Steven B. Lee, Ph. D. Professor and Director Forensic Science Program

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San Jose State University, San Jose, CA 95192-0013
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EDUCATION:

1991-1992	Post-Doc	University of Georgia, Athens- Botany	
Dec. 1990	Ph.D.	University of California, Berkeley- Molecular and Physiological Plant Biology	GPA=3.9
		Dissertation: Molecular Genetics and Evolution of Fungi	
1984 -1985	Fellow	Columbia University- Biological Sciences	GPA=3.7
May 1984	M.S.	New York University- Molecular Biology	GPA=3.8
May 1981	B.S.	State University of New York, Binghamton -Biology	GPA=3.6

PROFESSIONAL EXPERIENCE: Over 25 Years of Biological Research, Teaching and Advising

2012-present

Forensic Technical Marketing Consultant, Illumina Inc., 25861 Industrial Blvd. Hayward, CA 94545

- Initiated and developed an Illumina Forensic Genomics Consortium (IFGC) comprised of forensic DNA thought leaders
- Conceptualized, organized and held four IFGC meetings at major forensic meetings
- Drafted, distributed and summarized customer surveys on desired NGS capabilities, features, and competitor metrics
- Chairing and facilitating IFGC focus groups (mtDNA and nu DNA) conducting inter-laboratory research on Illumina MiSeq and Forensic Genomics products and software

2007-present

Professor, Director of Forensic Science, San Jose State University, San Jose, CA 95192

- Tenured and Promoted to Full Professor August 2007
- Nominated for the CASA Dean's Outstanding Professor Award for AY 2008-09
- Sabbatical Spring 2008 at CA DOJ DNA Laboratory
- Co-PI on an NSF REU Grant awarded \$204,000.00 from 2007-2010 and Research mentor 2010-
- PI on two CSUPERB Programmatic grants to develop new courses \$30,000.00 from 2010-2012
- Research mentor on an Howard Hughes Medical Institute Grant :\$1,300,000.00 from 2008-2012
- PI for CAC scholarships for 2007-2012Forensic Science Student Scholarships \$21,000.00
- Mentored 21 student research projects leading to 30 presentations supported by grants- \$59,800.00
- Served as Co-PI for an MS student on the impact of DNA in the criminal justice system
- Three manuscripts published, three more in preparation.
- Served as Chair of the CASA Professional Leaves Committee (F2008)
- Served as Chair of the Student Opinions of Teaching Effectiveness Committee (F06-S07)
- Enhanced 10 fold growth from 23 to over 260 forensic science majors (2003-2008)

2003-2007

Associate Professor, Director Forensic Science: San Jose State University, San Jose, CA, 95192

- Leading the development of an interdisciplinary degree program in Forensic Science
- Establishing intra, inter-college and inter-campus research and teaching collaborations
- Submitted 22 grant proposals to support forensic science research and teaching.
- 12 grants funded for a total of \$304,042.00.
- Facilitated donations in excess of \$300,000.00 in equipment, computers, supplies and support
- Established a Forensic Science Seminar Series
- Advisor for the SJSU Forensic Science Student Group- Recipients of service and research awards
- 80% of FS grads (20/25) are working in crime labs, biotech, investigations or grad schools

2007-2009

Forensic DNA Project Consultant, Biomatrica, San Diego, CA

- R&D consultant on the implementation and use of new products
- · Leading an international consortium on evaluation of a new matrix for storage and collection
- Research led to 4 presentations at national and international forensic science meetings

2006-2008 Forensic DNA Training Consultant, CA Department of Justice

- Designed and delivered new Forensic DNA courses
- Developed materials on SNPs, forensic phenotype profiling, and DNA databases

2006-2007

Molecular Biology Exam Blue Ribbon Panelist: American Board of Criminalistics

- Provide technical expertise in the development of an ABC Molecular Biology Certification exam
- · Assist in developing lists of questions, study guides and job descriptions for the specialty

2005-2006

Forensic Project Consultant, Trace Genetics

- Provided technical expertise and support for proprietary forensic product development
- · Designed validation and testing outlines
- · Proposed market entry plans including alpha and beta phases of product development

2004-2009

R&D Consultant: MiraiBio, Hitachi Software Engineering, South San Francisco

- Forensic Science application and technical support
- Multiplex liquid SNP array and fluorescent STR scanning support
- Technical specs development, demos and training for DNA Software
 - SNP typing using Masterplex GT
 - Smartnote bioinformatics tools
 - Delivering seminars and posters on Bioinformatics and Forensic DNA

2000-2004

Director of R&D: MiraiBio Inc., Hitachi Software Engineering, Alameda, CA 94502 R&D accomplishments during my tenure:

- Microarrays and Bead based arrays:
 - Developed proprietary surface chemistry for cDNA and oligos
 - Coordinated testing of microarray spotting optimization
 - o Immunoassay Bead Array Validation study completed
 - o Bead array studies led to publications and sales of the Luminex 100 and software.
- BioInformatics and Imaging
 - o Initiated and led a team of 10 labs to test and develop SNP typing software
 - Computer software analysis on human DNA quantification published
 - Publication of 12 application notes and 2 peer reviewed articles
 - o Spearheaded the implementation of web conferencing tools for software training and sales

