APPENDIX A

APPENDIX A

IN THE SUPERIOR COURT OF WASHINGTON
IN AND FOR THE COUNTY OF KING

STATE OF WAHINSGTON, Plaintiff	)	
vs.	)	No.: 10-1-09274-5 SEA
EMANUEL FAIR, Defendant	)	Declaration of Dr. Ranajit Chakraborty

I, Ranajit Chakraborty, of age above 18 years, deposes and declares:

1. I am presently the Director of the Center for Computational Genomics of the Institute of Applied Genetics and a Professor at the Department of Molecular and Medical Genetics of the University of North Texas Health Science Center in Fort Worth, Texas.
2. I hold a Masters Degree in Statistics (1968) and a Ph.D. in Biostatistics (1971). I have authored over 560 research articles, edited eight (8) books, and made scientific contributions (through peer-reviewed publications and National/International presentations at workshops and symposia) in the areas of molecular population genetics, complex disease genomics, strategies of gene mapping, biostatistics of parentage and relationship testing, DNA forensics for human identification and microbial forensics.
3. I have validated DNA forensic population databases from numerous countries of the world and have frequently given expert opinion on DNA forensics nationally and internationally for both Prosecution and Defense. I served as a member of the U.S. National DNA Advisory Board (1995-2000), a frequent faculty member of the Scientific Working Group on DNA Analysis Methods (SWGDAM) since 1989.
4. In the context of my research in the above-mentioned areas, I have personally written and supervised writing of several computer software source codes to conduct data analyses, some of which are routinely used in DNA forensics and relationship testing. In addition, as a Subject Matter Expert (SME) of the Combined DNA Index System (CODIS) project, governed by the US Federal Bureau of Investigation (FBI), I have done subcontract work at all three Institutions where I served (University of Texas Health Science Center at

Houston, Texas during 1994 till 2001; University of Cincinnati College of Medicine at Cincinnati, Ohio during 2001 till 2010; and University of North Texas Health Science Center at Fort Worth, Texas since 2011) in which I have done extensive validation studies of the components of statistical software (called POPSTAT) used in the CODIS project. Consequently, I am familiar with the concept of validation of statistical software, including the ones specifically used in DNA forensics.

5. I am familiar with Cybergenetics, Inc., and its founder, Dr. Mark W. Perlin who has been Chief Executive Officer of Cybergenetics Corporation since 1996 and who, with his family members, currently holds almost exclusively the entire shares of stock of that corporation.
6. I am also familiar with the TrueAllele Casework System (TrueAllele) which has been employed to re-analyze data regarding DNA mixture samples produced by the Washington State Police Forensic Laboratory in this case. My familiarity and exposure to the claimed objectives of the TrueAllele software system dates back to years of my serving at the New York DNA Subcommittee (until 2011) where this software was approved for forensic analysis of DNA evidence.
7. During the subsequent years (since 2011), through examination and review of casework evidentiary data interpreted by the TrueAllele system, and by reading its published validation studies, I developed significant concerns regarding logistics, formulation, and implementation of the underlying claimed principles of the TrueAllele system, which now reversed my opinion about reliability and general acceptance of the applications of the TrueAllele software for interpreting complex DNA mixture evidences as found in this case.
8. As of today, I have studied casework data from TrueAllele analyses in 11 cases (including this one), and have given testimony/declaration regarding its lack of accuracy in seven cases (see Exhibit A for a combined listing of both).
9. As of now I never had possession of the TrueAllele software, including the time when the TrueAllele system was reviewed by the NY DNA Subcommittee. On several occasions of reviewing casework data that used the TrueAllele system to produce DNA reports submitted to the Court, requests for obtaining its source code were denied, even when the Defense experts expressed their intent to satisfy any protective order issued by the Court.

On March 4th, 2016 I received documents that suggest that a license of the "read-only VUler software" (a component of the TrueAllele system) can be made available with an expiry date of 96 days. for which the details of computer infrastructure needed to view the software is not detailed, nor what can be accomplished from it is described. Likewise, the invitation to join the TrueAllele cloud platform to process DNA data using the TrueAllele without having to purchase a system is also equally vague and unspecified with regard to its scope of analyses.

10. In absence of the availability of the software source code, several claims made in the court reports on DNA data interpretation using the TrueAllele system as well as those published in the validation studies of the TrueAllele software are impossible to verify. In contrast, some claims are clearly at best misrepresentation of the tasks actually performed by the TrueAllele system. For example. it is obvious that in contrary to the claim that the system processes each evidentiary sample objectively (see e.g., see the METHODS section of the Cybergenetics report submitted in this case. dated December 17, 2015), it does not analyze any evidence sample but, rather, it re-analyzes the DNA data on the evidentiary items generated by other laboratories (the Washington State Police Laboratory in this case).
11. Further, according to Dr. Perlin's own description TrueAllele is a system of mathematical equations that have an underlying mathematical model which describes the behavior and variation of DNA, making TrueAllele a probabilistic or statistical model for genotype inference. While this generic description of the TrueAllele system may be correct, the mathematical details of the system, published in the validation studies are very generic and does not give details of several critical features of complex DNA mixtures such as the ones analyzed in this case. In other words, without the software source codes of the system, it is impossible to verify whether the underlying mathematical models of the system are accurately translated in the source code instructions, or implemented accurately in computations.
12. TrueAllele analyzes data in a way that has hitherto not been used in standard forensic practice in the vast majority of laboratories working in the field of forensic DNA analysis (e.g., this system uses data part of which may be generated from the artifacts of the DNA amplification process of laboratory analysis of samples, which are generally filtered out by

other laboratories invoking the concept of "thresholds", not used in the TrueAllele system).

13. The data which TrueAllele uses consists of all allele peak height information including those falling below a threshold level established by the almost all of the DNA laboratories of the world through their own validation studies, or by the manufacturers of the DNA kits used in the capillary electrophoresis by the sequencer machines to get signatures of specific DNA components in evidentiary samples.
14. Peaks below such threshold heights and the data which they represent are deemed unreliable and are excluded from the report in which interpretations are made and conclusions reached by the forensic laboratories.
15. In so doing, as input variables, TrueAllele is given all allele peak heights including the ones that fall below the thresholds of the standard operating procedures of the forensic laboratories, but apparently its initial step of analysis (VUler software) filters out some of the data without any explicit explanation of how this is done (that must be present in the software not made available as yet).
16. Dr. Perlin's probabilistic genotyping modeling analysis includes such suboptimal threshold data, which are not used in the vast majority of forensic DNA laboratories nationally and internationally.
17. Consequently, the use of this data by TrueAllele is a novel and experimental innovation in forensic DNA analysis which has not gained general acceptance within the scientific community.
18. In this case, the TrueAllele system has been applied to DNA mixtures in compromised evidence samples, whose profiles clearly exhibit lack of clear presence of one or more DNA components of the possible contributors of DNA in these mixtures. This creates another level of complexity of DNA mixture that was not adequately presented to the New York State DNA Subcommission at the time of seeking approval for theTrueAllele system from the Subcommittee. In addition, neither the allele degradation model in the TrueAllele software, nor the incorporation of allele drop-in is explicitly explained in any of the publications or operating procedures of the TrueAllele system.
19. For example, in the Phase I Evaluation report of Cybergenetics TrueAllele Expert system, prepared by the New South Wales (NSW) team in Australia in July 2011, in Section 9

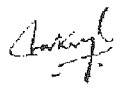
(titled 'Black Box') it is stated: "There have been suggestions that TA is 'a black box'. Currently while the mathematics for key variables such as mixture weight, amplification variance, and baseline variance have been disclosed in publications, the handling of other parameters such as stutter, relative amplification of alleles at a locus, and DNA degradation are not disclosed. This makes it difficult to determine how TA handles these issues ...".

20. This NSW report, particularly the section of Document 4 (an extract from the Cybergenetic publication "Validating TrueAllele DNA Mixture Interpretation" amended by John West), gives a fairly readily understandable documentation of parametric version of the underlying mathematical models in the TA system from which a reader can assert at what stage of the models specific assumptions are made. For example, the equation (5) of this document clearly illustrates that the TA system assumes independence of allele peak heights at a locus to model distributions of peak height variance and baseline variance. However, the lack of exposition of modeling of variables such as the PCR stutter, relative amplification, DNA degradation, and dye separation and their mathematical implementation, noted in the NSW report, illustrates the "Black Box" nature of the TA analysis, which could have been deciphered through the analysis of the specific instructions in the source code of the software.
21. The NSW report of phase I validation exercise of the TA system also revealed other limitations of the TA analysis, including: (a) inadequate consideration of artifacts of the PCR process in using the recorded peak height data; (b) inconsistent genotype probabilities inferred for minor contributors in a mixture whose allelic peak heights are nearly similar to those of real alleles of other contributors; (c) uncertainties of deconvoluted genotypic inference in the scenarios of equal weight mixture data; and (d) uncertainties of the impact of inaccurate number of unknown contributors in a DNA mixture. With ample of specific examples, this report illustrates that the comfort region of unambiguous genotype inference of contributors by the TA analysis is rather narrow and inapplicable for complex DNA mixtures, in terms of the parameter space of describing a complex DNA mixture, not recognized in any of the publications or reports on the TA system produced by Cybergenetics.

22. On a similar lines of examinations, California Department of Justice (CAL-DOJ) conducted a series of experiments to compare performances of two probabilistic DNA expert systems for interpretation of DNA mixture data (TrueAllele system of Cybergenetics and STRmix system of ESR, Australia). Publicly available summary results of this CAL-DOJ exercise is available in the web-site: https://epic.org/state-policy/foia/dna-software/#foia along with background materials prompting this study. While a detailed summary of this CAL-DOJ study is beyond the scope of this declaration, I may note that sensitivity as well as specificity of TA inference in the cases of complex DNA mixtures in the experiments done by CAL-DOJ were of far less acceptable quality than the ones reported in the Cybergenetic publications. In particular, both sensitivity and specificity substantially diminished with increase in number of contributors (even from 2-person mixture to 3-person mixtures), with skewed mixture weights of contributors, and with DNA degradation.
23. The discussions of paragraphs 19 through 22 are from information that were not available to me (or any other member of the scientific community) when the NY DNA Subcommittee reviewed the TA system on or before 2011. These are examples of evidence that I would use now to assert that the TrueAllele system has failed to gain general acceptance in the scientific community and it has not been adequately validated for the type of caseworks it is now being applied.
24. The source code for the software upon which TrueAllele operates has never been disclosed by Dr. Perlin or anyone else of Cybergenetics. In fact, the few laboratories that claim to have purchased the license to use the TrueAllele system have only the executable version of the software, which does not contain the source code. In addition, as of present, a great majority of these laboratories are yet to produce DNA evidence in criminal trials on their own, based on TrueAllele-based analyses of DNA mixture data.
25. Additionally, Dr. Perlin has not disclosed the flow charts which describe the logic and sequence of the use of the system of equations in the software, particularly in relation to incorporation of DNA degradation, imbalance of allelic signatures from minor contributors whose alleles may mask signatures of real alleles of other contributors, and filtering of allelic data in the phase of implementation of the VUler component of the TA software.

26. Further, Dr. Perlin has refused to reveal the full details concerning the input and output data of the applications of his software.
27. In the absence of critical disclosure, TrueAllele represents complicated technology providing novel scientific evidence whose general acceptance remains questionable.
28. I am aware that TrueAllele has undergone at least twenty-five (25) revisions, as of this writing, and it continues to evolve.
29. There is no documentation of any validation study for evolution of revisions of the system by scientists working independently of the Cybergenetics Corporation.
30. Until such time as TrueAllele reveals its source code, the flow charts for the use of its system of equations and its input /output data for its software, it can only be considered "a work in progress".
31. Having reviewed TrueAllele Supplemental Reports in several other cases I can state that the Cybergenetics Report in this case is typical in that it is seven pages in length (actually 4 pages, with 3 pages of associated materials), it makes ambiguous and misleading statements (such as "The TrueAllele® system processed each evidence item ...") and improperly uses the term "match" when comparing a mixture DNA profile to the DNA profile of a single individual.
32. In the absence of: (i) the source code, (ii) any information about the precise nature of the input data, (iii) any information regarding the assumptions being made in the underlying mathematical models and their rationale (particularly in relation to the complexity parameters of stutter modeling, inaccurate assumption on number of contributors, mixture weight imbalance, etc.), and (iv) in the absence of any intermediate results together with their statistical supports from which the final conclusions are drawn, TrueAllele cannot be meaningfully validated. Consequently, without any such meaningful validation, it remains novel and experimental and it has not been generally accepted within the scientific community.
33. Moreover, Dr. Mark Perlin refuses to allow defense experts to review TrueAllele's (allegedly) 170,000 lines of source code, calling them a trade secret. To circumvent any financial risk of reviewing TA's source does, I am willing to sign any protective court order to conduct such a review with the aid of associates with necessary computer background.

34. He further argues that the dozens of validation studies conducted on TrueAllele would offer more insight into the program than the source code.
35. Neither a review of these validation studies, most of which were performed by Cybergenics itself, nor a "walk through" of the program is an adequate substitute for the revelation of the source code itself, as a way of validating TrueAllele.
36. Furthermore, I have extensively reviewed the testimonies of Dr. Mark Perlin and Dr. Barry Duceman (a close collaborator of Dr. Perlin in several validation studies of the TrueAllele system) in *People v. Wakefield*, and have come to a number of discordant conclusions related to application of the TA system in this case. For example, both Dr. Perlin and Dr. Duceman (another witness in the *Wakefield* case) testified that TrueAllele uses all data without any threshold. However, from my experiences of reviewing this and other TrueAllele cases, I find that this statement may not be entirely correct. In the context of this case, the Robe 6 evidentiary sample is described as a DNA mixture of two or three contributors (see page 2 of the Cybergenetics report of this case, dated December 17, 2015). Graphic results of the VUler software have many alleles missing that are apparently included in data submitted to the computer for runs of this sample for TrueAllele analysis. Clearly, this is discordant with the claim that TA used all data in interpreting the DNA mixture of the Robe 6 evidentiary item.
37. Paragraphs above indicate that further discovery data, which I have outlined to Defense Counsel (request #5 of the discovery demand made on February 3, 2016, and request #3 of the discovery demand of February 11, 2016), is necessary for completion of my examination of application of the TrueAllele technology in this case.
38. Until this discovery demand is made, and complied with, I will be unable to complete my examination of materials submitted for application of TrueAllele in this case.
39. Moreover, without the TrueAllele source code, even if the discovery data is available, I may still be not able to give expert testimony in this case.



Ranajit Chakraborty, Ph.D.

March 7, 2016

EXHIBIT A

True-Allele Cases Reviewed by Dr. Ranajit Chakraborty as of March 7, 2016

1. Regina vs. Colin Duffy & Brian P. Shivers at the Crown Court of Northern Ireland (retained as a Defense Expert by Solicitors Peter Corrigan and Niall Murphy)
   Duration: December 1, 2011 till March 5, 2013.

2. Commonwealth of Virginia v. Matthew Franklin Brady (Case Nos: CR11000465-01, -02, -03, & -04 and CR11000494-01, -02, -03, & -04): retained as a Defense Expert by Attorney Douglas Wham. Deputy Capital Defender, Central Region 1602 Rolling Hills Drive, Suite 212 Henrico, Virginia 23229 Tel. 804.662.7166, ext. 102 Fax 804.662.7172 E-mail: dwham@cdc.idc.virginia.gov (until March 25, 2013) and (from April 1, 2013) by Joseph W. Vigneri, Capital Defender, Office of the Capital Defender - Central Region, 1602 Rolling Hills Dr., Suite 212, Henrico, VA 23229, Telephone: (804) 662-7166 ext. 105, Facsimile: (804) 662-7172 and Stephanie S. Miller, Esq., Senior Assistant Capital Defender Office of the Capital Defender - Central Region, 1602 Rolling Hills Dr., Suite 212, Henrico, VA 23229, Telephone: (804) 662-7166 ext. 103, Facsimile: (804) 662-7172. Approved by the Circuit Court for the City of Colonial Heights, Commonwealth of Virginia (on September 26, 2012) and with a supplemental Court order signed on June 5, 2013 from the same court.
   Duration: September 16, 2012 till July 26, 2013.

3. Commonwealth of Virginia vs. Darwin Bowman (retained as a Defense Expert by Attorneys of Bradley R. Haywood, Esq., Sheldon & Flood, P.L.C., 10621 Jones St., Suite 301-A, Fairfax, VA 22030, W 703.691.8410, C 703.909.6492 and later by Attorney Jonathan Shapiro, a lawyer in VA and Visiting Professor of Law at Washington and Lee University Law School, Lexington, VA; e-mail: js@greenspunlaw.com)
   Duration: February 9, 2012 till April 18, 2013.

4. State of Maryland vs. Adan Canela, Case # 104176021 (retained as a Defense Expert by Stephen B. Mercer, Chief Attorney, Forensics Division, Office of the Public Defender, 6 St. Paul Street, Suite 1400, Baltimore, MD 21202-1608, Tel. (410) 767-5541, Fax (410) 333-8496, e-mail: smercer@opd.state.md.us
   Jeff Gilleran, Assistant Public Defender, Forensics Division, Office of the Public Defender, 6 St. Paul Street, Suite 1400, Baltimore, MD 21202-1608, e-mail: JGilleran@opd.state.md.us)
   Duration: April 22, 2013 till August 15, 2013.

5. People of the State of New York vs. John H Wakefield at the Schenectady County Supreme Court of the State of New York (retained as a Defense Expert by Attorney Frederick Rench, Esq. 646 Plank Road, Suite 204, Clifton Park, NY 12065, Tel: 518.373.8400; Fax: 518.383.6898, e-mail: fred@renchlaw.com
   Duration: January 13, 2014 till October 8, 2014.
   Status: Reviewed Cybergenetics case report and discovery data and TA validation studies; wrote and submitted an affidavit on March 31, 2014; scheduled for the video

testimony first in August 2014 and subsequently in October of 2014, both of which were subsequently cancelled. Judge ruled admission of TA statistic without testimony, which is being appealed still at the end of 2015.

6. State of Ohio vs. Maurice Shaw DNA Admissibility Hearing in the Court of Common Pleas Criminal Division in the County of Cuyahoga, OH, Case # 13-CR-575691 (retained as a Defense Expert by Attorney Walter H. Edwards Esq., Assistant Cuyahoga County Public Defender; (216) 443-3680;
e-mail: wedwards@cuyahogacounty.us)
Duration: March 23, 2014 till October 15, 2014
Status: Reviewed multiple Cybergenetics reports, case folder, and sent criticisms of Cybergenetics reports (10/3/2014) and gave video testimony on August 15, 2014. Court ruled admission of TA-based DNA evidence with my commitments ending on October 15, 2014.

7. State of Washington vs. Emanueal D Fair at King County, Seattle (retained as a Defense Expert by Attorney Benjamin Goldsmith, Assistant Felony Supervisor, The Defender Association Division - King County Department of Public Defense, 810 Third Ave Suite 800 Seattle, WA 98104, Tel. 206- 447-3900 ex. 723,
email: Benjamin.goldsmith@kingcounty.gov
Duration: August 4, 2015 – Ongoing till present (as of March 4, 2016)
Status: This case started as a challenge of CPI-based DNA statistic on several mixture evidence samples that had signatures of DNA degradation and allele drop out. Cybergenetics, upon request, produced LR match statistic based on data on 4 evidentiary items on which discovery data has been requested in December 2015. RC has reviewed this report from Cybergenetics. No report or declaration has been submitted to the court as of the end of 2015, apart from requests of discovery data.

8. People of California vs. Martell Chubbs at Superior Court of the State of California at Long Beach Judicial District (retained as a Defense Expert by Attorney Angelyn Gates, SBN 136168, 1155 Camino del Mar, Suite 410, Del Mar, CA 92014, Tel. (818) 404-2355; Fax (888) 712-2132; e-mail: angelyngates@yahoo.com)
Duration: August 25, 2015 – Ongoing till end of 2015
Status: The case is still ongoing, in which RC submitted a declaration claiming novelty and lack of general acceptance of the TA technology. This declaration was submitted to the Court by the Defense counsel on November 20, 2015.

9. Commonwealth of Pennsylvania vs. Michael Robinson in the Court of Common Please of Allegheny County Pennsylvania Criminal Division (retained as a Defense Expert by Attorney Noah Geary, Esq.; E-mail: noahgearylawoffices@gmail.com; Tel. (724) 222-3788
Duration: August 27, 2014 till November 19, 2015
Status: Reviewed Cybergenetics reports, wrote discovery data requests, and gave video testimony for request of availability of TA source codes on October 19, 2015 and November 19, 2015. Court decision is still unknown until the end of 2015.

10. Regina vs. Jennifer Toland and Paul Toland, Murder of Robert Acheson *inter alia* 30th April 2012 at the Belfast Crown Court of Ireland (retained as a Defense Expert by Solicitor Michael McCann, Madden and Finucane; e-mail: mmc@madden-finucane.com)
    Duration: September 12, 2014 till December 2, 2014
    Status: Reviewed laboratory data from Cellmark UK along with Cybergenetics reports on DNA match LR and sent comments on concerns about the statistics to the solicitor for court submission. Case was adjudicated without testimony or trial on 11/19/2014.

11. People of the State of New York vs. Frank Thomas at the Onondaga County Court (retained as a Defense Expert by Attorney Ira Pesserilo; e-mail: attyimp@outlook.com).
    Duration: December 6, 2015 – Ongoing till March 2016
    Status: Attorney Pesserilo requested help to challenge TA-based DNA evidence first on December 6, 2015. With information provided over phone, RC supplied prior affidavit from the Wakefield case to construct a declaration challenging TA-based DNA statistics (for a Frye hearing), including a request for TA source codes. No other formal declaration has been prepared until todate.

CURRICULUM VITAE (As of July 20, 2015)

NAME IN FULL:	Ranajit Chakraborty
DATE OF BIRTH:	April 17, 1946
PLACE OF BIRTH:	Baranagore (West Bengal), India
COUNTRY OF CITIZENSHIP:	USA
SEX:	Male
MARITAL STATUS:	Married (December 1974)
SPOUSE:	Bandana M. Chakraborty, M.Sc., M.P.H., Dr.P.H.

