926

Waikar SS, **Betensky RA**, Emerson SC, Bonventre JV. Imperfect gold standards for kidney injury biomarker evaluation. J Am Soc Nephrol. 2012 Jan;23(1):13-21. NIHMSID 437931

Spires-Jones, T., Kay K, **Betensky RA**, Hyman BT. Calcineurin inhibition with systemic FK506 treatment increases dendritic branching and dendritic spine density in healthy adult mouse brain Neuroscience Letters. 2011 Jan 10;487(3):260-3. PMCID: PMC3010509

Mandel, M and **Betensky, RA**. Estimating Time-to-Event From Longitudinal Ordinal Data Using Random Effects Markov Models: Application to Multiple Sclerosis Progression. Biostatistics. 2008 Oct;9(4):750-64. PMCID: PMC2536724

D. Research Support
<u>Active</u>

R01CA075971 (Betensky)   09/01/07-08/31/13
NIH/NCI
Statistical Methods for Analysis of Failure Time Data
The major goal of this project is the development of methods for analysis of interval and right censored data that addresses medical questions frequently posed by clinicians. ROLE: PI

UL1RR025758 (Nadler)   05/19/08-04/30/14
NIH/NCRR
Harvard Clinical and Translational Science Center (Biostatistics Node/HSPH)
The major goal of this project is to provide statistical support to Harvard clinical and translational researchers. ROLE: Leader of Biostatistics Program

R03CA165070 (Betensky)   04/11/12-09/30/13
NIH
Signal processing for accurate detection of copy number variants in cancer
The aim of this study is to translate methods from traditional signal processing into the problem in genomics of copy number variant detection. ROLE: Principal Investigator

P50NS051343 (Furie)   09/20/06-06/30/14
NIH/NINDS
Specialized Program of Translational Research in Acute Stroke (SPOTRIAS)
Major goal is to develop a translational research center that will study acute stroke care as it evolves toward the practice of rapidly reversing ischemia before infarction occurs. ROLE: Director of Data Core

P30CA006516 (Benz)   12/01/77-11/30/13
NIH/NCI
Cancer Center Support Grant
The major goals of this project are to support CORE activities that represent shared resources used by a variety of investigators in different laboratories throughout the DF/HCC. ROLE: Co-Leader of Program

P50AG005134 (Hyman)   05/15/04-03/31/14
NIH/NIA
Massachusetts Alzheimer's Disease Research Center
ADRC's Database Management & Statistics Core (aka Core C). The major goal of this project is to provide statistical support for clinical studies. ROLE: Director

P01AG036694 (Sperling)   07/01/10-06/30/15
NIH/NIA
Impact of Amyloid on the Aging Brain

The overall goals of the Program Project application are to elucidate the biological and clinical significance of amyloid deposition in clinically normal older individuals and to determine age-related functional and cognitive change in the absence of amyloid. ROLE: Statistician

R01NS070834 (Greenberg)   07/01/10-06/30/15
NIH/NINDS
Early Detection of Cerebral Amyloid Angiopathy

The major goal of this grant is to establish the early diagnosis of advanced CAA by validating and applying novel in vivo detection methods for individuals without hemorrhagic stroke. ROLE: Statistician

R01AG026484 (Greenberg)   09/30/10-08/31/15
NIH/NIA
Vascular Dysfunction in Cerebral Amyloid Angiopathy

The major goad of this project is to analyze the effect of cerebral amyloid angiopathy on microvascular function, white matter diseaese, and cognitive impairment. ROLE: Statistician

<u>**Completed**</u>

R33 DK074099 (Bonventre)   09/30/05-06/30/10
NIH/NIDDK
Biomarkers in Acute Kidney Injury
The major goal of this project is to evaluate and validate new biomarkers for acute kidney injury and to develop statistical methods for joint analysis of multiple biomarkers. Role: Statistician

R01CA057683 (Louis)   08/01/92- 02/28/14
NIH/NCI
Toward a Molecular Classification of Human Gliomas
The major goals of this project are to analyze human astrocytomas for a variety of genetic alterations and to correlate these findings with clinicopathological parameters. ROLE: Statistician