Grants

- Completed NIJ subcontract grant 2001 on forensic sexual assault grant with UNTHS
- \$1,000,000 federal and state funding submitted in 2002
- Interagency NIAID biodefense grant submitted with Los Alamos National Laboratory
- Subcontract grant funded for \$150,000.00 to develop SNP typing with UNTHS
- o Research on Alu microarrays for paternity testing supported a Phase II SBIR with Reliagene

2001-2008

Adjunct Professor: Chemistry, Florida International University, Miami, Florida

- Developed and delivered an on line course on Forensic DNA- STR typing in 2001 and 2003
- Produced DNA course materials for posting on the web

1997

Instructor: Genetics of Forensic DNA Typing, Environmental Biology, UC Davis, Davis, CA

- Organized and delivered an intensive 2 week laboratory genetics course
- Academically approved for college credit and certified by POST

1996-present

Visiting Scholar, Department of Plant and Microbial Biology, University of California, Berkeley

- Delivered seminars for advanced graduate students and post docs in careers seminars
- Collaborations with Mycologists on Image Explorer leading to photograph publication

1996-present

Adjunct Assistant Professor, Biology, San Francisco State University

- PI on National Science Foundation REU program (96-98)
- Delivered 2 week courses on DNA technology from extraction to sequencing
- Mentored 5 undergraduates and 1 graduate student

1995-1999 Member Technical Working Group on DNA Analysis Methods (TWGDAM now SWGDAM) Federal Bureau of Investigation

- Invited participation in a federally funded national forensic scientist group
- Participation in inter-laboratory studies on forensic DNA typing methods
- Established collaborations with the FBI on STR implementation
- Participated in meetings of the DNA Advisory Board QA Standards for forensic DNA laboratories

1995-present Member DNA Quality Assurance Oversight Committee

Department of Defense, Armed Forced DNA Identification Laboratory (AFDIL)

- Conduct annual inspections of the DOD mtDNA typing facility
- Provide feedback on QA measures and audit procedures

1994-2000 Assistant Laboratory Director, Research and Development

California Department of Justice Laboratory, Richmond, CA (CA DOJ -formerly at Berkeley, CA)

- Supervised a group of 5 scientists in forensic DNA research
- Mentored 15 student interns (see student section)
- Led a team that developed and validated a robotic assisted extraction and STR analysis
- · American Society of Crime Laboratory Director Laboratory Accreditation Board Certified
- Assisted the leadership team in re-accreditation by ASCLD-LAB in 1998
- Served on the BFS QA Technical Advisory Group
- Developed and delivered RFLP and STR hands-on training on the ABI 310 and 377 platforms

1992-1996 Assistant Professor Biology (92-94), Affiliate Assistant Professor Biology (94-96)

Department of Biological Sciences, University of Northern Colorado, Greeley, CO (UNC)

- PI on NSF research grant for Molecular Evolution of Oomycetes
- Mentored 8 BA, 2 MS and 2 PhD students.

1990-1991 Postdoctoral Research Associate, Botany: University of Georgia, Athens

- PI on NSF research grant for Molecular Evolution of Oomycetes
- Established external funding from biotechnology sector to support workshops

HONORS and AWARDS: 34 Scholarships, Teaching and/or Research Awards

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	2013	Selected as Peer Reviewer for the NIJ Research Grant Panels
	2013	Selected as a neutral expert witness for the 7 th District Court of Appeals Case 13-cv-2333
	2012-2014	Selected to chair the American Academy of Forensic Science Forensic Science Educators Conference
	2012	Selected as Peer Reviewer for CSUPERB Joint Venture Research Grants
	2011	Invited as Peer Reviewer for Forensic Science Research and Development Program (Declined due to conflic
	2011	Invited Lecturer at University of Leicester, England Summer 2011 CSI Leicester
	2011	Chaired the American Academy of Forensic Science Forensic Science Educators Conference SJSU
	2010	Selected as Peer Reviewer for two NIJ Research Grant Technical Reports
	2010	Invited as Peer Reviewer Forensic DNA Research and Development Program (Declined due to conflict)
	2010	Nominated "Most Influential Professor," College of Science, San Jose State University, San Jose, CA
	2010	Nominated by the California Association of Criminalists to the US President's National Science
		and Technology Council Interagency Working Groups on Forensic Science
	2010	Selected and Served as Peer Reviewer for CSUPERB Programmatic Grants
	2008	Nominated by students for the CASA Outstanding Professor Award
	2007	Tenured and Promoted to Full Professor, 08/24/07
	2007	Sabbatical at the CA DOJ DNA Laboratory Approved for Spring 2008
	2006	A. Biasotti Most Outstanding Research Presentation Award, CAC 08/24/06
	2006	Promoted to Fellow of Criminalistics of the American Academy of Forensic Sciences 02/20/06
	2006	Elected to the Molecular Biology Certification Blue Ribbon Panel of the American Board of Criminalistics
	2005	Invited Speaker Stanford Genome Technology Club, Stanford University School of Medicine
	2004	Invited Keynote Speaker Edward-Teller Education Center Teacher Scientist program, LLNL
	2001	Invited Keynote Speaker for Bio-Link Summer Fellows Teachers Forum, City College of SF
	1998	Unit Citation of CA DOJ DNA Laboratory Management team member
	1997	ASCLD/LAB inspector training successfully completed