ADDRESS:

Ranajit Chakraborty, PhD, FACE (USA), FCAS (Chile), FIASc (India)
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EDUCATIONAL BACKGROUND:

1963 High School Certificate - First Class with distinction, Board of Secondary Education, W. Bengal, India.
1967 Bachelor of Statistics (Honors) - First Class First, Indian Statistical Institute, Calcutta, India.
1968 Master of Statistics (with specialization in Mathematical Genetics and Advanced Probability) – First Class First, Indian Statistical Institute, Calcutta, India.
1971 Ph.D. (Biostatistics), Supervisor - Prof. C. R. Rao, FRS, Indian Statistical Institute, Calcutta, India.
1971 Senior Research Fellow (Postdoctoral) of Population Genetics, Indian Statistical Institute, Calcutta, India

AWARDS, HONORS, AND FELLOWSHIPS:

1963-68	Best student award each year, Indian Statistical Institute, Calcutta, India.
1980	Fellow of American College of Epidemiology.
1983-84	Teaching Excellence Award, Graduate School of Biomedical Sciences, University of Texas Health Science Center, Houston, Texas.
1984-85	Teaching Excellence Award, Graduate School of Biomedical Sciences, University of Texas Health Science Center, Houston, Texas.
1985-86	Teaching Excellence Award, Graduate School of Biomedical Sciences, University of Texas Health Science Center, Houston, Texas.
1987	Member, National Center for Statistical Ecology and Environmental Statistics.
1995	Platinum Jubilee Lecturer, 82nd Session of Indian Science Congress January 3-8, (held at Jadavpur University, Calcutta, India).
1995	Director Designate, Indian Statistical Institute, Calcutta, India.
1996	"Man of the Year, 1996" Award from the Cultural Association of Bengal, New York and Tagore Society of Houston at the 16th North American Bengali Conference (July 5-7, 1996 at Houston) for "...dynamic and constructive role in the Bengali and Indian Community" of North America.
1996-97	Dean's Excellence Award, University of Texas Houston Health Science Center, Graduate School of Biomedical Sciences, Houston, Texas.
1996-2001	Allen King Professor, An endowed Professorship of School of Public Health, University of Texas Houston Health Science Center, Texas.
1997	Distinguished External Faculty of the Instituto de Ciencias Biomedicas (ICBM), Facultad de

	Medicina, Universidad de Chile, Santiago, Chile.
1997	Research and Service Excellence Award, Univ. Texas School of Public Health. Houston, TX.
1998	Annual Center for Environmental Genetics Distinguish Lecturer University of Cincinnati, Cincinnati, OH (May 5-7, 1998)
1998	Federal Bureau of Investigation Award for "Efforts of Research in DNA Forensics during the Decade of DNA 1989-1998". November 19, 1998
1998-2000	Dean's Excellence in Research Award, School of Public Health, University of Texas Houston Health Science Center. Houston, Texas (each year)
1998-2000	Dean's Excellence in Scholarship Award. University of Texas School of Public Health, Houston, Texas (each year)
2001	Honorary Life Member, Croatian Association of Anthropological Genetics, Zagreb, Croatia
2004	Foreign Corresponding Member, Chilean National Academy of Sciences, Santiago, Chile
2004	Honorary Member. Mediterranean Academy of Forensic Sciences, Italy
2004	University of Cincinnati College of Medicine Dean's List (August 9, 2004) for discovery of gout susceptibility gene region (Amer. J. Hum. Genet. September 2004 issue)
2004-Current	Member of Committee-I. International Commission of Radiological Protection (ICRP)
2004-2009	Member of Faculty of 1000 - Biology (Physiogenomics Section); a web-based International Panel of Experts invited to submit evaluations of important publications in the field of expertise (http://www.facultyof1000.com)
2005	"Forensic Foundation Day Lecture Award", from the Central Forensic Science Laboratory, Government of India Ministry of Home Affairs, Directorate of Forensic Science (award given on January 5, 2005 at Kolkata, India)
2006	Honorary Fellow, Indian Academy of Sciences (FASc). Bangalore, India
2007	Visionary Series Lecturer. Indian Statistical Institute. Kolkata, India (Award given on December 17, 2007) with the Foundation Day Lecture of the Institute during the commemoration of the Platinum Jubilee (75^{th} Anniversary) of the Institute in Kolkata, India
2007	S. S. Sarkar Memorial Lecturer of the Indian Anthropological Society and Calcutta University, Anthropology Department, Kolkata, India (Award given on December 28, 2007 at Kolkata, India)

ACADEMIC APPOINTMENTS:

1968-70	Research Scholars of Population Genetics, Indian Statistical Institute, Calcutta
1970	Visiting Lecturer of Statistics, Indian Institute of Management, Calcutta (summer quarter)
1970-71	Senior Research Fellows of Population Genetics, Indian Statistical Institute, Calcutta
1971-72	Senior Lecturer of Statistics, Indian Statistical Institute, Calcutta, and Assistant Dean of Studies, Research and Training School, Indian Statistical Institute, Calcutta
1972-73	(December 72 - January 73) - Visiting Consultant to World Health Organization (WHO) Data Reference Center at Population Genetics Laboratory, University of Hawaii, Honolulu, Hawaii
1973	(February - August) Research Associate, Center for Demographic and Population Genetics, Graduate School of Biomedical Sciences, University of Texas at Houston, Texas.
1973-79	Assistant Professor of Population Genetics, Center for Demographic and Population Genetics, Graduate School of Biomedical Sciences, University of Texas at Houston, Texas, and Adjunct Assistant Professor of Biometry and Human Ecology, University of Texas School of Public Health, Houston, Texas.
1977-78	Visiting Lecturer of Statistics, Department of Quantitative Management Sciences, University of Houston, Houston, TX
1979-84	Associate Professor of Population Genetics, Center for Demographic and Population Genetics, Graduate School of Biomedical Sciences, University of Texas at Houston, Texas and Associate Professor of Human Ecology, University of Texas School of Public Health, Houston, TX
1980	(November - December) Visiting Professor of Mathematics, Dept. of Mathematics, Stanford University, Stanford, California.
1981	(April - June) Visiting Professor of Genetics, Department of Genetics, University of Stockholm, Sweden.

1982,84	(January of each year) - Visiting Scientist of Biostatistics, Indian Statistical Institute, Calcutta.
1986-87	Visiting Professor of Human Genetics, Dept. of Human Genetics, University of Michigan Medical School, Ann Arbor, Michigan
1984-94	Professor of Population Genetics, Graduate School of Biomedical Sciences, University of Texas at Houston, Texas, and Professor of Human Ecology, University of Texas, School of Public Health, Houston, TX
1994-2001	Professor of Biological Sciences, Population Genetics, and Biometry, Human Genetics Center, School of Public Health, The University of Texas Houston Health Science Center, TX
1996-2001	Allen King Professor, School of Public Health, University of Texas Hlth. Sci. Center, Houston, TX
1996-2001	Adjunct Professor of Statistics, Rice University, Houston, TX
1997-	Distinguished External Faculty Member of the Instituto de Ciencias Biomedicas (ICBM), Facultad de Medicina, Universidad de Chile, Santiago, Chile
2001-2009	Robert A. Kehoe Professor and Director, Center for Genome Information, Dept. of Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH
2001-2010	Adjunct Professor, Dept. of Biomedical Engineering, University of Cincinnati, Cincinnati, OH
2009-2010	Professor, Division of Epidemiology and Biostatistics, Dept. of Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH
2010-	Director, Center for Computational Genomics, Institute of Applied Genetics Professor, Department of Molecular and Medical Genetics, University of North Texas Health Science Center, Fort Worth, TX

OTHER PROFESSIONAL ACTIVITIES:

1969-70	Organizer: Summer Course in Statistics for Biological and Agricultural Research, Indian Statistical Institute, Calcutta, India
1980	(May - June) Visiting Consultant to the National Board of Health and Welfare, Government of Sweden, Stockholm.
1978	Co-organizer: International Symposium on Population Variation in Indian and South Asian subcontinent, Satellite Conference of Xth ICAES, held in December at Bombay, India
1982-	Member: Indian National Commission of Human Genetic Researches in India, appointed by Indian Society of Human Genetics
1983	Co-organizer: International Symposium on Genetic Epidemiology in Anthropological Context, Satellite Conference of XIth ICAES, held in August at Victoria, BC, Canada.
1977	NIH Study Section Site Visit Member: Population Biology.
1980	NIH Special Study Section: Epidemiology and Disease Control.
1985	NIH Special Study Section: National Cancer Institute
1986	NIH Special Study Section: Mammalian Genetics (Chairman).
1987	NIH Special Study Section: Human Development.
1987	NIH Epidemiology Study Section (Ad Hoc Member - June Meeting).
1987-91	Regular Member: Epidemiology and Disease Control Study Section-2.
1987-93	Member: National Center for Statistical Ecology and Environmental Statistics, Headquarter at Department of Statistics, Pennsylvania State University, University Park, PA.
1988-94	Executive Board Member: American Dermatoglyphics Association.
1988-89	Member: Sanghvi Oration Award Committee, Indian Society of Human Genetics, India.
1989	(March and November, 1989) Ad hoc Member: Human Genome Project Study Section, National Institutes of Health, Washington DC.
1990	NIH Site Visit Member: Epidemiology and Disease Control.
1991	Co-Organizer: Workshop on Genetic Epidemiology (for the Epidemiology and Disease Control Study Section Members of the National Institutes of Health, February 1991 at Bethesda, MD).
1992	Ad Hoc Study Section Member: National Cancer Institute to review Prostate Cancer SPORE applications (April 1992).
1992	Co-organizer: Second International Conference on DNA Fingerprinting, Belo Horizonte, Brazil (November 9-12, 1992).

1993	Faculty Member: Practical Course on Human Genome Diversity, September 13-17, 1993 at International Centre of Genetic Engineering and Biotechnology, Triesti, Italy.
1993-97	Member: Task Force Committee on Effects of Radiation on Human Genetic Defects; UNSCEAR Committee of United Nations.
1994	Co-Organizer: 3rd Intl. Conf. on DNA Fingerprinting. Hyderabad, India (December 13-16, 1994)
1995-2000	Member: US Government's National DNA Advisory Board (Authorized and Enacted by US Congress - 1994 DNA Act)
1995-2011	Member: DNA Subcommittee, New York State (Authorized and Enacted by the State Legislature of the State of New York)
1995	Site Visit Project Reviewer: National Institutes of Health, Mammalian Genetics Study Section
1996	(March) Special Study Section Member: National Institutes of Health, Genetics Program Project
1996	Scientific Organizer: International Conference on DNA Finger-printing: Science, Practice, and Future, Santa Fe, NM (April 21-27, 1996)
1996	Member: Task Group on Registry of Marrow Donor Program, National Marrow Donor Program, Minneapolis, MN
1996	Course Director and Lecturer: Population Genetics and Molecular Biology, Dept. Anthropology, Universidad de la Republica, Montevideo, Uruguay (Aug. 26-30, 1996)
1996-97	Consultant and Member: Scientific Advisory Board. Aeiveoa Science Group, Seattle, WA
1997	Workgroup Member: Optimal Registry Size and Composition, National Policy Forum on Marrow Donation and Transplantation (June 3-4, 1997): US Health Resources and Service Administration
1997	Scientific Advisor: Cambridge Healthtech Institute's Annual Conference on "DNA Forensics: Science, Evidence and Future Prospects". McLean. VA (November 16-17, 1997).
1997	Member: National Forensic DNA Review Board, National Institute of Justice, Washington DC (Meeting at Chicago to review NIJ Grant 96- DN-VX-0001 on December 7, 1997).
1998	Member: Human Genome Center Study Section. National Institutes of Health (July 16-17, 1998)
1999	Member: Human Genome Center Study Section. National Institutes of Health, Washington, DC (February 18-19. 1999)
1999	Course Director and Lecturer: Applied Population Genetics and Forensic Identification, Instituto Multidisciplinario de Biología Celular, Buenos Aires, Argentina (May 17-21, 1999)
1999	Faculty Member: Summer School on Mathematics of Cell Physiology and Proliferation International Centre of Genetic Engineering and Biotechnology, Triesti, Italy (June 6-19, 1999)
1999	Scientific Advisor: Cambridge Healthtech Institute's 3rd Annual DNA Forensics Conference, McLean, VA (June 13-15. 1999)
1999	Member: National Cancer Institute Study Section, NIH, Washington DC (July 18-20, 1999)
1999	Reviewer: CODIS project, Knoxville, TN (July, 22, 1999)
2000	Keynote speaker on the occasion of the inauguration of the Central DNA Forensics Laboratory of Jamaica at Kingston, Jamaica (February 10. 2000) and Course Director and Sole Lecturer of a one day course on "Statistical Issues of DNA Testing" at the Forensic Services Agency of Jamaica, Kingston, Jamaica (February 11. 2000)
2000-	Member: External Advisory Committee, NIDDK Program Projects on Genetics of End Stage Renal Diseases among Diabetic Individuals
2000-2010	Member, Scientific Advisory Committee for Studies of Adverse Pregnancy Outcomes among Childhood Cancer Survivors
2001-2003	Advisory Board Member of Victim Identification by mtDNA Markers of the World Trade Center episode of September 11, 2001. Celera Genomics. Rockville, Maryland
2002-2007	Member, Scientific Working Group of Microbial Genetics and Forensics (SWGMGF), a US National Panel of Experts, US Department of Homeland Security (DHS) and Federal Bureau of Investigation (FBI)
2002-2006	Member, Environmental Health Sciences Review Committee, National Institute of Environmental Health Sciences (NIEHS). Research Triangle Park. NC
2002-2008	Member, Committee of Annotation of the full-length CDNA sequences of the Human Genome, Japan Biological Information Research Center. Tokyo. Japan.
2002	Scientific Advisor and Keynote Speaker: Cambridge Healthtech Institute's Fifth Annual

	Conference on "DNA Forensics", Washington DC (June 26-28, 2002).
2002-2009	Member, Scientific Working Group of Microbial Forensic Genetics, SWGMFG (FBI Academy, Quantico, VA).
2002-2009	Member, University of Cincinnati Cancer Center Internal Advisory Board (Cincinnati, Ohio – meeting every month).
2005-	Member, International Commission of Radiological Protection (ICRP) Committee-I
2006-2009	Member, International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights (Santiago, Chile).
2007-2009	Member, Scientific Working Group of Chemical, Biological, Radiological, and Nuclear Terrorism Research (SWGCBRN), a US National Panel of Experts, US Department of Homeland Security (DHS) and Federal Bureau of Investigation (FBI)
2007	Invited participant and lecturer at the Conference on Plant pathogen Forensics – Filling the Gaps, organized by the Oklahoma State University at Oklahoma City, OK (January 11-13, 2007). Panelist of the Genomics Issue Panel.
2007	Invited Participant and Lecturer at HINV-Disease Edition Gene Annotation Workshop, Organized by Japan Biological and Informatics Research Consortium (JBIRC), Odaiba, Japan (January 29 – February 2, 2007); Talk title: "Use of Bagging and Boosting in Candidate Gene Identification" (lecture given on February 2, 2007).
2007	Member, Special Study Section, National Cancer Institute, Bethesda, MD (March 1, 2007) – reviewed three proposals and took part in the entire review session.
2007	Invited Participant, Scientific Working Group on Microbial Genetics and Forensics (SWGMGF), organized by Federal Bureau of Investigation, Quantico, VA (March 12-13, 2007); Panelist – Genomics Issues of MGF.
2007	Invited participant as a member of the New York DNA Subcommission (Meeting held on March 15, 2007 at New York City, NY).
2007	Invited Participant of the meeting of International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights (March 19 – 23, 2007 at Santiago, Chile). Chaired the session on Sample Collection from Reference Family Members.
2007	Invited Lecturer at the Annual Colloquium on Race and Genomics in Medicine, organized by the Department of Philosophy, University of Cincinnati (held at the Vontz Auditorium, Univ. Cincinnati; April 12-14, 2007). Lecture title: "Use of Race in Genomics and Medicine – A Synthesis" (the closing lecture of the colloquium, delivered on April 14, 2007).
2007	Invited Participant in the meeting of an Ad Hoc Committee of Task Group of Familial Search in DNA Databases: meeting held in Chicago, IL on April 17, 2007. Presentation title: "Simulations and Expectations of Pairwise Comparisons of DNA Profiles in Large Databases".
2007	Invited Participant at the Meeting of External Advisory Committee (as a Member of EAC) of the NCI-project on Genetic Consequences of Cancer Treatment (GCCT), held at the Vanderbilt University, Nashville, TN (May 17-18, 2007).
2007	Invited Lecturer at DNA Unit, Federal Bureau Academy, Quantico, VA (May 31, 2007). Lecture Title: "Validation of mtDNA Databases for Forensic Applications".
2007	Reviewer, University of Cincinnati Cancer center Pilot Project Grants (July 3, 2007); reviewed three grants and participated in the entire review session.
2007	Invited Lecturer at the Workshop on Microbial Source Detection, organized by US Environmental Agency, Cincinnati, Ohio (July 9 – 10, 2007); Talk title: "Bioinformatic and Genomic Issues of Microbial Source Detection" (Lecture given on July 9, 2007).
2007	Special Study Section Member of NIH, Bethesda, MD (Telephone Review on July 13, 2007); three proposals reviewed and voted on.
2007	Invited reviewer of NCI-funded Training Grant Fellow Applicants (pre- and post-doctoral) at the MD Anderson Cancer Center, Houston, TX (telephone review session on July 17, 2007).
2007	External Advisory Committee (EAC) Meeting of the NIDDK-funded project FIND (Meeting held in BWI Holiday Inn, Baltimore, July 26, 2007).
2007	Invited participant of the Meeting of the Scientific Working Group of Microbial Genetics and

Forensics (SWGMGF) as a member; Meeting held at Holiday Inn Select, Fredericksburg, VA (July 31 – August 3, 2007).

2007 Invited Participant of the meeting of the FBI Ad Hoc Task Group of Familial Searches in DNA Databases (meeting held in Chicago O'Hare Holiday Inn, August 16, 2007). Presentation on: "Simulations of false positive rates of familial searches in large databases".

2007 Invited Participant of the meeting of International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights (August 27-31, 2007 at Santiago, Chile). Completed the Selection of Reference Family Members for sample collection.

2007 NIH Special Study Section Grant Proposal review (Review Session on September 18, 2007).

2007 NIDDK Special Study Section (11 October 2007) to review the proposals for Genome Wide Association Studies in the FIND project.

2007 Invited Lecturer at the Annual Meeting of the American Association of Blood Banks, held at the Anaheim Conference Center, Anaheim, CA (October 20-21, 2007).Lecture given in the session on Relationship Testing on October 20, 2007. Title of Talk: "Relationship Testing by Genetic Typing: Criteria for Choice of Reference Family Members and Inclusion-Exclusion".

2007 Invited Participant at the International Commission of Radiological Protection (ICRP) Joint Meeting of the Commission and the Committees (held during October 22-25, 2007 in East Berlin, Germany). Presented reviews of recent advances in hereditary effects of radiation-induced cancers (on October 25, 2007).

2007 Reviewer for Univ. Cincinnati Cancer Center Pilot Grant Projects (reviewed five projects and took part in the entire review session on December 3, 2007).

2007 Invited Lecture Sample Collection from at the Workshop on DNA Fingerprinting, Cell Marker Identification, and Animal Cell Culture, held at Punjab University, Chandigarh, India, during December 13-15, 2007; Lecture delivered on December 14, 2007. Title of talk: "Population Genetic Issues during Admissibility of DNA Evidence in US Courts"

2007 Foundation Day Visionary Series Lecturer, Indian Statistical Institute, Kolkata, India (December 17, 2007). Lecture title: "A Bioinformatic Paradox in DNA Forensics: Small Probabilities and large Databases".

2007 Invited Lecture at the Session on High Dimensional Genetic Data Analysis, International Conference on Bioinformatics and Drug Discovery (BioConvene 2007), held at the University of Hyderabad, AP, India on December 21, 2007: Talk title: "Test of Independence in Contingency Tables with Large Dimension with Ordered Categories: Application in Genomics".

2007 Chair and Organizer: Symposium on DNA Forensics, held at the University of Hyderabad, AP, India on December 22, 2007. Lecture title: "Human DNA Forensics: Bioinformatic Issues with Small Probabilities and Large Databases".

2007 Invited Lecture at the Human Genetics Unit of the Indian Statistical Institute, Kolkata, India – December 27, 2007, Talk title: "A Novel Method for Adjustment of Population Subdivision for Disease-Gene Association Studies".

2007 Invited S. S. Sarkar Memorial Lecture of the Anthropological Society of India, held at the Dept. Anthropology, Calcutta Univ. on December 28, 2007. Talk title: "Re-Evaluation of the Concepts of Race and Ethnicity in the Post-Genome Era of Biomedical Sciences".

2008 Invited Lecture at the International Conference on Statistical Paradigms – Recent Advances and Reconciliations (ICSPRAR-2008) held at the Indian Statistical Institute, Kolkata, India during January 1 – 4, 2008: Lecture delivered on January 1, 2008: Talk title: "Single-locus tests for disease-gene association studies by ordered statistics".

2008 Invited participant at the New York State DNA Subcommittee Meeting at John Jay College of Criminal Justice Theater Lobby, 899 Tenth Avenue, New York, NY (January 15, 2008) – presented statistical and operational issues related to use of CODIS database for familial search.

2008 Technical Inspector, International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights for auditing the Human DNA Identification Laboratory of University of North Texas Health Science Center at Fort worth, TX (February 28-29, 2008).

2008 Invited panelist at the "Genetic Privacy, DNA Databasing & Familial Searching Symposium",

organized by CODIS administration, Federal Bureau of Investigation, held during March 17-18, 2008 at Sheraton Crystal City, Arlington, VA.

2008 Panelist Reviewer of Study Section for the US National Institute of Justice – "Social Science Program" at Lockheed Martin Center for Leadership Excellence in Bethesda, MD (April 18, 2008).

2008 Invited Meeting Presenter at the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear Aspects (SWGBCRN) of Bioterrorism at Dulles Hyatt Hotel, Herndon, VA (May 13-16, 2008).

2008 Technical Inspector, International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights for auditing the Human DNA Forensic Laboratory of the International Commission on Missing Persons (ICMP), Sarajevo, Bosnia (May 31 – June 5, 2008).

2008 Invited Participant of the meeting of International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights (June 30 – July 2, 2008 at Santiago, Chile). Completed the Selection of International Laboratories to conduct DNA typings of remains and reference family members).

2008 Technical Inspector, International Panel of Experts on Identification of Detained and Disappeared Persons, Chilean Presidential Commission of Human Rights for auditing the Human DNA Forensic Laboratory of the Institute of Legal Medicine, Innsbruck, Austria (July 7-12, 2008).

2008 Invited participant at the New York State DNA Subcommittee Meeting at New York City Medical Examiner's Office – Forensic DNA Laboratory (July 31, 2008) – made a presentation to the NY-BioTWG group on the subject of Partial Matches in DNA databases and their relevance on validity of RMP calculations.

2008 Invited Lecturer at the Lyme Symposium held at Ratna Long, Cazadero, California (August 13-17, 2008). Lecture titles: "Microbial Forensics – An emerging discipline for pathogen detection", and "A-B-C-D of Epigenetics and its relevance in infectious diseases".

2008 Invited Meeting Presenter at the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear Aspects (SWGBCRN) of Bioterrorism at John F. Kennedy Conference Center, Boston, MA (September 9-11, 2008).

2008 Invited Participant at the International Commission of Radiological Protection (ICRP) Committee-1 (held during October 6-9, 2008 at Kyoto, Japan). Presented reviews of recent advances in hereditary and epigenetic effects of radiation-induced cancers (on October 9, 2008).