1995-present	Selected to serve on the AFDIL mtDNA QA committee
1993 & 1994	Selected to serve on NSF-DEB REU Site Grant Program Panel
1993	Academic Excellence Faculty Advisor Award - selected by biology honor student- UNC
1992	Academic Excellence Faculty Advisor Award - selected by biology honor student- UNC
1992	Burlington Northern Faculty Award Candidate - elected by students- UNC
1990	Best Research Poster, Mycological Society of America
1989-1990	Mycological Society of America (MSA), Research Fellowship
1989-1990	Graduate Research Fellowship, UC Berkeley
1989	UC Biotechnology Research and Education Award, UC Berkeley
1989	Outstanding Graduate Student Instructor, UC Berkeley
1987	Inter campus Travel Award, UC Berkeley
1986&1988	Educational Improvement Awards, UC Berkeley
1985-1988	USDA National Graduate Fellowship, UC Berkeley

1985-1988 USDA National Graduate Fellowship, UC Berkeley
1984-1985 Faculty Fellowship, Columbia University, NY, NY
1982-1984 Teaching Fellowship, New York University

1978-1981 N.Y.S. Regents Scholarship awarded for attendance at SUNY Binghamton

PROFESSIONAL AFFILIATIONS:

2004-present National Science Teachers Association- Member 1995-present California Association of Criminalists- Full Member

1994-present American Academy of Forensic Sciences: Member and Fellow of Criminalistics

1989-present American Association for the Advancement of Science

PUBLICATIONS: 36 Publications, 3 in prep

- Lee, SB, CA Crouse, MC Kline. 2013. Optimizing storage and handling of DNA extracts. Chapter in Forensic DNA Analysis: Current Practices and Emerging Technologies. Eds. Jaiprakash G. Shewale; Ray H. Liu, CRC Press. ISBN 9781466571266. Publication 08/22/13
- Harris, CJ, Cardenas, AJ, Lee, SB, and Barloewen, B. 2013. Comparing Wearer DNA Sample Collection Methods for the Recovery of Single Source Profiles. Themis, Volume 1, Issue 1, Pages 81-99.
- Lee, SB, Clabaugh, KC, Silva, B, Odigie, KO, Fourney, RM, Stevens, J, Carmody, GR, Coble, MD, Loreille, O, Scheible, M, Parsons, TJ, Pozder, A, Eisenberg, AJ, Budowle, B, Taha Ahmad, Russell W. Miller, Amy B. McGuckian, Julie Conover-Sikorsky and Cecelia A. Crouse. 2012. Assessing a novel room temperature DNA storage medium for forensic biological samples. Forensic Science International: Genetics, Volume 6, Issue 1, January 2012, Pages 31-40.
- Lee, SB, CA Crouse, MC Kline. 2010. Optimizing storage and handling of DNA extracts. Invited chapter in the special Issue of Forensic Science Reviews: Assessment and preparation of biological specimens for DNA analysis. Forensic Science Reviews 22:131-144
- Lee, SB and KA Roberts. 2008. Room temperature storage and stabilization of forensic source DNA samples. Emerging Technologies in Forensic Science. 01/08 p 8-10.
- Lee, SB. 2006. Forensic DNA testing. In McGraw-Hill 2006 Yearbook of Science and Technology . ISBN 0071462058. McGraw-Hill. 448pp, DOI: 10.1036/0071462058
- Lee, SB. 2005. Teaching Strategies in Undergraduate Forensic Science and DNA: New Approaches to Content, Assessment and Practice. Canadian Journal of Police and Security Services. 3(2):27-36.
- Taylor, J. and S. Lee. 2004. Black bread mold figure 3.32c Published in Biology Patterns and Processes of Life. ISBN0-920008-05-4. JM LeBel Publishers, Dallas, TX. P.69
- Lee, SB. 2002. Biodefense: Science Steps Up to Protect the Public from Bioterror. Drug Discovery and Development. Dec. 2002. p 12. Invited Editorial.
- Budowle, B, W. Hudlow, S Lee, and L Klevan. 2001. Using a CCD Camera Imaging System as a recording device to Quantify Human DNA by Slot Blot Hybridization. Biotechniques. 30:680-685.
- Worley, J. W., S.B. Lee, M. Ma, A. Eisenberg, and E.S. Mansfield. 1997. Fluorescent Imaging in Human Identity Testing. <u>Biotechniques</u>. 23:148-153

- Butler, JM, Jia Li, Joseph Monforte, Christopher Becker, and Steven Lee. 1997. Rapid and Automated Analysis of Short Tandem Repeat Loci Using Time-of-Flight Mass Spectrometry. . <u>Proceedings of the Seventh International Symposium on Human Identification</u>. ISBN1-882274058-X http://www.promega.com/geneticidproc/ussymp8proc/28.html
- Post, S, S. Lee, T. Moretti, J. Robertson, and B. Budowle. 1997. Comparison of Fluorescence Detection of the Geneprint Powerplex STR System by Optical Scanners and DNA Sequencers. Proceedings of the Seventh International Symposium on Human Identification. ISBN1-882274058-X. pp. 107-115.
 http://www.promega.com/geneticidproc/ussymp7proc/0716.html
- Lee, SB, M. Buoncristiani, J. W. Schumm, and D. Wingeleth. 1996. Comparison of Short Tandem Repeat (STR) detection using silver, fluorescence and matrix assisted laser desorption/ionization time-of-flight mass spectrophotometry (MALDI-TOF-MS). Proceedings of the Sixth International Symposium on Human Identification. ISBN 1-882274-55-5 p104-111. http://www.promega.com/geneticidproc/ussymp6proc/lee.htm
- Micka, K.A., C.J. Sprecher, A.M. Lins, C.T. Comey, B.W. Koons, C Crouse, D. Endean, K. Zold, S.B. Lee, N. Duda, M Ma and J.W. Schumm. 1996. Validation of Multiplex Polymorphic STR Amplification Sets Developed for Personal Identification Applications. <u>Journal of Forensic Sciences</u>. 41: 582-590.
- Rusk, S. and S.B. Lee. 1995. Design of PCR primers for amplifying nuclear ribosomal DNA from slime molds. Mycologia. 87:140-143.
- Giberson, R.T., R.S. Demaree, S.B. Lee and M. Lee. 1995. Days can be converted to hours, minutes or even seconds when using microwave technology in the Lab. <u>Microscopy Today</u>. 95:14-15.
- Giberson, R.T., R.S. Demaree, S.B. Lee and M. Lee. 1995. Microwave Technology in the laboratory: Fixation of Tissue for the SEM and Extraction of DNA from blood, hair, semen and fingernails. TieLine 19:128-133.
- Spiegel, FW, S.B. Lee, and S.A. Rusk. 1995. Eumycetozoans and molecular systematics. <u>Canadian Journal of Botany</u>. 73:S738-S746.
- Lee, S.B., M. Ma, J.M. Worley, C. Sprecher, A.M. Lins, J.W. Schumm and E.S. Mansfield. 1995. Microwave extraction, rapid DNA quantitation and Fluorescent detection of amplified short tandem repeats. Proceedings of the Fifth International Symposium on Human Identification. ISBN 1-882274-54-7. pp 137-145.
- Boback S. and S.B. Lee. 1994. Improved Resolution of *Phytophthora Spp.* Multiplex PCR products utilizing high quality Agarose Gel Matrices. <u>Resolutions</u>. 10(2):4
- Lennon, P.A., C.A. Cooper, I.F. Salkin and S.B. Lee. 1994. Ribosomal DNA Internal Transcribed Spacer Polymorphisms as a tool for distinguishing human fungal pathogens in the taxa Lomentospora, Scedosporium and Pseudallescheria. J. Clin. Microbiol. 32:2413-2416.
- *Worley, J.N., M. Ma. S.B. Lee, A.M. Lins, J.W. Schumm, and E.S. Mansfield. 1994. Rapid Genetic Typing on the FluorImager: Human DNA Quantitation, RFLP, D1S80, and Short Tandem Repeat (STR) Analysis. <u>Proceedings of the Fifth International Symposium on Human Identification</u>. ISBN 1-882274-54-7. pp 109-117.
- Lee, S.B., T.J. White, and J. W. Taylor. 1993. Detection of Phytophthora species by oligonucleotide hybridization to amplified ribosomal DNA spacers. Phytopathology. 83:177-181.
- Lee, S.B., and J.W. Taylor. 1993. Uniparental Inheritance and Replacement of Mitochondrial DNA in <u>Neurospora tetrasperma</u>. <u>Genetics</u> 134:1063-1075.
- Goodwin D.C., and S.B. Lee. 1993. Rapid microwave mini-prep of total genomic DNA from fungi, plants and protists for PCR. Biotechniques. 15: 438-444.
- Min, L. and S.B. Lee. 1993. Detection of Phytophthora species by Multiplex PCR. <u>Phytophthora Newsletter.</u> Volume 19: 14-15.
- Lee, S.B., and J.W. Taylor. 1992. Phylogeny of five fungal-like protoctistan <u>Phytophthora</u> species inferred from the internal transcribed spacers of ribosomal DNA. <u>Molecular Biology and Evolution</u>. 9:636-653

- Lee, S.B. and J.W. Taylor. 1991. Molecular Phylogeny of Phytophthora species. Phytophthora Newsletter. 17:24-25.
- Lee, S.B., T.J. White, and J.W. Taylor. 1991. Detection of Phytophthora species by oligonucleotide hybridization to PCR amplified ribosomal DNA. <u>Phytophthora Newsletter</u>. 17:26-27.
- Lee, S.B., and J.W. Taylor. 1990. Isolation of DNA from Fungal Mycelia and Single spores. In <u>PCR Protocols-A Guide</u> to Methods and Applications. M. Innis, D. Gelfand, J. Sninsky, and T. White (Eds.) Academic Press, San Diego, Ca. Chapter 34. pp. 282-287.
- White, T. J., T. Bruns, S. Lee, and J. Taylor. 1990. Amplification and Direct Sequencing of Fungal Ribosomal RNA Genes for Phylogenetics. In <u>PCR Protocols-A Guide to Methods and Applications.</u> M. Innis D. Gelfand, J. Sninsky, and T. White (Eds.) Academic Press, San Diego, Ca. Chapter 38. pp. 315-322. <u>Note- Most cited scientific publication from UC Berkeley (see</u>
- Lee, S.B. 1990. Molecular Evolution of Fungi: Mitochondrial DNA Inheritance in Neurospora tetrasperma; Phylogeny and Identification of Phytophthora spp. using rDNA. Dissertation. University of California at Berkeley. 143 pp.
- Lee, S.B., M.G. Milgroom and J.W. Taylor. 1988. A rapid, high yield mini-prep method for isolation of total genomic DNA from fungi. <u>Fungal Genetics Newsletter</u>. 35:23-24.
- Koerner, T.J., A. M. Myers, S. Lee and A. Tzagoloff. 1987. Isolation and Characterization of the Yeast Gene Coding for the alpha Subunit of Mitochondrial Phenylalanyl-tRNA Synthetase. J. Biol.Chem. 262:3960-3696.
- Levine, W.G. and S.B. Lee. 1983. Effect of glutathione on the metabolism of N,N-dimethyl-4-aminoazobenzene. <u>Drug</u> Metab. Dispos. 11:239-243.
- Levine, W.G. and S. Lee. 1983. Cytosolic factors that alter the metabolism of N,N-dimethyl-4-aminoazobenzene by rat liver microsomes. Biochem.Pharmac. 32: 3137-3144.