2008 Invited Faculty Member of the "Y-STR Typing and Analysis" Course (R-253) of California Criminalists Institute, Richmond, California (August 20-22, 2008). Lecture titles: "Population substructure effects on match probability based on Y-STR haplotypes", and "Independence of DNA profile frequencies based on autosomal STRs, mtDNA haplotypes, and Y-STR haplotypes". Also gave a lecture on Statistics of DNA matches in cold hot cases to the DNA users' group meeting at the California DOJ Laboratory at Richmond, CA (on August 22nd).

2008 Invited Meeting Presenter at the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear Aspects (SWGBCRN) of Bioterrorism at J. F. Kennedy Conference Center, Boston, MA (September 9-11, 2008).

2008 Invited Participant at the International Commission of Radiological Protection (ICRP) Committee-1 meeting (held during October 6-9, 2008 in Kyoto, Japan). Presented reviews of recent advances in hereditary effects of radiation-induced cancers (on October 8 and 9, 2008).

2008 Invited Lecturer, Interleukin Genetics Inc. at Waltham, Massachusetts. Talk Title: "A Novel Method for Adjustment of Population Subdivision for Disease-Gene Association Studies" on November 5, 2008.

2008 Invited Participant, 5th International Committee of Experts' Meeting for Victim Identification at Santiago, Chile (November 10-13, 2008).

2008 Invited Lecturer at the Institute of Forensic Medicine, Bogota, Colombia and National University of Colombia, Bogota, Colombia (November 20-22, 2008).Talk Titles: "Combined Inference of DNA Forensics from Autosomal, Y-Chromosome and Mitochondrial DNA Analysis" (Nov. 20, 2008) and "Current Issues of DNA Forensics: Population Databases and Missing Person Identification" (Nov. 22, 2008).

2009 Invited Panelist at the Meeting of the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear (SWGCBRN) Terrorism Research. FBI (Meeting held at Center for Disease Control. Atlanta. GA during February 10-12, 2009). Presentation title: "Genomic considerations of Microbial Species and Strain Identification".

2009 Invited Panelist of Reviewers of the Radiation Research Foundation, Hiroshima, Japan (during March 2-4, 2009). Presentation Title: "Strategies for determining genotype dependency of radiosensitivity differentials".

2009 Invited participant of 16th Special Committee of National Council of Radiation Protection (during March 26-27, 2009 at Bethesda, MD). Presentation Title: "Uncertainties of estimates of hereditary effects of radiation damages".

2009 Invited participant of New York State DNA Subcommittee (at New York City on May 15, 2009). Presentation Title: "Familial searches through partial DNA match in databases".

2009 Invited Participant. 6th International Committee of Experts' Meeting for Victim Identification at Santiago, Chile (May 18-21, 2009). Presentation Title: "Algorithms for missing person identification by DNA typing of autosomal STR loci and combining information from Y-STR and mtDNA haplotypes".

2009 Invited Lecture at DNA Unit, FBI Laboratory at Quantico, VA (on June 8, 2009). Presentation Title: "Validation of Y-STR haplotype databases and interpretation of single source and mixture evidence on Y-STR haplotypes in forensic case works".

2009 Reviewer (as an External Advisory Committee Member) and attendance of the meeting of External Advisors of the NIH P01-Program Project Grant "Elucidating the Genetic Basis of Ankylosing Spondylitis" of Dr. J. D. Reveille, Univ. Texas Medical School at Houston, Texas (July 22, 2009).

2009 Invited Course Director and Sole Lecturer of "A Short Course on DNA Forensic Statistics" (15 lectures). Diplamado Program of Catholic University. Santiago. Chile (October 5-9, 2009; 31 students registered).

2009 Panelist Reviewer at a Special Study Section of NIDDK (November 11, 2009) – reviewed three proposals (written as well as telephone conference review)

2009 Invited Participant at the International Commission of Radiological Protection (ICRP) – Joint Session of the Commission and Committee-I meeting (held during November 7-13, 2009 at Park Atlantic Hotel Tiara. Porto. Portugal). Presented reviews of recent advances in hereditary effects of radiation-induced cancers (on November 12, 2009).

2010 Invited Lecturer at "Chalk and Talk" Session for Institute of Investigative Genetics, University of North Texas Health Science Center at Fort Worth – Theme: Human Identification and More – Applications of Genomics in Health, Security and Biosafety (February 3, 2010)

2010 Invited Faculty, Workshop on Advances of DNA Technology. 62nd Annual Meeting of the American Academy of Forensic Sciences. Seattle, Washington (February 22, 2010). Topic of Lecture: "Statistical Challenges of Combining evidence from autosomal STRs, Y-Chromosome STR and SNP, and mitochondrial haplotypes".

2010 Invited Participant at the SC1-16 Committee Meeting of NCRP, Bethesda, MD (April 7-8, 2010 meeting at NCRP Headquarters, 7910 Woodmont Av., Bethesda, MD). Presented draft of chapter on Uncertainties of Risk estimates of heritable and genetic effects of radiation.

2010 Sole lecturer and Course Organizer of a 15-lecture 5-day course on DNA Forensic Statistics, sponsored by the Conference of West Attorneys General. Sacramento, California. Course was given at the PGR Headquarters, Mexico City, Mexico during April 12-16, 2010 (Number of participants = 37).

2010 Invited participant of New York State DNA Subcommittee (at New York City on May 19, 2010). Reviewed protocols for analyses of low copy number DNA from the OCME Laboratory of New York City.

2010 Invited Training Faculty: New York State Criminal Justice System, Albany New York. Conducted training for NYS-CJS DNA Analysts regarding operation and execution of a software for familial search in NYS- SDIS database (training conducted on July 8, 2010 at NYS-DCJS Laboratory at Albany, NY).

2010 Sole lecturer and Course Organizer of a 2-day workshop on DNA Forensic Statistics, sponsored by

the Conference of West Attorneys General, Sacramento, California. Course was given at the PGR Headquarters, Mexico City, Mexico during August 26-27, 2010 (No. of participants = 34).

2010 Invited Participant at the International Commission of Radiological Protection (ICRP) Committee-I meeting (held during October11-14 at Amsterdam, The Netherlands). Presented reviews of recent advances in hereditary effects of radiation-induced cancers (on October 13 and 14, 2010).

2010 Invited participant at the Banbury Center Conference on Microbial Forensics in the Era of Genomics held during November 7-10, 2010 at Banbury Center, Cold Spring Harbor Laboratory, New York. Title of presentation: "Statistical Interpretation Issues: Comparison with Forensic Human DNA" (on November 9, 2010).

2011 Invited Participant at the SC1-16 Committee Meeting of NCRP, Bethesda, MD (January 31-February 1, 2011 meeting at NCRP Headquarters, 7910 Woodmont Av., Bethesda, MD). Presented draft of chapter on Uncertainties of Risk estimates of heritable and genetic effects of radiation on January 31st, 2011.

2011 Invited participant of the New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on March 1, 2011.

2011 Invited Speaker at the "Penn State SMBE Symposium on Molecular and Genomic Evolution (honoring Professor Masatoshi Nei's 80th birthday) held at Penn State University at College Park, PA during March 18-20, 2011. Title of presentation "Models of Mutation and their impact on DNA Forensic Statistics" given on March 19.

2011 Invited Speaker at the Banbury Workshop on "Lyme Disease Diagnosis in the Proteomics-Genomics Era" at Banbury Center, NY (April 10 – 13, 2011) and gave an invited talk on "Lessons Learned from Amerithrax Investigation: Repository Sample Selection and Its Impact" (in Session 5 on April 12, 2011 at 4:00pm).

2011 New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on May 20, 2011.

2011 Invited Speaker at the 8th International Conference on Inference and Statistics, organized by the Department of Biostatistics, School of Public Health, University of Washington at Seattle (July 18-21, 2011). Title of presentation: "Statistical Analysis of Genetic Data in the Amerithrax Investigation: Lessons Learned" (on July 21, 2011).

2011 Invited participant of the New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on September 23rd, 2011.

2011 Invited Lecturer, CONCORD-PBRN Seminar of the Osteopathic Research Center of the UNTHSC at Fort Worth. Delivered two lectures titled "Roles of genetic and environmental factors in disease causation in the context of pain research" and "Ethical issues of human genetic research" on October 14th, 2011 at UNTHSC at Fort Worth.

2011 Invited Participant at the Joint meeting of the Commission and Committees of the International Commission of Radiological Protection (ICRP) and the first International Symposium of ICRP at Bethesda, MD held during October 23-28, 2011. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on October 26th and 27th, 2011).

2012 Invited Lecturer of the Population Statistics Refresher Course at the Winter Meeting of the Association of Forensic DNA Analysis and Administrators (AFDAA) held at the Department of Public Safety Criminal Justice Center at Austin, Texas on February 2, 2012. Titles of the lectures: (i) Statistics for Transfer Evidence (Single source samples); (ii) Statistics for DNA mixtures; (iii) Statistics for kinship analysis, and (iv) Statistics for lineage markers.

2012 Invited Plenary Session Speaker at the 4th International MELODI (Multidisciplinary European Low Dose Initiative) Workshop, organized by the Radiation and Nuclear safety Authority of Finland (STUK), held in Helsinki, Finland, 12-14 September 2012. Presentation title: "Epigenetic events and radiation exposure: Impact on radiation risk estimation" given on September 13th, 2012.

2012 Invited Participant at the Committee-1 meeting of the International Commission of Radiological Protection (ICRP) at Helsinki, Finland, held during September 16-19, 2012. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on September 18 and 19, 2012).

2012	Invited Seminar at Indian Statistical Institute, Department of Human Genetics at Kolkata, India on December 26, 2012. Title of the Talk: "Some Current Issues of Computational Genomics and Their Applications".
2012	Invited Seminar at National Institute of Biomedical Genomics, Kalyani, India on December 31, 2012. Title of the Talk: "Partial DNA Matches in Large Multilocus Genetic Databases – What do they tell us?".
2012-2013	Member of SWGDAM Ad Hoc Working Group on Familial Searching, participating in periodic conference calls to formulate a recommendation of the protocol of establishing a guideline for familial searches using CODIS databases. Final recommendation published as "Recommendations from the SWGDAM Ad Hoc Group on Familial Searching" (2013) in http://swgdam.org/SWGDAM%20Recs%20on%20Familial%20Searching%20APPROVED%20100720 13.pdf
2013	Reviewer, CDC Special Emphasis Panel, Reviewed CDC Grant in the Meeting panel ZDDI EEO 02, March 28, 2013.
2013	Invited participant at the SWGDAM meeting at Dumfries, VA (July 16-18, 2013). Worked on the full draft of the report of the SWGDAM Ad Hoc Workgroup on Familial Search; participated in the documents of the Missing Person/Mass Disaster, Y-STR, and mtDNA committees.
2013	Invited visiting Scientist at the Institute of Advanced Research, University of Tarapacá at Arica, Chile during October 6th through 13th, 2013. Supervised research on effect of hypoxia on newborn's health in Aymara Indians of Chile, and Disease-Gene association study in Attention Deficit Hyperactivity Disease (ADHD).
2013	Invited Participant at the joint session of the Main Commission and Committee-1 meeting of the International Commission of Radiological Protection (ICRP) and ICRP Second International Symposium at Abu Dhabi, UAE, held during October 21-28, 2013. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on October 26 and 27, 2013).
2013	Reviewer, CDC Special Emphasis Study Section Panel for Funding Opportunity Announcement DP14-001 – Health Promotion and Disease Prevention Research Centers, November 18-21 at CDC Conference Center, Atlanta.
2014	Invited Lecturer and Organizer of a Workshop on DNA Mixture Interpretation at the Winter Meeting of the Association of Forensic DNA Analysis and Administrators (AFDAA) held at the Department of Public Safety Criminal Justice Center at Austin, Texas on January 30, 2014. Topic of presentation: Statistical Concepts of weight of evidence consisting of DNA mixtures.
2014	Reviewer, CDC Special Emphasis Panel Study Section for Funding Opportunity Announcement – DD14-001-Surveillance and Research of Muscular Dystrophies and Other Neuromuscular Disorders. Review by teleconference during April 22-24, 2014.
2014	Reviewer, CDC Special Emphasis Panel Study Section for Funding Opportunity Announcement – DP14-004-Logitudinal Study of a Population-based Cohort of People with Lupus, Review by teleconference on May 8, 2014.
2014	Invited Plenary Lecturer at the Global Summit on Emerging Science and Technologies: Impact on Environment and Human Health with Special Symposia on Cancer Therapy and Environmental Toxicology, organized by the Department of Biotechnology of the Vikrama Simhapuri University, Nellore, India (during August 1 – 3, 2014). Topic of presentation: Assessment of Radiation-Induced Cancer Risks: Role of Radiosensitivity (delivered on August 2, 2014).
2014	Invited Special Seminar jointly organized by Endocrine Society of Bengal, Biomedical Genomic Centre, and Institute of Post-Graduate Medical Education and Research, given on August 7th, 2014 at the Department of Surgery, Ronald Ross Building, Institute of Post-Graduate Medical Education and Research, Kolkata, India. Topic of presentation: Impact of Multiple Definitions of Metabolic Syndrome on Estimating its Prevalence and Co-morbidity with Metabolic Disease: Empirical Data from a Large Caucasian Cohort.
2014	Invited Participant at the Committee-1 meeting of the International Commission of Radiological Protection (ICRP) at Jade Garden Hotel, Beijing, PRC, held during September 7-10, 2014.

	Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on September 9 and 10, 2014).
2014	Invited Speaker at the 2014 BIRM International Seminar on Radiation Biology and Omics, held at the Beijing Institute of Radiation Medicine, Beijing, China on September 11, 2014. Topic of Presentation: "Omics Aspect of Radiation Sensitivity and Its Implication for Estimation of Radiation-Induced Cancer Risks".

EDITORIAL BOARD MEMBERSHIP:

1980-Current	South Asian Anthropologists
1981- Current	Journal of Indian Anthropological Society
1982-83	Bionature
1984-Current	Annals of Human Biology
1986-91	American Journal of Physical Anthropology
1988	Guest Editor, Genetic Epidemiology
1989-91	Associate Editor, Genetic Epidemiology
1989-94	Human Biology
1989-Current	Journal of Quantitative Anthropology
1989-Current	Journal of Human Ecology
1990-97	Associate Editor, Journal of Heredity
1990-97	Ethnicity and Disease
1991-Current	Anthropología Biológica
1992-94	Associate Editor, American Journal of Human Genetics
1995-Current	Editorial Board Member, Indian Journal of Human Genetics
1997 - 2002	Editorial Board Member, American Journal of Human Biology
1998-2014	Journal of Genetics
2001-Current	Consulting Editor: Collegium Antropologicum
2002-Current	Editorial Board Member, Journal of Biological Systems
2005-Current	Editorial Board Member, The Journal of Bioinformatics-Theory and Applications
2008-Current	Editorial Board Member, Sankhya-B
2009-Current	Editorial Board Member: Journal of Biomedicine and Biotechnology – Genetics/Genomics Section
2009-Current	Editorial Board Member, Investigative Genetics
2013-Current	Editorial Board Member, Journal of Forensic Science and Criminology
2014-Current	Editorial Board Member, Austin Journal of Genetics and Genomic Research
2014-Current	Editorial Board Member, Scholarena Journal of Genetics

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

1970-	International Association of Human Biologists (Paris)
1971-	Indian Society of Human Genetics (Life Member)
1974-	Indian Anthropological Society (Life Member)
1976-	American Society of Human Genetics (Life Member)
1976-79	American Association for the Advancement of Science
1975-	American Association of Physical Anthropologists
1975-	Genetics Society of America
1976-	American Society of Naturalists
1978-	Human Biology Council
1977-	American Dermatoglyphics Society
1979-81	Sigma-Xi Society of America
1982-	National Geographic Society
1984-	Society for the Study of Human Biology (Cambridge)
1985-	Indian Society of Medical Statistics (Life Member)
1985-	Council member of Indian Statistical Institute

1994-	International Association of DNA Fingerprinting (Life Member)
2001-	Croatian Association of Anthropological Genetics. Zagreb. Croatia (Life Member)

SOCIETY OFFICE BEARERS:

1986-90	Member, Board of Directors, American Dermatoglyphics Association
1990-2014	Vice President, Indian Society of Human Ecology
1993	President Elect, American Dermatoglyphics Association
1998-99	Vice President, American Association of Anthropological Genetics
1999-2000	President, American Association of Anthropological Genetics
2000-	Member, Board of Directors. William and Victoria Schull Institute, Houston, TX

COMMITTEE AND ADMINISTRATIVE SERVICES:

1983-2001	Institutional: Committee for Emergency Safety Needs, Graduate School of Biomedical Sciences, University of Texas Houston Health Science Center.
1985-86	Chairperson. Search Committee for Appointments. Center for Demographic and Population Genetics, University of Texas Houston Health Science Center.
1991-92	Advisor to the Admissions Committee. Graduate School of Biomedical Sciences, University of Texas Houston Health Science Center.
1994-98	Member, University of Texas Houston Health Science Centerwide Committee of Faculty Salary Review and Equity.
1994-2001	Member, Committee of Professors for reviewing proposals of junior faculties at University of Texas Houston Health Science Center for nominating to Private Research Foundations.
1996	Member, Space Design and Allocation Committee. Human Genetics Center, School of Public Health, University of Texas Houston Health Science Center.
1998	Chair, Post-tenure Faculty Review Committee. School of Public Health, University of Texas Houston Health Science Center.
1999-2001	Member, Committee of Candidacy Examination for the Program in Human and Molecular Genetics, Graduate School of Biomedical Sciences, Univ. Texas Houston Health Science Center.
2001-2004	Member, Biomedical Engineering Graduate Committee. University of Cincinnati Department of Biomedical Engineering, Cincinnati, Ohio.
2001-2005	Member, Physician Scientist Training Program Executive Committee, University of Cincinnati College of Medicine, Cincinnati, OH
2001-2007	Member of "Human Populations" Research Core facility of the NIEHS-funded Center for Environmental Genetics in the Department of Environmental Health, University of Cincinnati, Cincinnati, OH
2001-2009	Associate Director, Cancer Control and Epidemiology, Barrett Cancer Center, Cincinnati, OH.
2002-2003	Chairperson, Search Committee for Cancer Epidemiology position at the Barrett Cancer Center/ Department of Environmental Health. Univ. Cincinnati College of Medicine, Cincinnati, OH.
2003-2005	Member, Search Committee for Cancer Epidemiology Faculty at the Barrett Cancer Center/ Department of Environmental Health. Univ. Cincinnati College of Medicine. Cincinnati, OH.
2007-2009	Director and Member, Biostatistics and Statistical Genomics Service Core, Digestive Health Center, Cincinnati Children's Hospital and Medical Center, Cincinnati, OH.
2007-2010	Member, "Integrative Health Service" Facility Core, Center for Environmental Genetics. Department of Environmental Health. Univ. Cincinnati College of Medicine. Cincinnati, OH.
2010-2011	Chair, Selection Committee for recruitment of a Medical Genetics Faculty member, Department of Forensic and Investigative Genetics. University of North Texas Health Science Center at Fort Worth, Texas.
2010-2011	Member, Selection Committee for recruitment of Associate Dean of the Graduate School of Biomedical Sciences at the University of Texas Health Science Center at Fort Worth, Texas.
2011	Member, Selection Committee for recruitment of a Bioinformatics expert at the University of North Texas Health Science Center at Fort Worth, Texas.

2012-Current	Chair of Working Party on the subject of "The role of genetic and epigenetic regulatory processes in cancer and non-cancer diseases", commissioned by Committee-1 of the International Commission of Radiological Protection (ICRP).
2012-Current	Member, UNTHSC Graduate School of Biomedical Sciences Promotion and Tenure Committee (Representative of the Department of Forensic and Investigative Genetics).
2013-2014	Member, Organizing Committee, 9th Annual Texas Conference on Health Disparities: "The Role of Genomics in Eliminating Health Disparities", The University of North Texas Health Science Center at Fort Worth, Texas (held on May 29th and 30th, 2014).
2013-2014	Member, Selection Committee for Faculty Recruitment in Cancer Biology in the Graduate School of Biomedical Sciences of the University of North Texas Health Science Center at Fort Worth, Texas.

TEACHING ACTIVITIES:

1968-71	Bachelor and Master Degree level courses on: (1) Descriptive Statistics, (2) Statistical Design of Experiments, (3) Statistical Methods. (4) Probability Theory. (5) Mathematical Genetics at the Indian Statistical Institute, Calcutta
1970	Statistical Methods in Business Management – A Course for the Graduate degree program in Business Management at the Indian Institute of Management, Calcutta
1969,70	Statistical Methods in Biological and Agricultural Research -Summer Course for the researchers organized by the Indian Statistical Institute, Calcutta
1973	(Fall and Winter Quarters) Advanced Statistical Inference - A Graduate Level course for the Biometry Program of the University of Texas School of Public Health. Houston, Texas
1974	(Fall and Winter Quarter) Stochastic Processes in Biology and Medicine - A Graduate Level course for the Biometry Program at the University of Texas School of Public Health, Houston, Texas
1975,76	(Summer Quarters) Quantitative Genetics - a Graduate Level course for the Biometry Program at the University of Texas School of Public Health, Houston, Texas
1977,78	(3 Quarters both yr.) Statistical Methods for Industrial Research - Graduate Level course for the Department of Quantitative Management Sciences of the University of Houston, Houston, Texas
1977,81	(Fall 1977, Spring 1981) Human Population Genetics - Principles and Case Studies (One-third load) - A course for the Graduate students of the Department of Biological Chemistry and Human Genetics, University of Texas Medical Branch at Galveston, Texas
1978,79	(Fall each yr.) Human Genetics I (Human Population Genetics) – A Graduate level course at the University of Texas Graduate School of Biomedical Sciences. Houston, Texas
1978-2001	(Fall each yr.) Statistical Genetics - Graduate Level course for the students of Genetics Program, Graduate School of Biomedical Sciences. Houston, Texas
1982-2001	(Spring each yr.- One-half load each yr. until 1986; Sole Lecturer1987-current) Genetic Aspects of Epidemiology - A Graduate Level course for the Genetics Program of Graduate School of Biomedical Sciences, and Epidemiology Program of the University of Texas School of Public Health, Houston, Texas
1984-86	Human Population Genetics (One-third load; 4 hrs.) - A Graduate Level course at the department of Biological Chemistry and Human Genetics, University of Texas Medical Branch at Galveston, Texas
1986-95	Categorical Data Analysis (Winter Quarter, Sole Organizer) - A Graduate level course for the biometry students at the University of Texas Health Science Center, School of Public Health, Houston
1996-2001	(Spring, Sole Organizer) Analysis of Categorical Data - A Graduate level course at the School of Public Health, University of Texas Health Science Center, Houston, Texas
2002	(Winter Quarter) Two Lectures, (Mechanism of Carcinogenesis, and Cancer Risk Estimation and genotype dependency of risks) in the Cancer Epidemiology course of the Division of Epidemiology and Biostatistics, University of Cincinnati, Cincinnati, OH
2002	(Spring Semester) Invited, Short Course on "Population Genetics and Molecular Evolution", in the

Advanced Genetics course at the Human Biology Chemistry and Genetics Department of the University of Texas Medical Branch at Galveston, Texas (March 18-22, 2002)

2002 (Fall Quarter) Three Lectures (Genetic Variation, Hardy-Weinberg Equilibrium and Population Substructure, and Linkage Disequilibrium) in the course on "Genetics of Complex Disease (26-BE-868) of Dr. R. Deka at the Division of Epidemiology and Biostatistics, Dept. Environmental Health, Univ. Cincinnati College of Medicine

2002 One Lecture (Complex Disease Genomics) in the Survey Course on Bioinformatics for the Bioinformatics Graduate Program of the Department of Biomedical Engineering at the Univ. Cincinnati.

2003 (Spring Quarter: Sole Organizer) Statistical Genetics – I Principles and Methods – A graduate level course at the Department of Environmental Health. University of Cincinnati College of Medicine, Cincinnati, Ohio (30 registered students).

2003 (Fall Quarter; Sole Organizer) Statistical Genetics – II Segregation and Linkage Analyses and Their Applications – A graduate level course at the Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, Ohio (14 registered students).

2004 (Fall Quarter) Three Lectures (Genetic Variation, Hardy-Weinberg Equilibrium and Population Substructure, Linkage Disequilibrium, and Population Genomics and Complex Diseases) in the course on "Genetics of Complex Disease (26-BE-868) of Dr. R. Deka at the Division of Epidemiology and Biostatistics. Dept. Environmental Health. Univ. Cincinnati College of Medicine

2005 (Winter Quarter) Statistical Genetics – I Principles and Methods – A graduate level course at the Department of Environmental Health, University of Cincinnati College of Medicine. Cincinnati, Ohio (15 registered students).

2005 (Spring Quarter; Sole Organizer) Statistical Genetics – II Segregation and Linkage Analyses and Their Applications – A graduate level course at the Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, Ohio (16 registered students).

2006 (Fall Quarter; Group Teaching – 2 lectures on Genetic Variation, Hardy-Weinberg Equilibrium and Population Substructure, and Linkage Disequilibrium) in Genetics of Complex Diseases ((26-BE-868) of Dr. R. Deka at the Division of Epidemiology and Biostatistics, Dept. Environmental Health, Univ. Cincinnati College of Medicine, 12 registered students.

2007 (Winter Quarter: Sole Organizer) Statistical genetics – I Principles and Methods - A graduate level course at the Department of Environmental Health. University of Cincinnati College of Medicine, Cincinnati, Ohio (16 registered students).

2007 (Spring Quarter: Sole Organizer) Statistical genetics – II Segregation and Linkage Analyses and Their Applications - A graduate level course at the Department of Environmental Health, University of Cincinnati College of Medicine. Cincinnati, Ohio (4 registered students).

2007 (Fall Quarter; Group Teaching) Cancer Epidemiology in the Fall Quarter at DEH; One lecture of 2 hours on Radiation Risk of Cancers on November 19. 2007.

2007 (Sole Organizer; Workshop on DNA Forensics and Genomics at the University of Hyderabad, India on December 22, 2007; Gave 2 lectures each of 90 minutes duration).

2008 (Group Teaching with Dr. M. B. Rao: Workshop on Genomics Computations using R-Package at the Center for Digestive Diseases. Cincinnati Children's Hospital Medical Center on March 25, 2007).

2008 (Spring Quarter: Group Teaching) Molecular Epidemiology Course at the Division of Epidemiology and Biostatistics at DEH. Univ. Cincinnati; Gave one lecture on Genomic Markers in Molecular Epidemiology on April 25, 2008.

2008 (Fall Quarter, Group Teaching) Genetics of Complex Disease Course at the Division of Epidemiology and Biostatistics at DEH. Univ. Cincinnati; Gave two lectures (Effects of Natural Selection and Genetic Drift on complex diseases, and Genetic Admixture and Mapping by Admixture Linkage Disequilibrium) on October 24, and October 30. 2008.

2009 (Winter Quarter: Sole Organizer) Statistical Genetics – I: Principles and Methods - A graduate level course at the Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, Ohio (17 registered students).

2009 (Spring Quarter; Sole Organizer) Statistical Genetics – II: Segregation and Linkage Analyses and

Their Applications - A graduate level course at the Department of Environmental Health, University of Cincinnati College of Medicine. Cincinnati, Ohio (12 registered students).

2010 (Fall Semester, 4 lectures in the UNTHSC Course FGEN 5401 (Forensic Genetic Data Analysis) – A graduate level course at the Department of Forensic and Investigative Genetics, the Graduate School of Biomedical Sciences, University of North Texas Health Science Center (UNTHSC) at Fort Worth (8 registered students).

2011 (Spring Semester. Sole Organizer and Lecturer) Statistical Genetics (FGEN 6303.001) - A graduate level course at the Graduate School of Biomedical Sciences. University of North Texas Health Science Center (UNTHSC) at Fort Worth (3 registered and 1 auditing students).

2011 (Fall Semester, 4 lectures in the UNTHSC Course FGEN 5401 (Forensic Genetic Data Analysis) – A graduate level course at the Department of Forensic and Investigative Genetics, the Graduate School of Biomedical Sciences. University of North Texas Health Science Center (UNTHSC) at Fort Worth (5 registered students).

2011 (Fall Semester. Course Director and 10 lectures in the UNTHSC Course FGEN 5300 (Expert Witness) – A graduate level course at the Department of Forensic and Investigative Genetics, the Graduate School of Biomedical Sciences. University of North Texas Health Science Center (UNTHSC) at Fort Worth (5 registered students).

2013 (Spring Semester. Course Director and Sole Lecturer) FGEN 6363.001 – Statistical Genetics- A graduate level course at the Graduate School of Biomedical Sciences, University of North Texas Health Science Center (UNTHSC) at Fort Worth (2 registered students).

2013 (Fall Semester, 4 lectures in the UNTHSC Course FGEN 5401 (Population Genetics and Forensic Statistics) – A graduate level course at the Department of Forensic and Investigative Genetics, the Graduate School of Biomedical Sciences, University of North Texas Health Science Center (UNTHSC) at Fort Worth (12 registered students).

2015 (Spring Semester. Sole Organizer and Lecturer) Statistical Genetics (MOMG 6303.001) - A graduate level course at the Graduate School of Biomedical Sciences. University of North Texas Health Science Center (UNTHSC) at Fort Worth (2 registered students).

GRANT SUPPORT:

1973-78 NIH-GM-19513: "Population Genetics and Its Medical Applications" A part of the Medical Genetics Center Grant. M. W. Shaw (PI); $25.000/yr (for this part), 20% effort

1974-85 NSF-DEB-76-06069: "Statistical Studies of Molecular Variation and Evolution"; Co-Investigator of M. Nei (PI); $65.000/yr. 15% effort

1975-85 NIH-GM-20293: "Population Dynamics of Mutant Genes", Co-Investigator of M. Nei (PI); $75,000/yr, 15% effort

1977-85 NIH-CA-19311: "Genetic Epidemiology of Cancer in a Mexican-American Community", Co-PI with K.M. Weiss and W.J. Schull; $120.000/yr, 15% effort

1978-81 NIH-AG-10128: "Aging and Heterogeneity in Mortality Rates". Co-Investigator of K.M. Weiss (PI); $30,000/yr, 10% effort

1980-83 NIH-GM-28574: "Evolutionary Dynamics of Complex Genetic Traits", PI; $20.000/yr, 20% effort

1982-88 NIH-AM-32895: "Genetic Epidemiology of Diabetes in Mexican Americans", (with C.L. Hanis and W.J. Schull as PI); $50,000/yr. 10% effort

1990-94 NIH-GM-1R01-41399: "Effects of Population Mixtures on Genetic Variation", PI; $369,922 (for four yrs.), 30% effort

1990-92 NIJ-90-IJ-CX-0038: "Analysis of DNA Typing Data for Forensic Applications", (with S.P. Daiger as PI, and E. Boerwinkle); $291,317 (for two years). 20% effort

1992-96 NIH-GM-45816: "Population Genetics of Human Hypervariable Loci", (PI of the subcontract part; Dr. R. Deka, University of Pittsburgh is the PI of the overall grant); approx. $160.000 for four years; 10% effort

1992-94 NIJ-92-IJ-CX-K024: "Forensic Applications of DNA data", (with S.P. Daiger as PI, and E. Boerwinkle); $105.000 (for two years), 15% effort

1994-97 NIH-GM-1R04-41399: "Effects of Population Mixtures on Genetic Variation", PI; $518,041 (for

	three yrs.); 30% effort
1995-99	NIH-GM-1R01-52601: "Population Biology of Human Microsatellite Loci", (PI of the subcontract part; Dr. R. Deka. University of Cincinnati is the PI of the overall grant); $360,056 direct cost for 4 yrs; 10% effort
1996-99	NIH-GM-1R01-58545: "Dynamics of DNA Repeat Polymorphisms and Human Diseases", PI: $566,000 (for 3 yrs): 17% effort
1996-98	NIJ-5-7783-TX-IJ: "Validation of PCR-based DNA Typing Databases for Forensic Use", PI; $146,000 (for 2 yrs.). 10% effort
1997-01	NIH-RIG-M45816: "Population Genetics of Human Hypervariable Loci" (PI of overall grant is Dr. R. Deka. University of Cincinnati): PI of the subcontract; ($ 360,000, approx. for 4 yrs.), 10% effort
1997-01	NIH-5P50-AR44888-03: "Specialized Center for Research in Scleroderma" (with F.C. Arnett as PI, University of Texas School of Medicine); ($ 65,000 approx. for 4 yrs.), 5% effort
1998-99	NIJ-98-LB-VX-K019: "Validation of CODIS-Approved DNA Markers for Forensic Use", PI; current year $49,741, 5% effort
1999-00	NIJ-1999-9339-TX-IJ: "Validation of the CODIS-Approved DNA Markers for Forensic Use in Identity Testing, PI: $195,704 for 2 yrs., 12% effort
1998-03	NIH-5R01-GM41399: "Effects of Population Mixture on Genetic Variation", PI; $871,835 (for 4 yrs.); 30% effort
1999-03	NIH-GM-2R01GM58545-04: Renewal of "Dynamics of DNA Repeat Polymorphisms and Human Diseases", PI; ($641,468 for 4 yrs.), 17% effort
2001-06	NCI, CA75432-04 "Sequence Haplotypes for Analysis of Cancer Genes" via Baylor College of Medicine (PI: David Nelson), $374,300 for 5 yrs.: subcontract PI with 8% FTE
2001-06	NIH, 5P50-AR044888-07 "SCOR Program on Genetic Susceptibility of Systemic Scleroderma in Chocktaw Indians", via subcontract from Univ. Texas Medical School at Houston (PI: F. C. Arnett), current year. $ 75,900 for 5 yrs.; subcontract PI with 5% FTE
2002-07	NIH, 2R01-NS36695-06 "Genetic and Environmental Risk Factors for Hemorrhagic Stroke" PI J. Broderick, UC. current year $100,000 approx/ for 5 yrs.; co-investigator with 8% FTE
2003-04	DOJ-Project 1: "WGA Methodology Development". PI: $276,430; 5% FT.
2003-04	DOJ-Project 3: "Development of Genomics Protocols of Bioagents", PI: J. Yadav at DEH, UC COM, current yr. $203,807: co-investigator with 5% FTE
2003-04	NIH, R21-HG002849 "Computational Tools for Bayesian Mixture Modeling", PI: M. Medvedovic at DEH, UC-COM, $283,000 for 3 yrs.: co-investigator with 3% FTE
2003-06	NIH, R01-NS045911 "Childhood Absence in Epilepsy", via subcontract from Cincinnati Children's Hospital Medical Center (PI: T. Glauser). $ 6,880: subcontract PI with 3% FTE
2003-07	NIH-2R01-GM41399-13: "Effects of Population Mixture on Genetic Variation", PI; $778,728 (for 4 yrs.); 20% effort
2004-05	GCF-UN04-0074 "Exploring the Impact of Stroke Gene"; PI: D. Woo, Dept. of Neurology, UCCOM; $ 74,317: co-investigator with 2% FTE
2004-06	NIAID Midwestern Center for Excellence: Transmission/Pathogenesis of Bioterrorism Agents (PI: P. Schlievert, at Univ. Minnesota); subcontract to UC-COM with J. Yadav and R. Chakraborty (U56A157164-SUB-UOM-Yadav); $30,000; 5% FTE
2006-09	US Dept. of Justice. Title: "Development of user-friendly algorithms for kinship determination from DNA profiles". Total cost - $556,884 (direct): $307,927 (indirect) for 3 yrs; (PI: with 15% FTE).
2006-09	NIJ Project (PI: T. DeBry. Dept. Biological Sciences. Univ. Cincinnati with CGI Co-Investigator: R. Chakraborty with 3% FTE). Title: "DNA-based Identification of Forensically Important Diptera". Total cost of the project over 3 years: - $350,000 (direct) for the period of 03/01/2006-2/28/2009.
2006-10	NIH-K069845 Title: "Genetics of Metabolic Syndrome in an Island Population". (PI: R. Deka; R. Chakraborty as Co-PI with 5% FTE in the first 2 years, and 10% FTE in yrs. 3 and 4). Total cost: $1,600,000 (direct), $848,000 (Indirect) for the period of 07/01/2006-06/30/2010.

2006-10	CDC Project. Title: "The Potential Use of 17-P to Prevent Preterm Birth", (PI: H. How/B. Sibai. Dept. Obst. & Gyn.. UC-COM). CGI Co-Investigators: R. Chakraborty with 8% FTE Total cost of the project over 5 years - $1.591.377 (Direct cost) for the duration of 03/01/2006-2/28/2011.
2006-10	NIOSH Project: Title: "Diesel. Allergens and Gene Interaction and Child Atopy", PI: D. Bernstein with CGI Co-Investigator: R. Chakraborty with 8% FTE Total cost of the project over 5 years – $362,379 (direct) for the duration of 07/01/2006-06/31/2011.
2007-09	1R21 AI070865 from NIAID/NIH, Title: "Genetic determinants of host susceptibility to pulmonary anthrax". PI: J. Yadav, with R. Chakraborty as Co-PI at 5% FTE; Total $ 550,000 for 2 yr. period of 8/1/07-7/31/09
2007-09	Komen BCTR0707983-EH from Komen Center, TX; Title: "Cytochrome P450(CYP)3A4 induction by Tamoxifen" PI - P. Desai from UC College of Pharmacy with R. Chakraborty as Co-Investigator at 3% FTE; Total budget: $ 325,000 approx. (for the period of 08/01/07 – 6/30/09).
2007-09	NIH/NCI-R01-CA88041 Title: "Mechanisms of RET/PTC Rearrangements in Thyroid Cancer". (PI: Y. Nikiforov, Univ. Pittsburgh, with R. Chakraborty as the subcontract PI at CGI with 5% FTE). Total Cost of UC subcontract to R. Chakraborty of $40,769 (direct) and $21.607 (indirect) during the time period of 08/01/2009-7/31/2011.
2007-09	NIEHS R01 ES11170-07. Title: "Diesel. Allergens. Gene Interaction, and Child Atopy." Principal Investigator: Grace LeMasters, Co-investigator: R. Chakraborty (with 3% FTE); Total budget: $ 722,432 for the period of 07/1/07 to 06/30/10.
2007-09	US Department of Justice Grant. Title: "Enhancement and Maintenance of Combined DNA Index System. (PI: UniSys Corporation. with CGI Subcontract PI: R. Chakraborty at 30% FTE) Total CGI budget: $800,000 approx. (direct). and $424.000 approx. (indirect) for the period of 1/1/2007-12/31/2016.
2010-12	US National Institute of Justice Grant (NIJ-2010-93494) titled "Comprehensive Training Program in Forensic DNA Interpretation and Statistics' (PI: J. Planz; Role – Co-Investigator with 10% FTE). Total budget for 10/1/2010 – 9/30/2012 - $999.481.
2011	Contract from FBI and UniSys titled "Review of Joint Pedigree Likelihood Ratio (JPLR) Computational Logic for Person Identification" (PI: R. Chakraborty with 5% FTE). Total budget for 7/1/11 – 9/30/11 - $14.600.
2012-2013	Contract from Orange County District Attorney's Office. Santa Ana, CA, titled "Internal DNA Database Validation and Related Services" (PI: R. Chakraborty with 10% FTE). Total budget for 5/15/2012 through 07/31/2013 - $ 55.000.
2013-2014	ECS-FBI Contract titled "Development and Validation of CODIS 7.0 Enhancements" (PI: R. Chakraborty with 15% FTE). Total budget for 8/26/2013 through 4/25/2015 - $ 140,795.00
2014-2015	Renewed ECS-FBI Contract titled "Development and Validation of CODIS 7.0 Enhancements" (PI: R. Chakraborty with 30% FTE). Total budget for 8/26/2013 through 8/25/2015 - $ 181,530.00

FIELD EXPERIENCES:

1970-72	Designed the statistical sampling frame of a large scale population biological study on Nomadic caste-cluster of Western India, Survey conducted by Indian Statistical Institute, Calcutta
1973-74	Theoretical Frame-work and data analysis of the Multinational Andean Genetic and Health Program - A Study conducted by W. J. Schull and collaborators in Chile and Bolivia in 1973-1974
1977-85	Directed the statistical methodologies in the Cancer Epidemiology Project In Mexican-Americans of Laredo, Texas
1989-94	Directed statistical analysis of DNA typing data for TWGDAM on 73 populations covering over 40,000 individuals
1992-96	Directed statistical analysis of forensic databases (consisting of RFLP and PCR-based PM loci) generated by 27 forensic laboratories within USA, and over six international laboratories (Brazil. Canada, Spain, UK, and Switzerland)
1992-2008	Directed statistical analysis of forensic PCR-based STR databases generated by 27 forensic laboratories within USA, and over six International laboratories (Brazil, Australia, Canada, Spain,

	UK, and Switzerland)
2009-2011	Directed genetic affiliations of world-wide collection of STR allele frequencies (of loci used in DNA forensics) to determine the population clusters and co-ancestry coefficients in the clusters
2009-2014	Directing Y-STR haplotype data analyses in world-wide populations to determine the trend of clustering of populations by Y-STR haplotypes and estimation of co ancestry coefficients based on haplotype data for forensic applications

CURRENT GRADUATE STUDENTS (*Major Professor)

1. Davis, C. (2011-Current) PhD Student of Biomedical Sciences. University of North Texas Health Science Center at Fort Worth, Texas.

2. McEowen, R. (2011-Current) PhD Student at the Department of Molecular and Medical Genetics, University of North Texas Health Science Center at Fort Worth, Texas.

3. Setser, Cassandra (2013-Current) PhD Student at the Department of Molecular and Medical Genetics, University of North Texas Health Science Center at Fort Worth, Texas.

4. Zeng, Xiangpei (2013-Current) PhD Student at the Department of Molecular and Medical Genetics, University of North Texas Health Science Center at Fort Worth, Texas.

5. Nolan, Michael* (2013-Current) MS Student at the Department of Molecular and Medical Genetics, University of North Texas Health Science Center at Fort Worth, Texas.

DISSERTATION/THESIS COMMITTEES: (* Major Professor)

1. *Rodriguez, A. (1976) *A Monte Carlo Simulation of the Family Set Approach to estimate Heritability*. Ph.D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

2. Majumder, P.P. (1980) *ABO Blood-Group Gene Frequencies in the Indian Subcontinent: A Statistical Study of Patterns of Variation*. Ph.D. Thesis. Indian Statistical Institute, Calcutta.

3. Rogers, A. (1982) *Variation of Neutral Characters in Subdivided Populations*. Ph.D. Thesis in Anthropology, The University of New Mexico, Albuquerque, New Mexico.

4. Tajima, F. (1983) *Mathematical Studies on the Evolutionary Change of DNA Sequences*. Ph.D. Thesis, Graduate School of Biomedical Sciences, University of Texas Health Science Center at Houston.

5. Sharp, R.M. (1983) *A Sequential Linkage Study of Rheumatoid Arthritis with HLA with Sibpair Method*. Ph.D. Thesis, Baylor College of Medicine, Houston, Texas.

6. Macia, N.N. (1983) *Social and Biological Determinants of Short-Term Growth Velocity Among Preschoolers of Rural Guatemala, A Path Analysis Approach*. Ph.D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

7. Bailey, J.K. (1984) *Hearing and Hypoxia in the Aymara Indians of Chile*. M.S. Thesis, Graduate School of Biomedical Sciences, University of Texas Health Science Center at Houston.

8. Boerwinkle, E. (1985) *The Use of Measured Genotype Information In The Genetic Analysis of Quantitative Phenotypes*. Ph.D. Thesis, Department of Human Genetics, University of Michigan, Ann Arbor.

9. Kim, I-S. (1985) *Longitudinal Growth Parameters and Their Ecological Determinants*. Doctor of Public Health Thesis, School of Public Health, University of Texas Health Science Center at Houston.

10. Goode, M.E. (1985) *Chromosomal Mapping, Linkage Relationships, and Evolutionary Studies of the Human Anonymous DNA Clone DIS1*. Ph.D. Thesis, Graduate School of Biomedical Sciences, University of Texas Health Science Center, Houston.

11. Chakraborty, S. (1988) *Familial Aggregation of Cancers in Probands with Brain Cancer in Texas and Louisiana*. M.P.H. Thesis, School of Public Health (Epidemiology Program). University of Texas Health Science Center at Houston.

12. Shriver, M.D. (1993) *Origins and Evolution of VNTR Loci: The Apolipoprotein B 3' VNTR*. Ph.D. Thesis, Graduate School of Biomedical Sciences. University of Texas Health Science Center at Houston.

13. Carrejo, M. (1993) *Association Study Between Amino Acid Substitution Polymorphisms in the Apolipoprotein A-IV Gene and Artherosclerosis in Hypercholesterolemic and Hypertriglyceridemic Humans*. M.S. Thesis. Graduate School of Biomedical Sciences. University of Texas Health Science Center at Houston.

14. Chen, Li S.-C. (1994) *Genetic Epidemiologic Methods in Risk Determination in Li-Fraumani Syndrome*. Ph.D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

15. *Jin, L. (1994) *Population Genetics of VNTR Loci and Its Applications in Evolutionary Studies*. Ph.D. Thesis, Graduate School of Biomedical Sciences, University Texas Health Science Center at Houston.

16. Hallman, M. (1994) *Cladistic Analysis of Apolipoprotein B Gene Variation and Plasma Lipid and Apolipoprotein B Levels, Using Familial Data*. Ph.D. Thesis, Graduate School of Biomedical Sciences, University Texas Health Science Center at Houston.

17. Davison, L.J. (1996) *Evolution of Microsatellite Loci: Models and Data*. M.A. Thesis, Department of Statistics, Rice University, Houston, Texas.

18. *Li, Z. (1997) *Decomposition of R X C Contingency Table Chi-Square: Applications to Binned DNA Fragment Size Data and Population Structure Analysis*. Ph.D. Thesis. Biometry Module. School of Public Health, University of Texas Health Science Center at Houston.

19. Page, G. (1997) *The QLOD Score: A Sequential Method for Linkage and Exclusion of Quantitative Trait Loci in Humans and the Power of Exclusion Analysis*. M.S. Thesis. Human Molecular Genetics Program, Graduate School of Biomedical Sciences. University of Texas Health Science Center at Houston.