PUBLICATIONS in PREPARATION

- Clarissa Trogdon, Linda Le, Kimberly Clabaugh, Marissa Meininger, Michael D. Coble, Odile Loreille, Melissa Scheible, Michael Davis, Rachel Demara, Sohela de Rozieres, Martin Latterich, Rolf Muller, Greg Hampikian and Steven B. Lee. 2012 The STR reaction additives PCRboost(tm) and STRboost(tm) enable high fidelity allele calling in the presence of STR and microsequencing reaction inhibitors. Journal of Forensic Science. Manuscript in preparation.
- Kelly Conroy and Steven B. Lee. Optimizing Human Semen Stain Detection Using Fluorescence. Journal of Forensic Science Manuscript in preparation.
- Buban, Lauren, John Jermaine, Clarissa Trogdon and Steven. B. Lee. The Recovery of DNA on Improvised Incendiary Devices (Molotov Cocktails) Utilizing Various Fire Suppression Techniques. Manuscript in preparation Journal of Forensic Science Manuscript in preparation.

CONTRIBUTED PAPERS, ABSTRACTS AND WORKSHOPS Over 150 papers, abstracts and workshops

- Steven B. Lee 2013. Advancing Human Forensic DNA with Next Generation Sequencing (NGS) Technologies. Workshop Chair. Monday 7 October 2013. 24th Annual International Symposium on Human Identification. Atlanta, GA
- Cooper, D, Goecker, Z, Ramirez, J, Yee, R and Lee, SB. 2013. Overcoming PCR Inhibition Using Mutant Taq Polymerases. Poster presented Tuesday 8 October 2013. 24th Annual International Symposium on Human Identification. Atlanta, GA
- Steven B. Lee. 2013. New Strategies for Overcoming PCR Inhibition. Invited Seminar at the Promega Technology Tour. Doubletree Berkeley, CA 08/13/13.

- Steven B. Lee. 2013. New Strategies for Overcoming PCR Inhibition. Invited Seminars at the BODE East Advanced DNA Workshop Omni Amelia Island Plantation, Amelia Island Florida 05/23/13, BODE West Advanced DNA Workshop, San Diego, CA, 03/27/13 and BODE Mid Atlantic 09/24/13
- Bennett, HJ, HB Nguyen, SB Lee. 2013. New Strategies to Overcoming PCR Inhibition Using Mutant Taq Polymerases and PCR Enhancers. Poster presented at the 2013 Annual AAFS Meeting held in Washington, DC
- Steven. B. Lee 2012. Chaired the Fall 2012 California Association of Criminalists Meeting Held November 5-9th, 2012.
- Steven B. Lee 2012. Chaired the DNA Workshop held at the Fall 2012 CAC meeting. November 6th 2012.
- Steven B. Lee 2012. Chaired the Student Academy held at the Fall 2012 CAC meeting. November 5th, 2012.
- Nhan, P, J Liang and SB Lee. 2012. Evaluation of Biomatrica's Forensic DNA Stable Laboratory Validation Kit. Poster presented at the 23rd International Symposium on Human Identification October 2012 in Nashville TN
- Nguyen, H, H Bennett and SB Lee. 2012. New Strategies to Overcoming PCR Inhibition Using Mutant Taq Polymerases and PCR Enhancers. Poster presented at the 23rd International Symposium on Human Identification October 2012 in Nashville TN
- Steven B. Lee. 2012. Optimizing Detection, Collection and Storage of Forensic Biological Samples. Invited Oral presentation at the upcoming Advanced DNA Technologies West and East held in San Diego, CA and Orlando Florida, April 10-14th and May 20-24th respectively.
- Kelly Conroy and Steven B. Lee Optimizing Human Semen Stain Detection Using Fluorescence. 2012. Poster presented at the 2012 AAFS meeting in Atlanta GA. AAFS Proceedings Volume 18 p 77-78 and at the 2012 Society for the Advancement of Chicano and Native American Scientists meeting held in October 2012 in San Jose, CA.
- Corissa Harris, Amanda Cardenas, Brooke Barloewen and Steven B. Lee. 2012 Comparing Wearer DNA Sample Collection Methods for Determining the Best Method for the Recovery of Single Source Profiles. Poster presented at the 2012 AAFS meeting in Atlanta GA. AAFS Proceedings Volume 18 p 85-86 and at the 2012 Society for the Advancement of Chicano and Native American Scientists meeting held in October 2012 in San Jose, CA.
- Mariela Rivera, Corissa Harris, Phil Nhan, Zeba Khan, Amanda Cardenas, Brooke Barloewen and Steven B. Lee, 2011. Comparison of Collection Methods from Touch Samples on Metals and Wearer Samples from Simulated Mixtures on Clothing. Poster presented at the 22nd International Symposium on Human Identification October 2011 in National Harbor MD and at the 2012 Society for the Advancement of Chicano and Native American Scientists meeting held in October 2012 in San Jose, CA.
- Lee, SB. 2011. Bio Sample Storage in the 21st Century and beyond The Cold War is OverGet S.M.A.R.T. (Sample Management At Room Temperature). Workshop Chair (industry) held at the 2011 AAFS Meeting February 2011 in Chicago.
- Erica Dinaro, Clarissa Trogdon and Steven. B. Lee 2011. Optimizing DNA Storage at Room Temperature: Teflon Tubes Vs. Polypropylene Tubes. Poster presented at the 2011 AAFS Meeting February 2011 in Chicago, IL.
- Baker, Breeana, Clarissa Trogdon and Steven B. Lee. 2011 Analysis of N-4 STR Repeat Slippage with Amplification Enhancer on Low-quantity DNA Samples. Poster presented at the 2011 AAFS Meeting February 2011 in Chicago, IL.
- Lee, SB, Bill Armaline, Ed Huffine and Mary Juno. 2010. Role of Forensic DNA in Human Rights, Mass Disaster and War Crime Investigations. Poster Presented at the 2010 American Society of Criminology meeting in SF, CA
- Clarissa Trogdon, Phil Nhan, Clara Wang and SB Lee. 2010. Enhancement Strategies for Overcoming PCR Inhibitors. Poster presented at the 21st International Symposium on Human Identification held October 2010 in San Antonio Texas.