20. Pankratz, V.S. (1998) *Stochastic Models and Linkage Disequilibrium: Estimating the Recombination Fraction*. Ph.D. Thesis, Department of Statistics. Rice University, Houston, Texas.

21. *Nguyen, Q.B. (1998) *An Evaluation of Errors in Reported Parentage in a Native South American Population and their Impact on Assessing the role of Genetic Factors of Hemoglobin, Hematocrit, and Body Mass Index*. M.P.H. Thesis, School of Public Health. University of Texas Health Science Center at Houston.

22. Zheng, N. (1999) *Effect of Cancer Chemotherapy on the Frequency of Minisatellite Repeat Number Changes in Human Sperm*. Ph.D. Thesis, School of Public Health. University of Texas Health Science Center at Houston.

23. Rodin, A. (1999) *New Algorithms for Automated Phylogenetic Reconstruction Using Artificial Intelligence and Data Mining Techniques*. Ph.D. Thesis, Graduate School of Biomedical Sciences, University of Texas Health Science Center at Houston.

24. King, J.P. (1999) *A Microsatellite-based Statistic for Inferring Patterns of Population Growth: Sampling Properties and Hypothesis Testing*. Ph.D. Thesis. Department of Statistics, Rice University, Houston, Texas.

25. Bertoni, B. (1999) *Admixture Study in Human Populations using Molecular Markers*. M.S. Dissertation, Facultad de Medicina, Universidad de la República. Montevideo, Uruguay.

26. *Barnholtz, J.S. (2000) *Traditional Linkage Analysis in Admixed Families*. Ph.D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

27. Zhang, Y. (2000) *Studies of Germline Mutations Induced by Radiation and Cyclophosphamide at Human Expanded Myotonic Dystrophy CTG Repeats in a Transgenic Model*. Ph.D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

28. *Song, J. (2001) *Survival Analysis of Longevity in Siblings*. Ph.D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

29. *Cerda Flores, R. (2001) *Estructura y Mexcla Genetica de las Poblaciones Mestizas del Noreste de Mexico Mediante el Uso de Marcadores Mitochondrial y del Cromosoma Y*. Ph. D. Thesis, Facultad de Ciencias Biologicas, Universidad Autonoma de Nuevo Leon, Nueovo Leon. Mexico.

30. Xin, H (2002) *A Case-Control Study of 16 Polymorphisms in 13 candidate Genes and Obesity in Samoans*. M.S. Thesis, Graduate Program in Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

31. Maleki, A (2002) *Small Pool PCR Determination of Microsatellite Instability in the Inherited Cancer Disorder, Li-Fraumeni Syndrome, and Its Possible Application in Assessing Cancer Predisposition*. Ph. D. Thesis, School of Public Health, University of Texas Health Science Center at Houston.

32. *Xu, Hongyan (2003) *Detecting the Signature of Natural Selection with Microsatellites*. Ph. D. Thesis, Human and Molecular genetics Program. Graduate School of Biomedical Sciences. The University of Texas Health Science Center at Houston.

33. Huber, John Charles (2004) *The Power of Using Haplotype Tagging SNPs on the Power of Tests of Association*. Ph. D. Thesis, Division of Biometry. School of Public Health. University of Texas Health Science Center at Houston.

34. *Xue, Bin (2005) *Meta Analysis of the Association of P53 Codon 72 Variation and Cervical Cancer*. M.S. Thesis, Graduate Program in Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

35. *Bertoni, Bernardo (2005). *Characterization and behavior of the Y chromosome haplotypes in Human populations (Caracterización y comportamiento de los haplotipos del cromosoma Y en poblaciones humanas)*. PhD Thesis, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay.

36. Mian, Amir (2006). *Clinical Predictors and Risk of Optic Pathway Glioma in Neurofrimatosis 1*. MS Thesis, Graduate Program in Epidemiology, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

37. Smelser, Diane T (2006) *A Comparison of Obesity Candidate Genes in the Anabolic Neuropeptide Pathway in Samoan and American Samoan Populations*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

38. Zhang, Qi (2007) *Semi-parametric Test based on Spline Smoothing for Genetic Association Studies in Stratified Populations*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

39. He, Ran (2007) *Some Statistical Aspects of Association Tests in Genetics and Tests of the Hardy-Weinberg Equilibrium*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

40. *Zhang, Ge (2007) *Statistical Methods in Genetic Association*. PhD Thesis, Division of Molecular Toxicology and Environmental Genetics, Dept. Environmental Hlth., Univ. Cincinnati College of Medicine, Cincinnati, OH.

41. *Sheng, Xiaohua (2007) *Human Population Stratification and Genetic Association Studies*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

42. Gupta, Jayanta (2007) *Genetic and Biological Markers of Atopic Dermatitis in Children*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

43. Pal, Prodipto (2008) *Association of 19q, 8q24 regions and Mismatch Repair (MMR) Genes with Prostate Cancer in Caucasians*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

11. *Kalra, Maninder (2008) *Genetic Susceptibility to Obstructive Sleep Apnea*. PhD Thesis, Division of Epidemiology and Biostatistics, Department of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

45. * Ge, Jianye (2008) *Computational Algorithms and Evidence Interpretation in DNA Forensics based on Genomic Data.*. PhD Thesis, Department of Biomedical Engineering, University of Cincinnati College of Medicine, Cincinnati, OH.

46. Mugunda, Ganesh M (2009) *Pharmacogenetic Impact on Metabolism and Cytochrome P450 (CYP) 3A Induction Effect of Tamixifen*. PhD Thesis, Department of Pharmaceutical Sciences, College of Pharmacy, University of Cincinnati, Cincinnati, OH.

47. Rayburn, Emma L (2012) *Sequence Determination of Novel Plasmids in Rickettsia spp. and Identification of the Minimum Required Components for Autonomous Replication*. MS (Forensic Science) Thesis, Department of Forensic and Investigative Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas, April 2012.

48. Dorwart, Elizabeth (2012) *Perceived Stress and its Relationship to Global Methylation*. MS (Biological Sciences) Thesis, Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas, May 2012.

49. *Sifuentes, Nichole E (2012) *Cold Hit Experience and Random Match Probability*. MS (Forensic Science) Thesis, Department of Forensic and Investigative Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas, May 2012.

50. *Ricco, Emily (2013) *Y-Chromosome Heterogeneity in Three Native North American Populations*. MS (Forensic Science) Thesis, Department of Forensic and Investigative Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas, May 2013.

51. Oatts, Sarah M (2013) *Development of a Full Mitochondrial Genome Specific Target-Enriched Library for Next Generation Sequencing Applications*. MS (Forensic Genetics) Thesis, Department of Forensic and Investigative Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas, May 2013.

52. Marshall, Pamela (2014) *Improved Tools for the Robust Analysis of Low Copy Number and Challenged DNA Samples*. PhD Thesis, Department of Molecular and Medical Genetics. Graduate School of Biomedical Sciences, University of North Texas Health Science Center. Fort Worth, Texas, May 2014.

53. Thompson, Lindsey M (2015) *Selection of an Ancestry-Informative Marker Panel of INDELs*. MS (Forensic Genetics) Thesis, Department of Molecular and Medical Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center. Fort Worth, Texas, April. 2015.

54. Cisneros, Irma E (2015) *Trace amine associated receptor 1 (TAAR1), a novel astrocyte receptor for METH-mediated neurotoxicity: Implications for HIV-1 associated neurocognitive disorders (HAND)*. PhD Thesis, Department of Cell Biology, Immunology and Microbiology. Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas, April 2015.

55. *Grubb, Nicole (2015) *Genetic Diversity in Sioux Indians of South Dakota with 21 Autosomal STR Loci and Their Forensic Utility*. MS (Forensic Genetics) Thesis, Department of Molecular and Medical Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center. Fort Worth, Texas, May, 2015.

56. *Guadian, Laura (2015) *Genetic Diversity of Easter Island Population from Autosomal and Y-STR Loci*. MS (Forensic Genetics) Thesis, Department of Molecular and Medical Genetics, Graduate School of Biomedical Sciences, University of North Texas Health Science Center. Fort Worth, Texas. May, 2015.

57. *D'Auben, Aislinn (2015) *Ancestry informativeness of Alu markers in four US populations*. MS (Forensic Genetics) Thesis, Department of Molecular and Medical Genetics. Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Texas. May. 2015.

58. Warshauer, David H (2015) *Development of a comprehensive Massively Parallel Sequencing Panel of Single Nucleotide Polymorphism and Short Tandem Repeat Markers for Human Identification*. PhD Thesis, Department of Molecular and Medical Genetics, Graduate School of Biomedical Sciences. University of North Texas Health Science Center. Fort Worth, Texas, July 2015.

SUPERVISORY EXPERIENCE OF POST-DOCTORAL FELLOWS:

1. Dr. R.R. Blanco (1974-76) - from University of Chile - Conducted research on dental morphology, genetic variability, and consanguinity effects in South American Indians at the Center for Demographic and Population Genetics, UTHSC at Houston.

2. Dr. P.A. Fuerst (1975-80) - Conducted research on statistical studies on genetic variability in natural populations at the Center for Demographic and Population Genetics, UTHSC at Houston.

3. Dr. P.P. Majumder (1980-82) - from the Indian Statistical Institute. Calcutta - Conducted research on genetic epidemiology of chronic disorders at the Center for Demographic and Population Genetics, UTHSC at Houston.

4. Dr. K.C. Malhotra (1978,1981) - from the Indian Statistical Institute, Calcutta; spent two months each of these two years - Conducted research on Population Genetics of Nomadic tribes of India and dermatoglyphic variation in the Indian subcontinent at the Center for Demographic and Population Genetics, UTHSC at Houston.

5. Dr. S-L. Varvio-Aho (1983) - from the Department of Genetics, University of Helsinki, Finland; spent 3 months at UTHSC at Houston- Conducted research on genetic variation in subdivided population and conservation genetics.

6. Dr. S.K. Basu (1984) - from the National Institute of Health and Family Welfare, New Delhi, India - Spent three weeks at UTHSC at Houston to conduct research on genetic factors in health of tribal populations of India.

7. Mr. B.N. Mukherjee (1984) - from Indian Statistical Institute, Calcutta - Spent one month at UTHSC at Houston to conduct population genetic studies in the Eastern region of India.

8. Dr. K.C. Malhotra (1985) - from Indian Statistical Institute, Calcutta - Spent one month at UTHSC to study Palmer dermatoglyphics in Iran and population structure of Siddhis of India.

9. Dr. Heidi Dunker-Hofpe (1988) - from the University of Bremen, West Germany; West German DAAD Research Fellow - Worked on statistical genetic principles of population structure analysis at the Center for Demographic and Population Genetics, UTHSC at Houston.

10. Dr. Gautam K. Kshatriya (1989-90) - from the National Institute of Health and Family Welfare, New Delhi, India; Govt. of India Postdoctoral Research Fellow (foreign program) in Anthropology and Human Genetics - Studied genetic variation within and between populations, and role of genetic factors in complex traits at the Center for Demographic and Population Genetics, UTHSC at Houston.

11. Mr. Ricardo M. Cerda Flores (1990) - from Division de Genetica, Unidad de Investigacion Biomedica del Noreste, IMSS, Nuevo Leon, Mexico; Govt. of Mexico Visiting Research Instructor in Genetics - Studied the role of genetic variation in complex traits and conducted statistical genetic analyses for examining the effects of population mixture on genetic variation at the Center for Demographic and Population Genetics, UTHSC at Houston.

12. Dr. Mariza de Andrade (1991-92) - Post-Doctoral Research Fellow at Genetics Centers, UTHSC at Houston - Developed statistical software for the analysis of DNA typing data for forensic applications.

13. Dr. Yixi Zhong (1991-2001) - Mathematical Analyst at the Human Genetics Center, UTHSC at Houston - He developed a comprehensive analytical software for biostatistical analysis of population data on hypervariable loci.

14. Dr. M.R. Srinivasan (1991-93) Visiting Research Assistant Professor from Madras University, India - Developed statistical methods for analyzing the effects of population mixture on genetic variation at the Human Genetics Center, UTHSC at Houston.

15. Ms. Monica Sans (1992) - from the Universidad de la Republica Facultad de Humanidades y Ciencias de la Educacion, Montevideo, Uruguay; Supported by the Govt. of Uruguay - The work done at the Human Genetics Center, UTHSC at Houston, under my supervision included estimation of genetic admixture in three samples of rural and urban populations of Uruguay.

16. Dr. Keith Goodnight (1993-94) - Post Doctoral Research Associate at the Genetics Center, UTHSC at Houston - Developed statistical methods for determining relatedness between individuals and groups using DNA finger-printing data and studying population structure using mtDNA sequence data.

17. Dr. Fernando Rivas (1993-95) - Visiting Research fellow at the Human Genetics Center, UTHSC at Houston - Evaluated the role of genetic and environmental factors in multiple occurrences of Neural Tube Defect in Mexican population, and studied the utility of HLA-DQα for parentage analysis and human identification through a world-wide compilation of polymorphism data at this locus.

18. Mr. Ricardo M. Cerda Flores (1994-96) - from Division de Genetica, Unidad de Investigacion Biomedica del Noreste, IMSS, Nuevo Leon, Mexico; Government of Mexico Visiting Research Fellow in Genetics at the Human Genetics Center, UTHSC at Houston, he studied the role of genetic variation in complex traits and conducting statistical analysis of genetic data for examining the effects of population mixture on genetic variation.

19. Dr. David N. Stivers (1994-95) - Post Doctoral Research Associate at the Human Genetics Center, UTHSC at Houston - Developed statistical methods for studying linkage disequilibria between tandem repeat loci, and testing independence of alleles at hypervariable loci.

20. Dr. Andrzej Polanski (1996-97) - from Dept. of Automatic Control, Silessian University, Gliwice, Poland - At the Human Genetics Center, UTHSC at Houston, he developed statistical methods for studying molecular mechanisms responsible for generation and maintenance of repeat polymorphisms at dinucleotide and Short and Short Tandem Repeat Loci in human and related species.

21. Dr. Monica Sans (1997, 1998) - from the Universidad de la Republica Facultad de Humanidades y Ciencias de la Educacion. Montevideo, Uruguay; Supported by the Government of Uruguay. Under my direction at the Human Genetics Center, UTHSC at Houston she evaluated the effect of directional mating on genetic admixture in a Uruguayan population using blood groups, protein, mtDNA and Y-chromosome markers.

22. Dr. Adam Bobrowski (1997-99) Postdoctoral Fellow at the Human Genetics Center, UTHSC at Houston. Under my direction he developed mathematical dynamic models for studying the effects of allele size constraints and past population size changes on genetic variation at microsatellite loci.

23. Mr. Bernardo R. Bertoni (1997) - MS Student at the Section of Biological Anthropology, Faculty of Humanities and Sciences, Republic University of Uruguay, Montevideo, Uruguay. Under my direction at the Human Genetics Center, UTHSC at Houston he studied the utility of RFLP-VNTR and PCR- polymarker loci in estimating admixture levels in different Hispanic populations of the US as a part of his MS Thesis project.

24. Dr. Bing Su (1997-2001) Postdoctoral Fellow at the Human Genetics Center, UTHSC at Houston. Under my direction he developed high through-put analysis of PCR markers and compiling world-wide data on genetic variation at polymarker and STR loci for studying Human Genome Diversity.

25. Mr. Ricardo Cerda Flores (1997-2001) Ph.D. Student at Universidad Autonoma de Nuevo León, Facultad de Ciencias Biológicas, Monterrey, México. Under my supervision (as a Ph.D. Thesis Advisor), he is studying the population structure of the Mexican population of Nuevo Leon, Mexico, with particular emphasis on the estimation of admixture based on minisatellite, microsatellite, mtDNA and Y-chromosome polymorphisms.

26. Dr. Venkateswarlu Kondragunta (1999-2000) Postdoctoral Fellow at the Human Genetics Center, UTHSC at Houston. Under my direction he developed statistical methods for testing independence of categorical and ordinarily scaled variables with sparse data.

27. Ms. Dayse Aparecida da Silva (May 1999) Visiting Research Fellow at the Human Genetics Center, UTHSC at Houston from the State University of Rio de Janeiro, Brazil (also from Division of Forensic Services, Police Dept. of Rio de Janeiro, Brazil). Under my supervision she conducted statistical analysis of various forensic population databases encompassing genotype data on STR markers (using Promega PowerPlex 1.1 and 2.1 protocols).

28. Dr. Gutala Ramana (1999-2001) Postdoctoral Fellow at the Human Genetics Center, UTHSC at Houston. Under my direction he studied mtDNA and Y-chromosome polymorphism in populations of the Indian Subcontinent.

29. Dr. Ning Wang (1999-2001) Postdoctoral Fellow at the Human Genetics Center, UTHSC at Houston. Under my direction she studied the worldwide diversity of DNA sequence variation using the coalescence theory and conducted disease-gene association studies.

30. Dr. Elise Eller (2000-2001) Postdoctoral Fellow at the Human Genetics Center, UTHSC at Houston. Under my direction she studied signatures of pattern and timing of worldwide population expansion from genetic variation at microsatellite loci.

31. Dr. Ning Wang (2001-2004) Postdoctoral Fellow at the Center for Genome Information, University of Cincinnati. Under my direction she developed robust methods of transforming multilocus genotype data into haplotypes for disease-gene association studies. She also worked on developing data mining methods for controlling false positive error rates in detecting gene-gene and gene-environment interaction effects on complex phenotypes.

32. Bernardo Bertoni (2001-2005) Ph.D. student from the Universidad de la Republica, Facultad de Humanidades y Ciencias de la Education, Montevideo, Uruguay. Under my direction at the Center for Genome Information at the University of Cincinnati, he studied genetic variability with Y- chromosome STRs and SNPs and their comparison with mtDNA variation in several populations of Uruguay to determine the extent of gender influenced gene flow between populations.

33. Dr. Kosuke Teshima (2002-2004) Postdoctoral Fellow at the Center for Genome Information, University of Cincinnati. Under my direction he developed theories and conducted data analysis on the impact of recurrent mutations at DNA sequence and repeat polymorphism level, studying their effects on molecular evolutionary as well as disease-gene association inferences.

34. Dr. Saurav Guha (2005-2007) Postdoctoral Fellow at the Center for Genome Information, University of Cincinnati. Under my direction he developed theories and conducting data analysis on the pattern and extent of intra- and inter-population variation of autosomal and lineage markers to quantify the effects of population substructure at single marker versus linked haplotype level and the impact of uniparental transmission of genetic polymorphism on the the summary statistics of population structure.

35. Dr. Tokumasa Horiiki (2006-2007) Postdoctoral Fellow at the Center for Genome Information, supported by Japanese Government Promotion of Science Fellowship. Under my direction he worked on developing methodologies to infer species trees from gene trees by using comparative genomic approaches.

36. Dr. Jianye Ge (2008-2009) Postdoctoral Fellow at the Center for Genome Information, University of Cincinnati, supported by University of North Texas Health Science Center at Fort worth, Texas. Under my direction he worked on methodologies for interpreting DNA evidence data on Y-STR haplotypes and validation of Y-STR haplotype databases at population level.

37. Dr. Delbert A Green (April, 2015) Postdoctoral Trainee at the Center for Computational Genomics of Institute of Applied Genetics, Department of Molecular and Medical Genetics, University of North Texas Health Science Center at Fort Worth, Texas. Under my supervison, Dr. Green received demonstration of massively parallel sequencing methods and technologies (Illumina MiSeq™), Population genetic analyses for forensic science applications (including Hardy-Weinberg equilibrium testing and linkage equilibrium testing), and Statistical genetics methods, including the concepts of mismatch statistics and principal component analysis and their implementation on genotype data of forensic DNA markers.

EXPERIENCE IN APPLICATIONS OF GENETICS IN BASIC SCIENCES, LAW AND FORENSICS:

1. (1974-) Published over 250 papers in scientific journals (see publication list) on utility and biostatistics of genetic markers for parentage determination and human identification purposes.

2. (1978) Expert Witness: US court proceedings of paternity dispute cases (in the State of Texas).

3. (1981) Member Review Board: Government of Sweden, Ministry of Health and Welfare (Purpose: To review the performance of the Paternity Testing Lab).

4. (1981) Foreign Observer: International Conference on Paternity Testing, Sweden.

5. (1982) Invited Speaker: International Conference on Inclusion Probabilities in Parentage Testing (Sponsor: American Association of Blood Banks, Airlie, VA, May, 1982).

6. (1989-1999) Consultant: F.B.I. Academy with regard to biostatistical and population genetic issues of DNA Forensics.

7. (1990) Invited Keynote Speaker: 1st International Conference on DNA Fingerprinting (Berne, Switzerland, Sept. 29 - Oct. 4, 1990).

8. (1991-94) Consultant: the Orange County (California) Sheriff-Coroner Department with regard to the population genetic issues of the use of DNA typing data for forensic applications.

9. (1992) Keynote Speaker: 3rd International Conference on Human Identification, Organized by Promega Corporation, Wisconsin (Scottsdale, AZ, Apr. 29 - May 2, 1992).

10. (1992) Co-Organizer and a Keynote Speaker: 2nd International Conference on DNA Fingerprinting (Belo Horizonte, Brazil, Nov. 9-12, 1992).

11. (1992) Invited Speaker: J.B.S. Haldane Centenary International Conference on Human Genetics, Indian Statistical Institute (Calcutta, India, Dec. 15-19, 1992).

12. (1993) Invited Banquet Lecturer: 537th Meeting of the Houston Philosophical Society (Rice University, Houston, TX, Feb. 18, 1993).

13. (1993) Invited Lecturer: International Conference on the Current Views on the History of Organisms, organized by Graduate University of Advanced Studies (Tokyo, Japan, Mar. 1-5, 1993).

14. (1993) Invited Plenary Session Lecturer: 20th Annual Meeting of the Texas Genetics Society (Galveston TX, Mar. 18-20, 1993).

15. (1994) Co-Organizer: Symposium on Human Hypervariable Polymorphisms. 42nd Annual Meeting of the American Association of Physical Anthropologists (Denver, CO, Mar. 29 - Apr. 2, 1994).

16. (1994) Keynote Speaker: 5th International Conference on Human Identification, Organized by Promega Corporation, Wisconsin (Scottsdale, AZ, Oct. 8-11, 1994).

17. (1994) Co-Organizer and Key-note Speaker: 3rd International Conference on DNA Fingerprinting (Hyderabad, India, Dec. 13-17, 1994).

18. (1995) Platinum Jubilee Keynote Speaker: 82nd Indian Science Congress at Jadavpur University (Calcutta, India, Jan. 3-8, 1995).

19. (1995) Organizer, Moderator, and Speaker: Symposium on DNA Forensics: Current Status of Issues, Concerns and Their Resolutions. 45th Annual Meeting of the American Society of Human Genetics (Minneapolis, MN, Oct.25, 1995).

20. (1995) Faculty Member: Course on DNA Databanks and Repositories, Armed Forces Institute of Pathology (Birmingham, AL, Dec. 9, 1995).