- Buban, Lauren, John Jermaine, Clarissa Trogdon and Steven. B. Lee. 2010 The Recovery of DNA on Improvised Incendiary Devices (Molotov Cocktails) Utilizing Various Fire Suppression Techniques. Oral paper delivered at the Spring CAC meeting May 2010 in Oakland, CA.
- Lee, SB and J. Shewale. 2010. Advances in Forensic DNA Analysis. Workshop held February 2010 at the American Academy of Forensic Sciences meeting in Seattle WA.
- Clara Wang, Clarissa Trogdon, Linda Le, Marissa Meinenger, Steven B. Lee. 2010. Comparison of different amplification reagents for Alleviating Inhibitory Effects of Indigo Dye in PCR Poster presented at the American Academy of Forensic Sciences meeting held February 2010 in Seattle, WA.
- Bethea, A, Trogdon, C, Le, L, and Lee, SB. 2009. Utility of Amplification Enhancers in the Analysis of Mixed DNA Samples. Poster presented at the 20th International Symposium on Human Identification held October 2009 in Las Vegas, NV. Poster presented at the 2009 Society for the Advancement of Chicano and Native American Scientists meeting.
- Clarissa Trogdon, Linda Le, Steven Lee. 2009. Overcoming PCR Inhibition of Low Quantity and Low Quality Samples with Amplification Enhancers. Poster presented at the 20th International Symposium on Human Identification held October 2009 in Las Vegas, NV.
- Allie Paul, Clarissa Trogdon, Linda Le and Steven Lee. 2009. Comparison of DNA storage in Sample Matrix and Teflon Tubes. Poster presented at the 20th International Symposium on Human Identification held October 2009 in Las Vegas, NV.
- Clarissa Trogdon 2009. Overcoming PCR Inhibition of Low Quantity and Low Quality Samples with Amplification Enhancers. Oral seminar delivered at the California Association of Criminalists Meeting held October 2009 in San Jose, CA.
- Pijanowski, L, Lee, SB and Barloewen. 2009. Evaluation and Validation of PrepFiler Forensic DNA Extraction Kit. Poster presentation at the 2009 Society for the Advancement of Chicano and Native American Scientists meeting.
- K. Sekiguchi, N. Mizuno, H. Nakahara, K. Fujii, T. Kitayama, S. Miyasaka, Y. Ogawa, K. Kasai, H. Fukushima, H. Asamura, Y. Fukuma, K. Nagasaki, H. Yoshida, Steven B. Lee. 2009. Evaluation of a New DNA Extraction Kit for Degraded Skeletal Remains. Poster presented at the AAFS meeting held in Denver, CO.
- Le, L, Clabaugh, KC, Chang, A, Meinenger, M, Coble, MD, Loreille, O, Scheible, M, Demara, R, Muller, R, deRozieres, S, Kline, M, and Lee, SB. 2008. Recovering DNA profiles from low quantity and low quality forensic samples. Poster presented at the 19th International Symposium on Human Identification held October 2008 in Hollywood, LA. and a Poster presented at the 2008 Society for the Advancement of Chicano and Native American Scientists meeting and 2009. Poster presented at the AAFS meeting in Denver CO.
- Meinenger, MRD, Barloewen, B, Jones, J, and Lee, SB. 2008. Evaluation of purification columns for forensic DNA extraction. Poster presented at the 19th International Symposium on Human Identification held October 2008 in Hollywood, LA. and a Poster presented at the 2008 Society for the Advancement of Chicano and Native American Scientists meeting and 2009. Poster presented at the AAFS meeting in Denver CO.
- Sekiguchi, K, Mizuno, N, Nakahara, H, Fujii, K, Kitayama, T. Miyasaka, S, Ogawa, Y, Kasai, K, Fukushima, H, Fukuma, Y, Nagasaki, K, Yoshida, H, Lee, SB. 2008. Evaluation of a DNA extraction kit on degraded skeletal remains. Poster presented at the 19th International Symposium on Human Identification held October 2008 in Hollywood, LA.
- Muller, R, Muller-Cohn, J, Fourney, RM, Coble, MD, Kline, MC, Parsons, T, Eisenberg, AJ, Budowle, B, Roberts, KA, and Lee, SB. Optimizing Collection, Shipping, and Storage of Forensic Biological Samples. Lee delivered an oral presentation at the 2008 American Academy of Forensic Sciences meeting held in Washington DC. Published in the Proceedings of the American Academy of Forensic Sciences. Volume 14. pp. 89-90. http://www.aafs.org/pdf/2008ProceedingsWashingtonDC.pdf

Kimberly Clabaugh, Brie Silva, Kingsley Odigie, Ron Fourney, Jesse Stevens, George Carmody, Mike Coble, Odile Loreille, Melissa Scheible, Margaret Kline, Thomas Parsons, Arijana Pozder, Arthur Eisenberg, Bruce Budowle and Steven B. Lee. 2007 and 2008 Storage of DNA samples at ambient temperature using DNA-SampleMatrix. Poster presented at the 18th Annual International Symposium on Human Identification. held October, 2007. Hollywood, CA.

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- Lee, S.B., T.J. White and J.W. Taylor. August 1990. Detection of <u>Phytophthora</u> species by oligonucleotide hybridization. Paper presented at the International Mycological Congress IV. Regensberg, FRG.
- Lee, S.B., and J.W. Taylor. August 1990. Molecular Evolution and Identification of <u>Phytophthora spp</u>. Poster presented at the International Mycological Congress IV. Regensberg, FRG.
- Lee, S.B. and J.W. Taylor. March 1989. Molecular evolution of <u>Phytophthora</u> using polymerase chain reaction amplified internal transcribed spacer sequences of ribosomal DNA. Paper presented at the Fifth Semiannual Bioscience Symposium of San Francisco Bay Area Chinese Students and Scholars. March 19, 1989. UCB.
- Lee, S.B. April 1989. Mitochondrial inheritance in <u>Neurospora tetrasperma</u>. Paper presented at the seminar in mycology, Botany 295. University of California, Davis.
- Lee, S.B. and J.W. Taylor. April 1989. Mitochondrial Inheritance in <u>Neurospora tetrasperma</u>. Poster presented at the Fungal Genetics Conference, Asilomar, CA. <u>Fungal Genetics Newsletter</u> 36:17.
- Lee, S.B. and J.W. Taylor. August 1989. Molecular evolution of <u>Phytophthora</u> using Polymerase Chain Reaction amplified internal transcribed spacer sequences of ribosomal DNA. Paper presented at the AIBS-Mycological Society of America Meeting, Toronto, Canada. Mycol. Soc. Amer. Newsletter 40:35-36.
- Lee, S.B. August 1988. Mitochondrial Inheritance of <u>Neurospora tetrasperma</u>. 1988 California <u>Neurospora</u> Conference. UC Santa Cruz.
- *Lee, S.B. November 1988. Molecular Systematics of <u>Phytophthora cinnamomi</u>. Molecular Approaches to Genetics and Systematics of the Oomycetes: <u>Phytophthora</u> and <u>Pythium</u>. The American Phytopathological Society 1988 Annual Meeting. San Diego, California.
- Levine, W.G. and Lee, S.B. 1982. Cytosolic factors in the microsomal metabolism of dimethylaminoazobenzene (DAB), Fed. Proc., 41:1730.
- Levine, W.G. and Lee, S.B. 1982. Regulation of microsomal metabolism of dimethylaminoazobenzene (DAB) by glutathione, <u>Hepatology</u>, 2:680.

GRANT EXPERIENCE and DONATION FACILITATED: GRANTS:

Research Mentor. June 2013. Keck Foundation Undergraduate Education and Research Grant. Funded \$250,000.00