21. (1996) Faculty Member: Workshop on Statistics in DNA Forensics and Paternity Testing. Promega Corporation (Sept. 16-18, 1996).

22. (1996) Invited Speaker: 7th International Conference on Human Identification, Organized by Promega Corporation, Wisconsin (Scottsdale, AZ, Sept.19-21, 1996).

23. (1996) Invited Plenary Lecture Speaker: XXI Congreso Nacional de Genetica Humana y 1er Encuentro Latino-Americano de Bioetica y Genoma Humano (Manzanillio, Mexico, Oct. 9-12, 1996).

24. (1996) Invited Plenary Lecture Speaker: Symposium for Jornades del 20 Anniversario de Centro de

Investigacion Biomedica de Occidente, IMSS (Guadalajara, Jalisco, Mexico, Nov. 18-22, 1996).

25. (1997) Invited Plenary Lecture Speaker: 4th South-North Human Genome Conference (Guadalajara, Jalisco, Mexico, Mar. 16-19, 1997).

26. (1997) Invited Speaker: 1st International Workshop on Myotonic Dystrophy, INSERM (Paris, France, June 30 - July 1, 1997).

27. (1997) Invited Speaker: International Conference on Genetic Susceptibility to Radiation-Induced Cancers (Radiation Effects Research Foundation (Hiroshima, Japan, July 8-11, 1997).

28. (1997) Invited Plenary Lecture Speaker: Symposium on Human Genome Research: Implications for Health in Latin America (San Juan del Rio, Quertaro, Mexico, Nov. 2-5, 1997).

29. (1997) Invited Speaker: Cambridge Healthtech Institute's Annual Conference on "DNA Forensics: Science, Evidence and Future Prospects" (McLean, VA, Nov. 16-17, 1997).

30. (1998) Scientific Director and Invited Plenary Speaker: 5th International Conference on Mathematical Population Dynamics (Zakpane, Poland, June 21-26, 1998).

31. (1998) Invited Symposium Speaker: Molecular Anthropology of the 21st Century, at 14th International Congress of Anthropological and Ethnological Sciences (Williamsburg, VA, July 26 - Aug. 1, 1998).

32. (1998) Chair and Invited Speaker: Symposium on Genetic Variation in Structured Populations, XVIIIth International Congress of Genetics, (Beijing, China, Aug. 10-15, 1998).

33. (1998) Invited Plenary Speaker: Kunming Satellite Conference on Genetics and Conservation of Biodiversity, XVIIIth International Congress of Genetics (Aug. 16-18, 1998).

34. (1998) Invited Symposium Speaker: XXXIth Annual Reunion of the Chilean Society of Genetics (La Serena, Chile, Oct. 20-23, 1998).

35. (1998) Chairman: Session on Population Genetics and Genetic Epidemiology, 48th Annual Meeting of the American Society of Human Genetics (Denver, CO, Oct. 27-31, 1998).

36. (1998) Moderator: Session on CODIS Experience with STRs: converting from RFLP to STRs, at the National Conference on A Decade of DNA: 4th Annual CODIS User Group Meeting, Federal Bureau of Investigation (Arlington, VA, Nov. 19-20, 1998).

37. (1999) Plenary Lecturer: 5th International Conference on DNA Fingerprinting, University of Port Elizabeth, South Africa (Port Elizabeth, Republic of South Africa, Jan. 17-22, 1999).

38. (1999) Invited Speaker: 17th Annual Houston Conference on Biomedical Engineering Research, University of Houston (Houston, TX, Feb.11-12, 1999.

39. (1999) Invited Speaker: National Institutes of Justice Annual Grantee Program Meeting for Forensic Science (Orlando, FL, Feb. 14-15, 1999).

40. (1999) Invited Speaker: Population Genetics Working Group of the National Commission of Future of DNA Evidence (Chicago, ILL, Mar. 29, 1999).

41. (1999) Organizer and Chairman: Anthropological Diversity and Complex Diseases Symposium, 68th Annual Meeting of the American Association of Physical Anthropologists (Columbus, OH, Apr. 28-May 1, 1999).

42. (1999) Invited Course Director and Lecturer: Applied Population Genetics to Forensic Identification at Instituto Multidisciplinario de Biología Celular (IMBICE) (Buenos Aires, Argentina, May 17-22, 1999).

43. (1999) Invited Faculty Member: 2nd International Summer School on Mathematics of Cell Physiology and Proliferation (Termoli, Italy June 6-19, 1999): taught four lectures on Basics of Population Genetics, Effect of Genetic Drift and Neutral Mutation Theory, Cancer Genetics and Models of Carcinogenesis, and Radiation Risk Estimates.

44. (1999) Scientific Co-Director and Invited Speaker: Cambridge Healthtech Institute 3rd Annual Conference on DNA Forensics (McLean, VA, June 13-15,1999).

45. (1999) Invited Speaker: 10th International Symposium on Human Identification. Organized by Promega Corporation, Wisconsin (Lake Buena Vista, FL, Sept. 28 - Oct. 2, 1999).

46. (1999) Co-organizer and Faculty Member: Workshop on Statistics of DNA Forensics, 10th International Symposium on Human Identification. Organized by Promega Corporation, Wisconsin (Lake Buena Vista, FL, Sept. 28, 1999).

47. (1999) Faculty Member: Workshop on Mitochondrial DNA Evidence in Forensics. 10th Int. Symposium on Human Identification. Organized by Promega Corporation, Wisconsin (Lake Buena Vista, FL, Sept. 29, 1999).

48. (1999) Statistics Subcommittee Member, U.S. National DNA Advisory Board (Arlington, VA, Nov. 16, 1999).

49. (1999) Invited Speaker: 5th Annual CODIS User's Group Meeting. (Arlington, VA, Nov. 17-20, 1999).

50. (2000) Keynote speaker at the inauguration ceremony of the Central DNA Forensics Laboratory of Jamaica, Kingston (February 10, 2000) and Course Director and Sole Lecturer of the "Statistical Issues of DNA Testing", organized by the Forensic Service Agency of Jamaica, Kingston (February 11, 2000).

51. (2000) Invited Speaker: NIJ Meeting of Grantees (Sparks, NV, Feb. 20-21, 2000).

52. (2000) Speaker: Statistical and Population Genetics Issues Affecting the Evaluation of the Frequency of Occurrence of DNA Profiles Calculated from Pertinent Population Database(s). Academy of Forensic Science Meeting (Reno, NV, Feb. 22-23, 2000).

53. (2000) Invited Speaker: Biological Classification of Individuals: A Problem Revisted with DNA Data. Statistics: Reflections on the Past and Visions for the Future. International Conference in Honor of Professor C. Radhakrishna Rao (San Antonio, TX, Mar. 16-19, 2000).

54. (2000) Invited Symposium Speaker: Ascertainment Bias of Control Samples in Studies of the Genetics of Aging. Human Biology/Genetics: Perspectives on the Genetics of Aging Symposium. 69th Annual Meeting of the American Association of Physical Anthropologists. (San Antonio, TX, Apr. 10-15, 2000).

55. (2000) Invited Speaker: Workshop on the Genetic Association Studies for Complex Traits. (Pittsburgh, PA, Apr.26-29, 2000).

56. (2000) Invited Speaker, Scientific Co-Director and Chairman of DNA Variation and Database Management Session: A Snap View of Worldwide Variation at STR Loci and Mitochondrial D-Loop Region and Their Implications for DNA Forensics. 4th Annual Cambridge Health Institute DNA Forensics Conference. (Springfield, VA, May 31-June 2, 2000).

57. (2000) Invited Speaker: Mutations at Minisatellite and Microsatellite Loci and Their Relevance in Estimation of

Radiation-Induced Risks. Health Risks from Exposure to Low Levels of Ionizing Radiation. BEIR VII Phase 2 (Washington, D.C., June 11-12, 2000).

58. (2000) External Advisory Committee Member: Studies on Children of Childhood Cancer Patients-Genetics and Reproductive Outcome. (Niagara-on-the Lake, June 25, 2000).

59. (2000) Invited Speaker: Linkage Disequilibrium: Concept, Utility and Evolutionary Dynamics in the Context of the Human Genome variation. Destobio 2000. (West Lafayette, IND., Aug. 23-27, 2000).

60. (2000) Invited Speaker: Statistics of Parentage Analysis: Considerations of Mutations, Paternity Testing Minisymposium. 11th International Symposium on Human Identification. Promega Corporation. Wisconsin (Biloxi, MS, Oct. 9-10, 2000).

61. (2000) Invited Plenary Speaker: Genome Diversity of Populations: More is not Necessarily Significant! 6th Annual Meeting of the Latin American Association of Biological Anthropology (ALAB). (Maldonado, Uruguay, Oct. 21-28, 2000).

62. (2000) Invited Plenary Speaker: The Genetics of Aging: Some Statistical Considerations. Pan American Symposium on the Molecular Approach to Human Diseases. (Cancun, Mexico, Nov. 1-4, 2000).

63. (2000) Invited Speaker: Models for Evaluation of Radiation Risk Factors Workshop. Individual Variability, NASA. (Houston, TX, Nov. 12-15, 2000).

64. (2001) Joint Meeting of the NY State DNA Subcommittee and the Commission of New York City. (New York, NY, Feb. 8-9, 2001).

65. (2001) Invited Speaker: 6th Annual CODIS User's Group Meeting (Arlington, VA, Feb. 4-7, 2001).

66. (2001) Invited Speaker at the 27th Annual Meeting of Biological Anthropology, Croatia Medical Association. (Zagreb, Feb. 15-17, 2001)

67. (2001) Invited Speaker at the 7th CODIS User Group Meeting of Biological Anthropology. Croatia Medical Association. (Zagreb, Feb. 15-17, 2001)

68. (2001) Invited Speaker at the International Symposium on Evolutionary Genomics (Atami, Japan, Nov 4-6, 2001). Title: Haplotype inferences from population data: A data mining approach.

69. (2002) Invited Keynote Lecturer at Symposia International Ceincias y Salud at University of Guadalajara, Mexico (Feb 1-2, 2002). Title: Genome diversity and health: Examples of genotype-dependent risk variation.

70. (2002) Invited Speaker at the first Waterfront Symposium of Human Genome Science at Odaiba, Tokyo, Japan (March 2-3, 2002) Title: A method for detecting gene-gene interaction through genome-scan studies.

71. (2002) Invited Keynote Speaker and Session Chair. International Conference of the Center of Genetic Studies, Fudan University, PR China (April 17 – 20, 2002). Title: Current Thoughts on Complex Disease Studies.

72. (2002) NY State DNA Subcommittee Meeting, Albany, NY (May 21, 2002).

73. (2002) Invited Participant and Working Group Member at the Colloquium on "Microbial Forensics: A Critical Assessment", organized by the American Academy of Microbiology (held at the Inn at Essex, Vermont during June 7-9, 2002).

74. (2002) Invited Speaker and Scientific Director, Cambridge Health Institute's 5th Annual DNA Forensics

Conference (Washington Marriot Hotel. Washington DC, June 27-28, 2002). Title of the talk: Allele and Genotype matches in databases: Do observations meet expectations?

75. (2002) External Advisory Committee Meeting of Genetics and Reproductive Outcomes Study of Survivors of Childhood Cancer, organized by the International Epidemiology Institute, Ltd (Held at Niagara-on-The-Lake, Ontario, Canada, June 30, 2002).

76. (2002) Invited Speaker at the New York State BIO-TWG Meeting at NYS DCJS Office of Forensic and Victim Services, Albany, NY (July 2, 2002) Topic of Discussion: Observed and expected matches in database searches and their implications on Source Attribution Statement in DNA Forensic casework analysis.

77. (2002) Invited Speaker at the State of Texas Scientific Working Group of DNA Analysis Methods (Texas-SWGDAM – AFDAA Meeting at Austin, Texas on July 11, 2002). Title of Talk: Allele and Genotype Matches in Databases: Do Observations meet Expectations?

78. (2002) Invited Plenary Lecturer at the 4th HUGO Pacific Meeting and 5th Asia-Pacific Conference on Human Genetics (October 27-30, 2002 at Ambassador City Komtien Pattaya, Thailand). Title of talks: (1) Population Genomics: a paradigm for understanding complex diseases; (2) Detection and pattern of occurrences of recurrent mutations at the hypervariable segments of the mtDNA control region.

79. (2002) Invited Lecturer at the XI Congresso Nacional de Medicina Legal y Ciencias Forenses (November 6-9, 2002 at Manizales, Columbia). Title of the talk: Genotype and Allele Sharing in Forensic Databases: Do observations meet expectations? Also gave a one-day workshop on Statistical Interpretation of Parentage Testing.

80. (2003) Invited Lecturer at the Conference on "Current Developments in Statistical Methodology for Genetic Architecture of Complex Diseases", held at the Mathematical Research Institute, Oberwolfach, Germany, February 2nd through 8th, 2003. Title of the talk: "Population Genomics: A paradigm for studying complex diseases".

81. (2003) Invited Lecturer at the Inaugural Symposium of SYSTEMOSCOPE International Consortium round tables and working groups of the H-Invitational workshop for annotation of the human transcriptome, held in Paris, France, June 18-21, 2003. Title of Talk: "Medical challenges of use of tarnscriptome information for post-genomic medical practices".

82. (2003) Plenary Session Lecturer: International Society of Forensic Genetics Meeting at Archachon/Bordeax, France (September 9-13, 2003) Title of talk: "Use of genomics in forensic and bioterrorism-related identification problems: Effects of Population substructure" (delived on September 11, 2003).

83. (2003) Invited Lecturer at a workshop on Y Chromosome Analysis and Its Application to Forensic Casework, held at Istanbul, Turkey (September 22, 2003). Title of talk: "Y-STR Haplotype Similarity between Individuals: Effects of Mutation and Common Patrilineal Ancestry".

84. (2003) NY State DNA Subcommittee Meeting. New York City, NY (October 28, 2003).

85. (2003) Invited Lecturer, Identigene Inc., Houston, Texas (November 17, 2003). Title of talk: "Genomic approaches to address DNA forensic and bioterrorism-related identification issues".

86. (2003) Invited Guest Speaker, Seminar Series in Bioinformatics at the Department of Chemical Engineering, University of Tennessee at Knoxville, TN (December 2, 2003). Title of talk: "Population Genomics: Applications of Bioinformatic Tools in Complex Disease Studies"

87. (2004) Invited Speaker, Cold Spring Harbor Meeting on Microbial Forensics – Sponsored by US Department of Homeland Security at Banbury Center (April 18-21, 2004). Title of talk: "Interpretation of microbial forensic data: Impact of diversity and evolution".

88. (2004) NY State DNA Subcommittee Meeting at NYS Division of Criminal Justice Services, Albany, NY (June 1, 2004)

89. (2004) Invited Speaker, 1st Workshop of the Mediterranean Academy of Forensic Sciences, held at IGV Club "Le Castella" – Isola Capo Rizzuto, Italy (June 10-13, 2004). Title of talk: "Impact of Presence of Relatives on DNA Forensic Databases".

90. (2004) External Advisory Board Meeting, Genetics of Reproductive Outcome Study: Children of Cancer Survivors (a NCI funded Multinational Project), meeting held at Niagara-On-The-Lake (27 June 2004)

91. (2004) Invited panelist, Workshop on Microbial Forensic Diversity and Ecology, organized by US National Academy of Sciences, and held at Keck Center, NAS, Washington DC (June 22-25, 2004).

92. (2004) Invited speaker at the Human Invitational-II (H-inv-II) Disease Edition workshop (held during September1-6, 2004 at Odaiba, Tokyo, Japan). Title of talk: "Synthetic Analysis of Multiple Observations: Relevance to Disease Gene Annotation" (on September 2, 2004).

93. (2004) Invited panelist, Press Conference on "Future of Human Genome Project Benefits" at Metropolitan Museum of Monterrey, Neuvo Leon, Mexico (November 16, 2004).

94. (2004) Keynote Lecturer, XXIX Congress of the Mexican National Society of Human Genetics, held during November 17-20, 2004 at San Luis Potosi, SLP, Mexico. Lecture title: "Population Genomics: A Paradigm for Post-Genomic Studies of Complex Diseases" (November 19, 2004).

95. (2004) Invited inaugural Lecture for being elected as a Foreign Corresponding Member of the Chilean National Academy of Sciences held on December 7, 2004 at the Chilean Institute of the Academy of Sciences, Santiago, Chile. Title of talk: "Genetic Aspects of Neurodegenerative Diseases: A post genome view".

96. (2004) Invited Keynote Speaker at the 244th Xiang-Shan Science Conference on "Theories and Technology for Effective Response to Environmental Chemical Pollution and Outcome Risk Assessment", organized by the Chinese Academy of Sciences, PRC, held at the Beijing XiangShan Hotel, Beijing, China. Title of talk: "Risk Assessment with Genotype Dependency: Post-Genomic Approaches of Estimation of Risks of Environmental Agents" (on December 21, 2004).

97. (2004) Invited lecturer at the Human Genetics Research Unit of the Indian Statistical Institute, Kolkata, India, on December 24, 2004. Title of talk: "Population Genomics: A paradigm for post-genomic studies of complex diseases".

98. (2004) Invited Opening Lecture at the Workshop on Bioinformatics, Centre for Cellular and Molecular Biology, Hyderabad, India, on December 27, 2004. Title of talk: "What is bioinformatics: Old wine in a new bottle?"

99. (2004) Invited panelist at the session on "Bioterrorism and National Security" at an International Conference on Future of Statistics: Theory, Practice and Education at the 21st Century, held at the Indian Institute of Business, Hyderabad, India on December 29, 2004. Title of talk: "Genomics and Bioinformatics in combating Bioterrorism".

100. (2004) Invited speaker at the symposium on "Evolutionary and Population Genomics" at an International Conference on Future of Statistics: Theory, Practice and Education at the 21st Century, held at the Indian Institute of Business, Hyderabad, India on December 29, 2004. Title of talk: "Bioinformatic tools: Exemplary applications in population genetics, molecular evolution, and gene mapping".

100. (2004) Invited lecturer at the session on "Bioinformatics-II" at an International Conference on Future of Statistics: Theory, Practice and Education at the 21st Century, held at the Indian Institute of Business, Hyderabad,

India on December 30, 2004. Title of talk: "Population Genomics: A paradigm for post-genomic studies of complex diseases".

101. (2004) Invited lecturer at the Centre for Cellular and Molecular Biology (CCMB). Hyderabad, India, on December 31, 2004. Title of talk: "Genetic Aspects of Neurodegenerative Diseases: A Post-Genomic Perspective".

102. (2005) Invited Second Forensic Foundation Day Lecturer, Central Forensic Science laboratory, Government of India, Ministry of Home Affairs, Directorate of Forensic Science, Lecture given on January 5, 2005 in Kolkata, India. Title of talk: "Genomic tools for DNA forensics, parentage testing and microbial forensics".

103. (2005) Invited Lecturer at a NIAMS Short course on Frontiers of Statistical Genetics, organized by Univ. Alabama, Division of Statistical Genetics, held at Intercontinental Hotel, New Orleans, LA (on February 24, 2005). Title of lecture: "Mapping complex disease genes by admixture linkage disequilibrium".

104. (2005) Member of special study section, NIH-NIGMS, at Washington DC on March 25-26, 2005.

105. (2005) Platform presentation lecture at the 74th Annual Meeting of the American Association of Physical Anthropologists at Hilton Milwaukee City Center Hotel (April 6-9, 2005). Title of lecture: "Gene diversity in East Europeans as detected by short tandem repeat loci".

106. (2005) NY State DNA Subcommittee Meeting, NY State Division of Criminal Justice System, held at New York City on May 17, 2005.

107. (2005) NIEHS Site visit member to review the University of Pennsylvania Center for Environmental Health Sciences in Philadelphia (June 9-11, 2005).

108. (2005) Invited Lecturer at the Workshop on Recombination: Hotspots and Haplotype Structure, held at the Mathematical Biosciences Institute, Ohio State University, Columbus, Ohio (June 13-16, 2005). Title of the talk: "Effects of mutation and population demography on the dynamics of linkage disequilibria and their relevance for mapping complex disease genes" (lecture given on June 16, 2005).

109. (2005) SWGMGF Meeting at Quantico, VA (June 21-23, 2005).

110. (2005) NIEHS Center Grant Review Study Section at Research Triangle Park, NC (July 21-22, 2005).

111. (2005) Invited lecturer at a Summer Course on Statistical Genetics at Kunming Institute of Zoology, Chinese National Academy of Sciences, Kunming, China. Three lectures given on August 17 and 18, 2005.

112. (2005) Invited lecture at the Yunan University Medical School, Kunming, China. Title of talk: "DNA Forensics: Current Practices and Principles", given on August 18, 2005.

113. (2005) Invited lecture at the Kunming Institute of Zoology, Kunming, China on August 19, 2005. Title of talk: "Genomics of neurodegenerative diseases: A post-genome perspective".

114. (2005) Invited Lecturer: Workshop on DNA Statistics in the 17th Meeting of the International Association of Forensic Sciences at Hongkong Convention Center on August 21, 2005.

115. (2005) Invited Lecture at the Genome Research Center, Hongkong University Medical School, on 23 August 2005. Title of talk: "Utility and use of microsatellite loci for complex disease gene mapping".

116. (2005) Invited plenary lecture at the 17th Meeting of the International Association of Forensic Sciences at the Hongkong Convention Center, Hongkong, China on 25 August 2005. Title of talk: "Post NRC-II Court Debates on DNA Forensic Statistics and Their Scientific Basis".

117. (2005) New York State DNA Subcommittee Meeting, New York State Division of Criminal Justice System, at New York City on September 9, 2005.

118. (2005) Joint Meeting of Committee-1 and Commission of the International Commission of Radiological Protection (ICRP) at Geneva Convention Center, Geneva, Switzerland (September 10-15, 2005). Presented a recent review of hereditary effects of radiation exposure.

119. (2005) SWGMGF Meeting at Center for Disease Control (CDC) in Atlanta (November 15-17, 2005). Prepared outline of a Governmental document on validation and interpretation of genomics-based eventiary data on microbial forensics.

120. (2005) Invited Speaker at the Ist International Workshop of the MicrosatDB project (Microsatellites and VNTRs: workshop on Bioinformatics, Genomics, and Functionality): King's College, London, UK (November 30-December 2, 2005). Title of presentation: "Rates and Patterns of Mutations at Microsatellite Loci".

121. (2006) Reviewer for NCI Cluster Grants at Bethesda, Maryland (January 30 – February 2, 2006)

122. (2006) Invited seminar at the Department of Biostatistics and Epidemiology, Case Western Reserve University, Cleveland, OH (February 8, 2006). Title of the Seminar: "Population Genomic Approaches for Studying Complex Diseases".

123. (2006) Invited Speaker at the Workshop of H-INV Disease Edition Diabetes and Prostate Cancer, at the Japan Biological Information Research Center, Odaiba, Japan (13-17 February, 2006). Title of Presentation: "Population Genomics Paradigm for Detecting Candidate Genes for Complex Traits".

124. (2006) Reviewer in the Study Section panel of NIH Hispanic Heath Studies in Arlington, VA (February 23-24, 2006).

125. (2006) Reviewer in the Study Section Panel for NIHM P-50 Center Grants in Washington DC (March 16-17, 2006).

126. (2006) Participant Faculty at the University of Cincinnati Cancer Day Symposium in Cincinnati, Ohio (March 25, 2006).

127. (2006) Reviewer in the Study Section Panel of P01 Cancer Grants for NIH in Washington DC (April 9-10, 2006).

128. (2006) Invited participant of CDC Meeting on Preterm Birth at Center for Disease Control, Atlanta, GA (May 1-2, 2006).

129. (2006) Invited Speaker at the NCI Workshop on Cancer and Genomic Variation in Hispanic/Latino Populations of Continental United States (at Bethesda, MD during May 4-5, 2006). Title of Talk: "Admixture and Contribution of Ancestral Populations in Hispanic/Latino Populations of US".

130. (2006) Invited Speaker in the Assembly of Tunica-Biloxi Tribal Council at Marksville, LA (May 20, 2006). Title of Presentation: "Prospect of Detecting Tunica-Biloxi Origin of Individuals by DNA Typing".

131. (2006) External Advisory Board Meeting at the Second Annual Meeting of Investigators of the NCI Project on Genetic Consequences of Cancer Treatment (GCCT), held at the Rungstedgaard Hotel, Rungsted Kyst, Denmark during May 25-27, 2006.

132. (2006) Invited participant at the Scientific Working Group of Microbial genetics and Forensics, held at the

Laurence Livermore National Laboratory, Livermore, CA (June 6-8, 2006).

133. (2006) Invited Seminar Speaker at the Human Genetics Center, University of Texas School of Public Health at Houston (June 13, 2006). Title of Presentation: "Population Genomic Paradigm of Complex Disease Studies: Issues and Approaches".

134. (2006) Invited Faculty at the Workshop on DNA Forensics, Institute of Forensic Science, Ministry of Public Security of China, Beijing, PRC (June 27-July 1, 2006).Titles of Presentation: "Post NRC-II Court Debates on DNA Forensic Statistics and Their Scientific Basis", "Utility of Y-chromosome markers in DNA forensics and DNA mixture analyses", and "Population Genomics: A Post-Genomic Paradigm for Studying Complex Diseases".

135. (2006) Invited External Advisory Committee Member of the Program Project on Genetics of Ankylosing Spondilitus at the Division of Rheumatology, University of Texas Medical School at Houston (July 11, 2006).

136. (2006) Invited Panelist of International Experts on Identification of Detained and Disappeared Persons in Chile, Chilean Presidential Commission of Human Rights and Protection, Santiago, Chile (July 30-August 5, 2006).

137. (2006) Invited Speaker in the Assembly of Tunica-Biloxi Tribal Council at Chicago, IL (August 19, 2006). Title of Presentation: "Detecting Tunica-Bioloxi Origin of Individuals by DNA Typing".

138. (2006) New York State DNA Subcommittee Meeting, New York State Division of Criminal Justice System, at New York City on August 22, 2006.

139. (2006) Invited Speaker in the Assembly of Tunica-Biloxi Tribal Council in Houston, TX (September 16, 2006). Title of Presentation: "Detecting Tunica-Bioloxi Origin of Individuals by DNA Typing".

140. (2006) Meeting of Committee-1 of the International Commission of Radiological Protection (ICRP) at Nuclear Energy Agency, France in Paris, (September 25-28, 2006). Presented a review of hereditary effects of radiation exposure and disease susceptibility.

141. (2006) NIH Grant Proposal Review Committee Member for the Cancer Epidemiology Study Section. Baltimore, MD (October 19-20, 2006).

142. (2006) Meeting presenter at the Scientific Working Group of Microbial Forensics and Genetics held at Fredericksburg, VA (November 14-17, 2006).

143. (2006) Invited keynote lecturer at the Gilbert W. Beebe Symposium of the US National Academy of Sciences, held at National Academies' Keck Center at Washington DC (November 28, 2006). Title of the talk: "Current Concepts of Radiation Genetics Relevant to Risk Estimation".

144. (2006) Meeting of the Members of the External Advisory Board of the NIDDK-funded project on the Family Investigations of Nepropathic Diabetes (FIND), held at Alexandria, VA (December 5, 2006).

145. (2006) Invited Lecturer: International Symposium on Applied Genomics 2006: Satellite Symposium on Human Genome, Evolution, and Disease, held at Faculty of Science, University of Tokyo, Hongo, Japan (December 16, 2006). Title of Talk: "Issues and Approaches in the Population Genomic Paradigm of Studying Complex Diseases".

146. (2007) Invited participant – Symposium on "Pant Pathogen Forensics – Filling the Gap", organized by Oklahoma State University (January 11-13, 2007) at Oklahoma City, OK.

147. (2007) Invited participant – HINV Workshop on "HINV-Cancer Edition: Disease Gene Annotation of the Human Genome, cancer Edition", at Japan Biological Information Research Center, Odaiba, Tokyo, Japan (January 31 – February 2, 2007). Title of Invited talk: "Bagging and Boosting: New Bioinformatic Tools for detecting

candidate disease genes".

148. (2007) NIH-NIMH Study Section Reviewer: Special Emphasis Panel for P-50 applications for Translational Research Centers for Behavioral Science and Mental Health (Washington DC. March 1, 2007).

149. (2007) Invited Panelist of International Experts on Identification of Detained and Disappeared Persons in Chile, Chilean Presidential Commission of Human Rights and Protection, Santiago. Chile (March 19-23, 2007).

150. (2007) Invited Speaker at 43rd Annual Philosophy Colloquium: race in the age of genomic medicine: The science and its applications, held at the Vontz Auditorium, The Vontz center for Molecular Studies, Univ. Cincinnati Medical campus, April 12-14, 2007. Title of talk: Closing Remarks: Race – A Complex stigmatic Concept.

151. (2007) Invited Panelist – SWGDAM Ad Hoc Working Group on "Partial Matches", organized by FBI at Wyndham O'Hare Hotel, April 17, 2007. Title of presentation: Expected occurrence of partial matches at 15 CODIS STR loci and reliability of inference of relationships between individuals.

152. (2007) External Advisory Board Meeting at the 3rd Annual Meeting of Investigators of the NCI Project on Genetic Consequences of Cancer Treatment (GCCT), held at the Vanderbilt Marriott Hotel, Nashville, TN during May 17-19, 2007. Presentation title: Candidate genes for radiosensitive polymorphic markers relevant for late onset health maladies.

153. (2007) Panelist Reviewer of the Univ. Cincinnati Cancer center Pilot Project grants for the year of 2007-8 (reviewed and scored 14 proposals (Meeting held on July 3, 2007 at 3332 Vontz Center, Univ. Cincinnati).

154. (2007) Invited Speaker at a National Workshop on Microbial Source Tracking at the Environmental Protection Agency Research Auditorium, Cincinnati. Title of presentation: "Genomic Issues of design, conduct, and interpretation of Microbial Source Tracking tasks: Lessons from work of the Scientific Working Group of Microbial Genetics and Forensics (SWGMGF)". (July 9-10, 2007).

155. (2007) Panelist Reviewer for grant proposals at the US National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of NIH (Telephone Review held on July 13, 2007).

156. (2007) Invited Panelist of Reviewers of Pre- and Postdoctoral Application of trainees for the NCI-funded Cancer Prevention Training Program at the MD Anderson Cancer Center of the University of Texas Health Science Center, Houston, Texas (reviewed and scored 10 postdoctoral and 3 predoctoral applications; Telephone review completed on July 17, 2007).

157. (2007) Meeting of the Members of the External Advisory Board of the NIDDK-funded project on the Family Investigations of Nepropathic Diabetes (FIND), held at BWI Conference Center, Baltimore, MD (July 26, 2007).

158. (2007) Meeting presenter at the Scientific Working Group of Microbial Forensics and Genetics, and attendance at the inaugural meeting of the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear (SWGCBRN) evidence, held at Fredericksburg, VA (July 31-August 3, 2007).

159. (2007) Invited Panelist – SWGDAM Ad Hoc Working Group on "Partial Matches", organized by FBI at Wyndham O'Hare Hotel, August 16, 2007. Title of presentation: "Simulation results of familial inference through partial matches in pairwise comparisons of DNA profiles in a database". (Held at the Wyndham O'Hare Hotel, Chicago, Il on August 16, 2007).

160. (2007) Invited Panelist – Committee of International Experts, Government of Chile, Ministry of Justice, Medico Legal Service Institution (August 27 – 31, 2007) at Hotel Plaza San Francisco, Santiago, Chile.

161. (2007) Invited Panelist of International Experts on Identification of Detained and Disappeared Persons in Chile,

Chilean Presidential Commission of Human Rights and Protection. Santiago, Chile (August 27-31, 2007).

162. (2007) Invited Speaker, Special session on Relationship Testing, American Association of Blood Banks Annual Meeting at Anaheim Conference Center. Anaheim, California (October 20-21, 2007). Title of talk: "Relationship Testing by Genetic Typing: Criteria for Choice of Reference Family Members and Inclusion-Exclusion".

163. (2007) Meeting of Committee-1 of the International Commission of Radiological Protection (ICRP) at Quality Inn Suites and Resort Conference Center, East Berlin, Germany (October 22-26, 2007). Presented a review of hereditary effects of radiation exposure and disease susceptibility.

164. (2007) Invited Lecture Sample Collection from at the Workshop on DNA Fingerprinting, Cell Marker Identification, and Animal Cell Culture, held at Punjab University, Chandigarh, India, during December 13-15, 2007; Lecture delivered on December 14, 2007. Title of talk: "Population Genetic Issues during Admissibility of DNA Evidence in US Courts"

165. (2007) Foundation Day Visionary Series Lecturer, Indian Statistical Institute, Kolkata, India (December 17, 2007). Lecture title: "A Bioinformatic Paradox in DNA Forensics: Small Probabilities and large Databases".

166. (2007) Invited Lecture at the Session on High Dimensional Genetic Data Analysis, International Conference on Bioinformatics and Drug Discovery (BioConvene 2007), held at the University of Hyderabad, AP, India on December 21, 2007; Talk title: "Test of Independence in Contingency Tables with Large Dimension with Ordered Categories: Application in Genomics".

167. (2007) Chair and Organizer: Symposium on DNA Forensics, held at the University of Hyderabad, AP, India on December 22, 2007, Lecture title: "Human DNA Forensics: Bioinformatic Issues with Small Probabilities and Large Databases".

168. (2007) Invited Lecture at the Human Genetics Unit of the Indian Statistical Institute, Kolkata, India – December 27, 2007, Talk title: "A Novel Method for Adjustment of Population Subdivision for Disease-Gene Association Studies".

169. (2007) Invited S. S. Sarkar Memorial Lecture of the Anthropological Society of India, held at the Dept. Anthropology, Calcutta Univ. on December 28, 2007. Talk title: "Re-Evaluation of the Concepts of Race and Ethnicity in the Post-Genome Era of Biomedical Sciences".

170. (2008) Invited Lecture at the International Conference on Statistical Paradigms – Recent Advances and Reconciliations (ICSPRAR-2008) held at the Indian Statistical Institute, Kolkata, India during January 1 – 4, 2008; Lecture delivered on January 1, 2008; Talk title: "Single-locus tests for disease-gene association studies by ordered statistics".

171. (2008) New York State DNA Subcommittee Meeting, New York State Division of Criminal Justice System, at New York City on January 15, 2008.

172. (2008) Invited panelist at the "Genetic Privacy, DNA Databasing & Familial Searching Symposium", organized by CODIS administration, Federal Bureau of Investigation, held during March 17-18, 2008 at Sheraton Crystal City, Arlington, VA.

173. (2008) Invited Audit team member to examine the Laboratory of Human Identification, Department of Pathology, North Texas Health Science Center at Fort worth, TX, as a member of International Experts on Identification of Detained and Disappeared Persons in Chile, Chilean Presidential Commission of Human Rights and Protection, Santiago, Chile (Audit conducted during February 25 – 28, 2008 at Fort worth, TX).

174. (2008) Invited Panelist at the Meeting of the Scientific Working Group of Chemical, Biological, Radiological,

and Nuclear (SWGCBRN) Terrorism Research. FBI (Meeting held at Hyatt Dulles Airport, May 13-15, 2008).

175. (2008) Invited Audit team member to examine the Laboratory of DNA Forensics, International Commission on Missing Persons, Sarajevo, Bosnia, as a member of International Experts on Identification of Detained and Disappeared Persons in Chile, Chilean Presidential Commission of Human Rights and Protection, Santiago, Chile (Audit conducted during June 1-5, 2008 at Sarajevo, Bosnia).

176. (2008) Invited Panelist of International Experts on Identification of Detained and Disappeared Persons in Chile, Chilean Presidential Commission of Human Rights and Protection, Santiago, Chile (June 30 – July 2, 2008).

177. (2008) Invited Audit team member to examine the Laboratory of DNA Forensics, Institute of Legal Medicine, Innsbruck, Austria, as a member of International Experts on Identification of Detained and Disappeared Persons in Chile, Chilean Presidential Commission of Human Rights and Protection, Santiago, Chile (Audit conducted during July 9-10, 2008 at Innsbruck, Austria).

178. (2008) New York State DNA Subcommittee Meeting, New York City Medical Examiner's Office, Forensic Science Laboratory, at New York City on July 31, 2008.

179. (2008) Invited Lecturer at the BIOTWG Meeting of the New York State DNA Analysts on July 31, 2008 at New York City Forensic Science Laboratory. Lecture title: "Partial Matches in DNA Databases and their Partial Matches in DNA databases and their relevance on validity of RMP calculations".

180. (2008) Invited Lecturer at the Lyme Symposium held at Ratna Long, Cazadero, California (August 13-17, 2008). Lecture titles: "Microbial Forensics – An emerging discipline for pathogen detection", and "A-B-C-D of Epigenetics and its relevance in infectious diseases".

181. (2008) Invited Faculty Member of the "Y-STR Typing and Analysis" Course (R-253) of California Criminalists Institute, Richmond, California (August 20-22, 2008). Lecture titles: "Population substructure effects on match probability based on Y-STR haplotypes", and "Independence of DNA profile frequencies based on autosomal STRs, mtDNA haplotypes, and Y-STR haplotypes". Also gave a lecture on Statistics of DNA matches in cold hot cases to the DNA users' group meeting at the California DOJ Laboratory at Richmond, CA (on August 22nd, 2008).

182. (2008) Invited Panelist at the Meeting of the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear (SWGCBRN) Terrorism Research. FBI (Meeting held at John F. Kennedy Conference Center, Boston, MA, September 9-11, 2008).

183. (2008) Meeting of Committee-1 of the International Commission of Radiological Protection (ICRP) in Kyoto, Japan (October 6-9, 2008). Presented a review of hereditary and epigenetic effects of radiation exposure and disease susceptibility.

184. (2008) Invited Lecturer, Interleukin Genetics Inc. at Waltham, Massachusetts. Talk Title: "A Novel Method for Adjustment of Population Subdivision for Disease-Gene Association Studies" on November 5, 2008.

185. (2008) Invited Participant, 5th International Committee of Experts' Meeting for Victim Identification at Santiago, Chile (November 10-13, 2008).

186. (2008) Invited Lecturer at the Institute of Forensic Medicine, Bogota, Colombia and National University of Colombia, Bogota, Colombia (November 20-22, 2008).Talk Titles: "Combined Inference of DNA Forensics from Autosomal, Y-Chromosome and Mitochondrial DNA Analysis" (Nov. 20, 2008) and "Current Issues of DNA Forensics: Population Databases and Missing Person Identification" (Nov. 22, 2008).

187. (2009) Invited Panelist at the Meeting of the Scientific Working Group of Chemical, Biological, Radiological, and Nuclear (SWGCBRN) Terrorism Research, FBI (Meeting held at Center for Disease Control, Atlanta, GA

during February 10-12, 2009). Presentation title: "Genomic considerations of Microbial Species and Strain Identification".

188. (2009) Invited Panelist of Reviewers of the Radiation Research Foundation, Hiroshima, Japan (during March 2-4, 2009). Presentation Title: "Strategies for determining genotype dependency of radiosensitivity differentials".

189. (2009) Invited participant of 16th Special Committee of National Council of Radiation Protection (during March 26-27, 2009 at Bethesda, MD). Presentation Title: "Uncertainties of estimates of hereditary effects of radiation damages".

190. (2009) Invited participant of New York State DNA Subcommittee (at New York City on May 15, 2009). Presentation Title: "Familial searches through partial DNA match in databases".

191. (2009) Invited Participant, 6th International Committee of Experts' Meeting for Victim Identification at Santiago, Chile (May 18-21, 2009). Presentation Title: "Algorithms for missing person identification by DNA typing of autosomal STR loci and combining information from Y-STR and mtDNA haplotypes".

192. (2009) Invited Lecture at DNA Unit, FBI Laboratory at Quantico, VA (on June 8, 2009). Presentation Title: "Validation of Y-STR haplotype databases and interpretation of single source and mixture evidence on Y-STR haplotypes in forensic case works".

193. (2009) Reviewer (as an External Advisory Committee Member) and attendance of the meeting of External Advisors of the NIH P01-Program Project Grant "Elucidating the Genetic Basis of Ankylosing Spondylitis" of Dr. J.D. Reveille, Univ. Texas Medical School at Houston, Texas (July 22, 2009).

194. (2009) Invited Course Director and Sole Lecturer of "A Short Course on DNA Forensic Statistics" (15 lectures). Diplamado Program of Catholic University, Santiago, Chile (October 5-9, 2009; 31 students registered).

195. (2009) Joint Meeting of the Commission and Committee-1 of the International Commission of Radiological Protection (ICRP) in Porto, Portugal (November 7-13, 2009). Presented a review of hereditary and epigenetic effects of radiation exposure and disease susceptibility.

196. (2009) Panelist Reviewer at a Special Study Section of NIDDK (November 11, 2009) – reviewed three proposals (written as well as telephone conference review)

197. (2010) Invited Lecturer at "Chalk and Talk" Session for Institute of Investigative Genetics, University of North Texas Health Science Center at Fort Worth – Theme: Human Identification and More – Applications of Genomics in Health, Security and Biosafety (February 3, 2010)

197. (2010) Invited Faculty, Workshop on Advances of DNA Technology, 62nd Annual Meeting of the American Academy of Forensic Sciences, Seattle, Washington (February 22, 2010). Topic of Lecture: "Statistical challenges of combining evidence from autosomal STRs, Y-Chromosome STR and SNP, and mitochondrial haplotypes" (214 participants at the Workshop received continuing education certificate).

198. (2010) New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on March 5, 2010.

199. (2010) Sole lecturer and Course Organizer of a 15-lecture 5-day course on DNA Forensic Statistics, sponsored by the Conference of West Attorneys General, Sacramento, California. Course was given at the PGR Headquarters, Mexico City, Mexico during April 12-16, 2010. Number of participants taking the course: 37.

200. (2010) New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on May 19, 2010.

201. (2010) Invited Training Faculty: New York State Criminal Justice System. Albany New York. Conducted training for NYS-CJS DNA Analysts regarding operation and execution of a software for familial search in NYS-SDIS database (training conducted on July 8, 2010 at NYS-DCJS Laboratory at Albany, NY), No. of trainees = 6.

202. (2010) Sole lecturer and Course Organizer of a 2-day workshop on DNA Forensic Statistics, sponsored by the Conference of West Attorneys General, Sacramento, California. Course was given at the PGR Headquarters, Mexico City, Mexico during August 26-27, 2010. Number of participants taking part in the workshop: 34.

203. (2010) New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on October 8, 2010.

204. (2010) Meeting of the Committee-1 of the International Commission of Radiological Protection (ICRP) in Amsterdam, The Netherlands (October 11-14, 2010). Presented a review of hereditary and epigenetic effects of radiation exposure and disease susceptibility.

205. (2011) SC1-16 Committee Meeting of NCRP at 7910 Woodmont Avenue, Bethesda, MD on January 31, 2011. Presented draft document on uncertainties of radiation risk estimates with regard to heritable and genetic effects,

206. (2011) New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on March 1, 2011.

207. (2011) Invited Speaker at the "Penn State SMBE Symposium on Molecular and Genomic Evolution (honoring Professor Masatoshi Nei's 80th birthday) held at Penn State University at College Park, PA during March 18-20, 2011. Title of presentation "Models of Mutation and their impact on DNA Forensic Statistics" given on March 19.

208. (2011) Invited Speaker at the Banbury Workshop on "Lyme Disease Diagnosis in the Proteomics-Genomics Era" at Banbury Center, NY (April 10 – 13, 2011) and gave an invited talk on "Lessons Learned from Amerithrax Investigation: Repository Sample Selection and Its Impact" (in Session 5 on April 12, 2011 at 4:00pm).

209. (2011) New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on May 20, 2011.

210. (2011) Invited Speaker at the 8th International Conference on Inference and Statistics, organized by the Department of Biostatistics, University of Washington at Seattle (July 18-21, 2011). Title of presentation: "Statistical Analysis of Genetic Data in the Amerithrax Investigation: Lessons Learned" (on July 21, 2011).

211. (2011) New York State DNA Subcommittee Meeting, New York City Governor's Conference Room, 633 3rd Avenue at New York City on September 23, 2011.

212. (2011) Invited Lecturer, CONCORD-PBRN Seminar of the Osteopathic Research Center of the UNTHSC at Fort Worth. Delivered two lectures titled "Roles of genetic and environmental factors in disease causation in the context of pain research" and "Ethical issues of human genetic research" on October 14th, 2011 at UNTHSC at Fort Worth.

213. (2011) Invited Participant at the Joint meeting of the Commission and Committees of the International Commission of Radiological Protection (ICRP) and the first International Symposium of ICRP at Bethesda, MD held during October 23-28, 2011. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on October 26th and 27th, 2011).

214. (2012) Invited Lecturer of the Population Statistics Refresher Course at the Winter Meeting of the Association of Forensic DNA Analysis and Administrators (AFDAA) held at the Department of Public Safety Criminal Justice Center at Austin, Texas on February 2, 2012. Titles of the lectures: (i) Statistics for Transfer Evidence (Single source

samples); (ii) Statistics for DNA mixtures; (iii) Statistics for kinship analysis, and (iv) Statistics for lineage markers.

215. (2012) Invited Plenary Session Speaker at the 4th International MELODI (Multidisciplinary European Low Dose Initiative) Workshop, organized by the Radiation and Nuclear safety Authority of Finland (STUK), held in Helsinki, Finland, 12-14 September 2012. Presentation title: "Epigenetic events and radiation exposure: Impact on radiation risk estimation" given on September 13th, 2012.

216. (2012) Invited Participant at the Committee-1 meeting of the International Commission of Radiological Protection (ICRP) at Helsinki, Finland, held during September 16-19, 2012. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (Sept. 18 and 19, 2012).

217. (2012) Invited Seminar at Indian Statistical Institute, Department of Human Genetics at Kolkata, India on December 26, 2012. Title of the Talk: "Some Current Issues of Computational Genomics and Their Applications".

218. (2012) Invited Seminar at National Institute of Biomedical Genomics, Kalyani, India on December 31, 2012. Title of the Talk: "Partial DNA Matches in Large Multilocus Genetic Databases – What do they tell us?".

219. (2013) Invited participant at the SWGDAM meeting at Dumfries, VA during July 16-18, 2013. Worked on the full draft of the report of the SWGDAM Ad Hoc Workgroup on Familial Search; participated in the documents of the Missing Person/Mass Disaster, Y-STR, and mtDNA committees.

220. (2013) Invited Participant at the Committee-1 meeting of the International Commission of Radiological Protection (ICRP) at Abu Dhabi, UAE, held during October 21, 26-27, 2013. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on Oct. 26 and 27, 2013).

221. (2014) Invited Lecturer and Organizer of a Workshop on DNA Mixture Interpretation at the Winter Meeting of the Association of Forensic DNA Analysis and Administrators (AFDAA) held at the Department of Public Safety Criminal Justice Center at Austin, Texas on January 30, 2014. Topic of presentation: Statistical Concepts of weight of evidence consisting of DNA mixtures.

222. (2014) Invited Plenary Lecturer at the Global Summit on Emerging Science and Technologies: Impact on Environment and Human Health with Special Symposia on Cancer Therapy and Environmental Toxicology held at Nellore, AP, India, organized by the Department of Biotechnology of the Vikrama Simhapuri University, Nellore, India (during August 1 – 3, 2014). Topic of presentation: Assessment of Radiation-Induced Cancer Risks: Role of Radiosensitivity (delivered on August 2, 2014).

223. (2014) Invited Special Seminar jointly organized by Endocrine Society of Bengal, Biomedical Genomic Centre, and Institute of Post-Graduate Medical Education and Research, given on August 7th, 2014 at the Department of Surgery, Ronald Ross Building, Institute of Post-Graduate Medical Education and Research, Kolkata, India. Topic of presentation: Impact of Multiple Definitions of Metabolic Syndrome on Estimating its Prevalence and Co-morbidity with Metabolic Disease: Empirical Data from a Large Caucasian Cohort.

224. (2014) Invited Participant at the Committee-1 meeting of the International Commission of Radiological Protection (ICRP) at Jade Garden Hotel, Beijing, China, held during September 7-10, 2014. Presented reviews of recent advances in hereditary effects of radiation-induced cancers and role of epigenetics in radiation-risks (on September 9 and 10, 2014).

225. (2014) Invited Speaker at the 2014 BIRM International Seminar on Radiation Biology and Omics, held at the Beijing Institute of radiation Medicine, Chinese Society of Toxicology on September 11, 2014. Topic of Presentation: Omics Aspect of Radiation Sensitivity and Its Implication for Estimation of Radiation-Induced Cancer Risks.

226. (1991- Present) Expert Witness: Court Proceedings with regard to Forensic Applications of DNA typing (in

Alaska, Arizona, California, District of Columbia, Florida, Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, Nebraska, Nevada, New Mexico, Ohio, Oregon, Pennsylvania, South Dakota, State of Washington, Texas and Virginia. United States and Alberta and British Columbia, Canada), Crown Court at Blackfriars, London, UK (R v. Marcio Dos Santos – Admissibility hearing as well as Jury trial). Also reviewed three cases for the Crown Court of Ireland (Regina vs. Colin Duffy and Brian P Shivers in December 2011 and 2013, Regina vs. Brendan McConville in September 2012, and Regina vs. Jennifer Toland and Paul Toland in September through November, 2014).

CURRENT RESEARCH INTERESTS:

1. Development of statistical methods for detecting the role of genetic factors in susceptibility to diseases of complex etiology (e.g., cardiovascular diseases, diabetes, and cancer); and to understand the mechanism of association of such diseases with DNA markers at gene regions involved in metabolic pathways related to such diseases.

2. Stochastic theory of population differentiation, and comparison of the dynamics of population differentiation with respect to monogenic and polygenic traits. Role of selection and methods of detection of natural selection in natural populations with polymorphism/sequence data on genomic markers.

3. Analysis of DNA typing data for forensic applications and development of statistical methods to address population genetic issues with regard to such applications and to understand the evolutionary mechanism of production and maintenance of hypervariability at regions of the human genome.

4. Interpretation of DNA evidence based on combinations of autosomal, mitochondrial, and Y-chromosomal data for human identification and Missing person identification.

5. Estimation of radiation risks on congenital defects, childhood, and adult onset diseases, and studying the effects of the presence of susceptibility genes and radiosensitive genetic variation on estimation of critical dose of radiation in relation to the above risks.

6. Microbial genetics and forensics, development of genomic methods of identification of biological pathogens and interpretation of data for source attribution.

A. REFERRED ORIGINAL ARTICLES IN JOURNALS:

1. Chakraborty, R. (1969) Estimation of linkage in presence of incomplete penetrance at both the factors. *Calcutta Stat. Assoc. Bull.* **18**:181-185.

2. Chakraborty, R. (1970) Parent-Offspring correlation in an equilibrium population. *Am. J. Hum. Genet.* **28**:605-610.

3. Chakraborty, R. (1970) Heterozygosity with differential fitness. *Sankhya Ser. B.* **32**:13-20.

4. Chakraborty, R. (1970) Gene frequency estimates in the ABO system and their efficiencies. *Sankhya Ser. B.* **32**:21-26.

5. Chakraborty, R. (1971) Restricted random mating: A new mating model. *Curr. Sci.* **40**:185-186.

6. Chakraborty, R. (1971) Genetic correlations in an equilibrium population. *Sankhya Ser. B.* **33**:249-258.

7. Chakraborty, R. (1971) A note on parent-offspring correlation and inbreeding. *Acta Genet. Med. Gemmelol.* **20**:205-210.

8. Chakraborty, R. (1971) A note on counting method of estimation for MNSs blood group system. *Calcutta Statist. Assoc. Bull.* **20**:93-98.

9. Chakraborty, R., and Rao, D.C. (1972) Maximum likelihood estimation of chromosome frequencies from family data on MNS blood groups. *Sankhya Ser. B.* **34**:33-40.

10. Chakraborty, R., and Ghorai, J.K. (1972) Geometric fitness coefficient and inbreeding. *Humangenetik* **11**:232-235.

11. Chakraborty, R., and Rao, D.C. (1972) On the detection of F from ABO blood group data. *Am. J. Hum. Genet.* **24**:352-353.

12. Chakraborty, R., and Ghorai, J.K. (1972) A note on classification of tasters and non-tasters. *Hum. Hered.* **22**:301-304.

13. Chakraborty, R. (1972) Mating models in biostatistics. *J. Indian Anthrop. Soc.* **7**:79-86.

14. Chakraborty, R. (1972) Some equilibrium conditions for genetic populations. *J. Indian Soc. Agri. Stat.* **24**:75-80.

15. Chakraborty, R. (1973) Sickling rates and heterozygotic frequencies under differential fitness. *Am. J. Hum. Genet.* **25**: 217-218.

16. Chakraborty, R. (1973) Further results on parent-offspring correlation in an equilibrium population. *Sankhya Ser. B.* **35**:85-92.

17. Chakraborty, R., and Yee, S. (1973) Phenotypic bioassay of five tribes of Orissa, India. *Hum. Hered.* **23**:270-279.

18. Chakraborty, R., and Yee, S. (1973) Five tribes of Orissa, India: Anthropometry and kinship. *Hum. Hered.* **23**:301-307.

19. Nei, M., and Chakraborty, R. (1973) Genetic distance and electrophoretic identity of proteins between taxa. *J. Mol. Evol.* **2**:323- 328.

20. Chakraborty, R. (1974) Isolate mixture and random mating. *Behav. Genet.* **4**:91-95.

21. Chakraborty, R. (1974) A note on Nei's measure of gene diversity in a substructured population. *Humangenetik* **21**:85-88.

22. Chakraborty, R., and Nei, M. (1974) Dynamics of gene differentiation between incompletely isolated populations of unequal sizes. *Theor. Pop Biol.* **5**:460-469.

23. Rao, D.C., and Chakraborty, R. (1974) The generalized Wrights's model and population structure. *Am. J. Hum. Genet.* **26**:444-453.

24. Chakraborty, R., Shaw, M.W., and Schull, W.J. (1974) Exclusion of paternity: The current state of the art. *Am. J. Hum. Genet.* **26**:477-488.

25. Rao, D.C., and Chakraborty, R. (1974) Detection of inbreeding from polymorphisms. *Am. J. Hum. Genet.* **26**:578-580.

26. Nei, M., Maruyama, T., and Chakraborty, R. (1975) The bottleneck effect and the genetic variability in

populations. *Evolution* **29**: 1-10.

27. Chakraborty, R., and Roychoudhury, A.K. (1975) Paternity exclusion by genetic markers in Indian populations. *Indian J. Med. Res.* **63**:10-15.

28. Chakraborty, R. (1975) Estimation of race admixture - A new method. *Am. J. Phys. Anthrop.* **42**:507-511.

29. Das, S.R., Roy, M., Paul, A., and Chakraborty, R. (1975) A growth study on Indian infants: Non-relationship with placental alkaline phosphatase genotypes. *Hum. Biol.* **47**:219-230.

30. Chakraborty, R., Roy, M., and Das, S.R. (1975) Proportion of low birth weight infants in an Indian population and its relationship with maternal age and parity. *Hum. Hered.* **25**:73-79.

31. Chakraborty, R., Das, S.R., Mukherjee, B.M., and Das, S.K. (1975) The effect of parity on placental weight and birth weight: Interaction with placentile alkaline phosphatase polymorphism. *Ann. Hum. Biol.* **2**:227-234.

32. Chakraborty, R., Das, S.R., and Roy, M. (1975) Blood group genetics of some caste groups of southern 24 Parganas, West Bengal. *Hum. Hered.* **25**:218-225.

33. Chakraborty, R. (1975) On some theoretical studies on gene differentiation in natural populations. *Acta Genet. Med. Gemellol.* **24**:111-117.

34. Blanco, R., and Chakraborty, R. (1975) Genetic distance analysis of twenty-two South American Indian populations. *Hum. Hered.* **25**:177-193.

35. Freire-Maia, A., and Chakraborty, R. (1975) Genetics of Acheiropodia ("The Handless and Footless families of Brazil"). IV. Sex ratio, consanguinity and birth order. *Ann. Hum. Genet.* **39**:151-161.

36. Blanco, R., and Chakraborty, R. (1975) Consanguinity and demography in some Chilean populations. *Hum. Hered.* **25**:477-487.

37. Blanco, R., and Chakraborty, R. (1976) The genetics of shovel shape in maxillary central incisors in man. *Am. J. Phys. Anthrop.* **44**:233-236.

38. Nei, M., and Chakraborty, R. (1976) Empirical relationship between the number of nucleotide substitutions and interspecific identity of amino acid sequences in some proteins. *J. Mol. Evol.* **7**:313-323.

39. Chakraborty, R., Blanco, R., Rothhammer, F., and Llop, E. (1976) Genetic variability in Chilean Indian populations and its association with geography, language and culture. *Soc. Biol.* **23**:73-82.

40. Nei, M., Fuerst, P.A., and Chakraborty, R. (1976) Testing the neutral mutation hypothesis by distribution of single locus heterozygosity *Nature* **262**:491-493.

41. Nei, M., Chakraborty, R., and Fuerst, P.A. (1976) The infinite allele model with varying mutation rate. *Proc. Natl. Acad. Sci. USA* **73**:4164- 4168.

42. Chakraborty, R., and Schull, W.J. (1976) A note on the distribution of the number of exclusions to be expected in paternity testing. *Am. J. Hum. Genet.* **28**:615-618.

43. Chakraborty, R., and Tateno, Y. (1976) Correlations between some measures of genetic distance. *Evolution* **30**:851-853.

44. Chakraborty, R., and Nei, M. (1976) Hidden genetic variability in electromorphs in finite populations. *Genetics* 84:385-393.

45. Nei, M., and Chakraborty, R. (1976) Electrophoretically silent alleles in a finite population. *J. Mol. Evol.* 8:381-385.

46. Chakraborty, R. (1976) Culture, language and geographic variability in Andean highland Indians. *Nature* 264:350-352.

47. Rothhammer, F., Chakraborty, R., and Llop, E. (1977) A collation of marker gene and dermatoglyphic diversity at various levels of population differentiation. *Am. J. Phys. Anthrop.* 46:51-60.

48. Palomino, H., Chakraborty, R., and Rothhammer, F. (1977) Dental morphology and population diversity. *Hum. Biol.* 49:61-70.

49. Chakraborty, R., and Chakravarti, A. (1977) On consanguineous marriages and the genetic load. *Humangenetik* 36:47-54.

50. Chakraborty, R. (1977) The distribution of nucleotide site differences between two randomly chosen cistrons in a population of variable size. *Theor. Pop. Biol.* 11:11-22.

51. Chakraborty, R. (1977) Estimation of time of divergence from phylogenetic studies. *Can. J. Cytol. Genet.* 19: 217-223.

52. Chakraborty, R. (1977) Culture and genetic variability - A reply. *Nature* 267:375.

53. Chakraborty, R., and Nei, M. (1977) Bottleneck effect with stepwise mutation model of electrophoretically detectable alleles. *Evolution* 31:347-356.

54. Fuerst, P.A., Chakraborty, R., and Nei, M. (1977) Statistical studies on protein polymorphism in natural populations. I. Distribution of single locus heterozygosity. *Genetics* 86:455-483.

55. Chakraborty, R. (1977) Simulation results with stepwise mutation model and their interpretations. *J. Mol. Evol.* 9:313-322.

56. Chakraborty, R., Schull, W.J., Harburg, E., and Schork, M.A. (1977) Heredity stress and blood pressure: A family set method. V. Heritability estimates. *J. Chron. Dis.* 30:683-699.

57. Schull, W.J., Harburg, E., Schork, M.A., and Chakraborty, R. (1977) Heredity stress and blood pressure: A family set method. Epilogue. *J. Chron. Dis.* 30:701-704.

58. Chakraborty, R., Chakravarti, A., and Malhotra, K.C. (1977) Variation in allele frequencies among caste groups of the Dhangars of Maharashtra, India: An analysis with Wright's F_{ST} statistic. *Ann. Hum. Biol.* 4:275-80.

59. Malhotra, K.C., Chakraborty, R., and Chakravarti, A. (1978) Gene differentiation among the Dhangar caste-cluster of Maharashtra. *Hum. Hered.* 28: 26-36.

60. Chakraborty, R., Fuerst, P.A., and Nei, M. (1978) Statistical studies on protein polymorphism in natural populations. II. Gene differentiation between populations. *Genetics* 88:367-390.

61. Chakravarti, A., and Chakraborty, R. (1978) Elevated frequency of Tay- Sachs disease among Ashkenazic Jews unlikely by genetic drift alone. *Am J. Hum. Genet.* 30:256-261.

62. Nei, M., Fuerst, P.A., and Chakraborty, R. (1978) Subunit molecular weight and genetic variability of proteins in natural populations. *Proc Natl. Acad. Sci. USA* 75:3359-3362.

63. Chakraborty, R., and Roychoudhury, A.K. (1978) Mutation rate from rare variants of proteins in Indian tribes. *Hum. Genet.* 43:179-183.

64. Chakraborty, R., and Roychoudhury, A.K. (1978) Is there any pattern of gene differentiation in the Indian populations? *Hum. Genet.* 43:321-328.

65. Chakraborty, R. (1978) Number of independent genes examined in family surveys and its effect on gene frequency estimation. *Am. J. Hum. Genet.* 30:550-552.

66. Chakraborty, R., and Schull, W.J. (1978) Paternity exclusion in relatives. *Am. J. Hum. Genet.* 30:665-666.

67. Chakraborty, R. (1978) Single-locus and multi-locus analysis of gene differentiation of the races of man: A critique. *Am. Nat.* 112:1134-1137.

68. Chakraborty, R., and Yokoyama, S. (1978) Heterozygosity and monomorphism revisited. *Heredity* 41:327-333.

69. Valenzuela, C.Y., Rothhammer, F., and Chakraborty, R. (1978) Sex dimorphism in adult stature in four Chilean populations. *Ann. Hum. Biol.* 5:533-538.

70. Chakraborty, R., Schull, W.J., and Weiss, K.M. (1978) Heredity and risk of diseases. *Environ. Int.* 1:371-377.

71. Chakraborty, R., Ferrell, R.E., and Schull, W.J. (1979) Paternity exclusion in primates: Two strategies. *Am. J. Phys. Anthrop.* 50:367-381.

72. Chakraborty, R. (1979) Relationship between the mean and variance of total ridge counts and its genetic significance. *Homo* 30:8-12.

73. Chakraborty, R. (1979) Use of biochemical markers in understanding evolutionary models of gene differentiation. *J. Indian Anthrop. Soc.* 15:1-6.

74. Chakraborty, R. (1979) Twin zygosity diagnosis by genetic systems: An efficiency evaluation. *Acta Genet. Med. Gemellol.* 28:77-79.

75. Mukherjee, B.N., Majumder, P.P., Malhotra, K.C., Das, S.K., and Chakraborty, R. (1979) Genetic distance analysis among nine endogamous groups of Maharashtra, India. *J. Hum. Evol.* 8:567-570.

76. Chakraborty, R., and Fuerst, P.A. (1979) Some sampling properties of selectively neutral alleles: Effects of variability of mutation rates. *Genet. Res. Camb.* 34:253-267.

77. Rodriguez, A., Chakraborty, R., and Schull, W.J. (1980) Comparing the "family set" approach to estimate the heritability with other conventional estimators: A Monte Carlo simulation. *Hum. Hered.* 30:192-200.

78. Chakraborty, R. (1980) Relationship between single- and multi-locus measures of gene diversity in a subdivided population. *Ann. Hum. Genet.* 43:423-428.

79. Chakraborty, R., Fuerst, P.A., and Nei, M. (1980) Statistical studies on protein polymorphism in natural populations. III. Distribution of allele frequencies and their number of alleles per locus. *Genetics* 94:1039-1063.

80. Malhotra, K.C., Chakraborty, R., Bhanu, B.V., and Fulmali, P.M. (1980) Variations on dermal ridges in nine population groups of Maharashtra, India. I. Intra- and interpopulation diversity. *Hum. Hered.* **30**:307-315.

81. Chakraborty, R. (1980) Recent trends in understanding genetic diversity in natural populations and their implications to anthropological and biomedical researches. *South Asian Anthropologists* **1**:45-53.

82. Chakraborty, R., Weiss, K.M., and Schull, W.J. (1980) A test of randomness of the occurrences of a disease trait in familial or other similar ordered sequences of epidemiological data. *Proc. Natl. Acad. Sci.USA.***77**:2974-2978.

83. Mueller, W.H., Chakraborty, R., Barton, S.A., Rothhammer, F., and Schull, W.J. (1980) Genes and epidemiology in anthropological adaptation studies: Familial correlations in lung function in populations residing at different altitudes in Chile. *Med. Anthrop.* **4**:366-384.

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85. Mueller, W.H., Murillo, F., Palomino, H., Badzioch, M., Chakraborty, R., Fuerst, P.A., and Schull, W.J. (1980) The Aymara of Western Bolivia. V.Growth and development in an hypoxic environment. *Hum. Biol.* **52**: 529-546.

86. Chakraborty, R., and Roychoudhury, A.K. (1980) Effective population size estimates in man: Some Indian data. *J. Indian Anthrop. Soc.* **15**:57-66.

87. Chakraborty, R. (1980) Gene-diversity analysis in nested subdivided populations. *Genetics* **96**:721-726.

88. Chakraborty, R. (1981) Expected number of rare alleles per locus in a sample and estimation of mutation rates. *Am. J. Hum. Genet.* **33**:481-484.

89. Norton, S.L., Buchanan, A.V., Rossman, D.L., Chakraborty, R., and Weiss, K.M. (1981) Data entry errors in an on-line operation. *Comput. Biomed. Res.* **14**:179-198.

90. Chakraborty, R. (1981) Estimation of mutation rates from the number of rare alleles in a sample. *Ann. Hum. Biol.* **8**:221-230.

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92. Chakraborty, R., and Ghosh, A.K. (1981) Distribution of the number of heterozygous loci in the Kota population of Nilgiri Hills of India and estimation of average heterozygosity. *Ann. Hum. Biol.* **8**:453-459.

93. Chakraborty, R., and Malhotra, K.C. (1981) Variations of asymmetry and inter-digital diversity for three ridge-count measures among the Dhangar caste-cluster of Maharashtra, India. *J. Hum. Evol.* **10**:503-509.

94. Nei, M., Chakraborty, R., and Fuerst, P.A. (1981) Statistical studies on protein polymorphism. *Genetics* **97**:499-501.

95. Chakraborty, R. (1981) The distribution of the number of heterozygous loci in an individual in natural populations. *Genetics* **98**:461-466.

96. Smouse, P.E., Weiss, K.M., and Chakraborty, R. (1981) A simple test for aggregation of disease occurrence in genealogical data. *Hum. Hered.* **31**:334-338.

97. Chakraborty, R., and Ryman, N. (1981) Use of odds of paternity computations in determining the reliability of

single exclusion in paternity testing. *Hum. Hered.* **31**:363-369.

98. Majumder, P.P., and Chakraborty, R. (1981) Mean and variance of the number of samples showing heterozygote excess or deficiency. *Heredity* **47**:259-262.

99. Chakraborty, R., and Malhotra, K.C. (1981) Dermatoglyphics and genetic distance: A comparative study of variability between populations. *J. Indian Anthrop. Soc.* **16**:261-269.

100. Chakraborty, R., and Ferrell, R.E. (1982) Correlation of paternity index with probability of exclusion and efficiency criteria of genetic markers for paternity testing. *Forensic Sci. Int.* **19**: 113-124.

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102. Chakraborty, R., Malhotra, K.C., and Tateno, Y. (1982) Variations on dermal ridges in nine population groups of Maharashtra, India. III. Asymmetry and interdigital diversity. *Am. J. Phys. Anthrop.* **58**:53-57.

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106. Constans, J., Chakraborty, R., and Majumder, P.P. (1982) Transmission of Z allele from heterozygote males for alpha-1-antitrypsin deficiency: Additional family data. *Am. J. Hum. Genet.* **34**:674-675.

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108. Chakraborty, R., Mathew, S., Satyanarayana, M., and Majumder, P.P. (1982) Inheritance of digital arches in man: Is the major gene fully penetrant? *Am. J. Phys. Anthrop.* **58**:413-418.

109. Chakraborty, R., and Majumder, P.P. (1982) On Bennett's measure of sex dimorphism. *Am. J. Phys. Anthrop.* **59**:295-298.

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B. Invited Articles (REVIEWS, EDITORIALS, etc.) in Journals:

1. Chakraborty, R. (1982) Comments on: Distribution of ABO blood groups on the Indian subcontinent: A cluster analysis approach. *Curr. Anthrop.* **23**:560-561.

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7. Chakraborty, R. (1989) Book Review on: Human Mating Patterns (C.G.N Mascie-Taylor and A.J. Boyce, eds.). *Am. J. Hum. Genet.* **45**:824-825.

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