- PI June 2013. AAFS grant for CSI Camp and AAFS FSEC. Funded \$10,000.00 for 2013.
- PI March 2013 CAC Scholarships for Forensic Science Students at SJSU. Funded for \$4000.00 for AY 2013-2014.
- PI April 2012 NIJ Applied Research Grant. Submitted. Improved Collection and Recovery from "Low Copy Number" (LCN) and Compromised DNA Samples:Collection Agent Tools Advancing LCN Improvements in Storage and Typing Success- CATALISTS. Requested 672,778.00 Submitted 04/05/12. Not funded.
- PI March 2012 CAC Scholarships for Forensic Science Students at SJSU. Funded for \$6000.00 for AY 2012-2013.
- PI January 2012. Texas Instruments and Silicon Valley Community Foundation Grant. CSI and Forensic Science Professional Development: Inspiring Students into Science. \$225,000.00. Not Funded.
- Research Mentor and Ethics Course coordinator. Submitted September 2011. Howard Hughes Medical Institute Science Education Grant Renewal with Biology, Dr. Julio Soto. Pending
- PI. October 2011 The Wayne and Gladys Valley Foundation Grant: Building a World Class Forensic Science Research and Teaching Facility at San José State University. Requested. \$4,274,590.00. Not funded.
- PI NIJ Applied Research Grant. Submitted April 2011. Improved Collection and Recovery from "Low Copy Number" (LCN) and Compromised DNA Samples:Collection Agent Tools Advancing LCN Improvements in Storage and Typing Success- CATALISTS. Requested 637,263.00. Not Funded.
- PI NIJ Training Grant. Submitted April 2011. Delivery of a Unique Training course in Fingerprint Development: Identifying, Preserving and Visualizing fingerprint corrosion on Metals. Requested \$158,946.00. Not Funded.
- Co-PI UK Arts and Humanities Research Council: The Forensic Science Futures Network: The Socio-cultural context of contemporary forensic science w UoL. \$127,704.00. Not funded
- PI March 2011. CAC Scholarships for Forensic Science Students at SJSU. Funded \$5000.00 for AY 2011-2012.
- PI March 2011 Travel Grant CSUPERB \$1000.00 not funded.
- **Research Mentor March 2010. NSF REU Grant RUMBA** with Dr. Julio Soto, Dr. Cleber Ouverney, Dr. Miri Van Hoven of Biology at SJSU. **Funded \$320,250.00** NSF DBI 1004350
- Co-PI 2010 NIJ Forensic Science Research Grant with UCSC 2.6 million (CO PI submitted 04/10). Not funded.
- PI: June 05, 2010. CSUPERB Programmatic Development Proposal "Forensic Biometrics" Funded \$15,000.00 for 01/03/11-01/31/12.
- Res. Mentor April 2010 NSF URM grant with Biology 1.6 million -Res.Mentor Participation (submitted 04/10) Not funded.
- PI March 2010 BAA Federal Agency Application Rapid Biothreat agent detection (not funded)
- PI March 2010. CAC Scholarships for Forensic Science Students at SJSU. Funded \$5000.00 for AY 2010-2011.
- PI March 2010 Travel Grant CSUPERB 1000.00 not funded
- PI: February 2010-2012 CSUPERB Programmatic Course Development Grant on Forensic Biometrics with Mary Juno and Dr. LPierce (Anthropology) <u>Funded \$15,000.00</u>
- PI: June 05, 2009. CSUPERB Programmatic Development Proposal "Fluorescence Applications in Molecular Biology and Forensic Science Course Development" Funded \$15,000.00 for 06/30/09-01/31/11.
- PI March 2009. CAC Scholarships for Forensic Science Students at SJSU. Funded \$5000.00 for AY 2009-2010.
- PI: 04/05/2008: CSUPERB Entrepreneurial Joint Venture Matching Grant Program: Optimizing DNA stabilization and storage of forensic DNA samples using polymers: \$25,000.00 (Matching funds facilitated (\$34,800.00): Total award=\$59,800.00. Funded July 2008 July 2009.
- Research Mentor Participant: 04/22/08: Four-year program called Support for Curriculum and Research, Inquiry-Based Enhancement (SCRIBE)- Howard Hughes Medical Institute Science Education Grant to SJSU Biology: Dr. Julio Soto. \$1,300,000.00. Funded 2008-2012.
- PI April 2008. NIJ Social Science Research in Forensic Science on DNA and Confirmation Bias wPARC (not funded) PI March 2008. CAC Scholarships for Forensic Science Students at SJSU. <u>Funded \$5000.00</u> for AY 2008-2009.

- PI March 2008. Development of Forensic Science Interdepartmental, intercampus, and interagency student resources University Planning Council Grant SJSU. Funded for 0.2 FTE release time AY 2008-2009.
- PI March 2008. Recovering DNA profiles from low quantity and low quality forensic samples. CASA Small Research Grant. Funded \$500.00 for AY 2008-2009.
- PI: March 2008. CSUPERB Travel Grant. Support to attend and present at the 2008 CAC meeting Funded \$500.00.
- PI March 2007. CAC Scholarships for Forensic Science Students at SJSU. Funded \$4200.00 for AY 2007-2008.
- **Co-PI February 2007 NSF REU Grant RUMBA** with Dr. Julio Soto and Dr. Cleber Ouverney of Biology at SJSU. Funded \$215.260.00. NSF DBI 0647160
- PI: October 18, 2006. CSUPERB Travel Grant. Support to attend and present at the 2007 American Association of Forensic Science Meeting in San Antonio, TX. Funded \$1000.00.
- Co-PI August 17, 2006. with Dr. Julio Soto and Dr. Cleber Ouverney of Biology at SJSU. National Science Foundation REU RUMBA Renewal Grant. Funded \$204,600.00 for 03/01/07-02/28/2010.
- PI: July 01, 2006. NIJ/NFSTC Forensic Biology Research and Training Consortium (FBRTC). Funded \$50,000.00 for 07/01/06-06/30/07. The main goal of the consortium grant is to create a research and educational network in forensic biology.
- PI: June 30, 2006. CSUPERB Curriculum and Development Proposal: Advanced Forensic Biotechnology Course Development. Funded \$15,000.00 for 06/30/06-06/30/07.
- PI: May 10, 2006. CAC Scholarships for Forensic Science Students at SJSU. Funded \$4200.00 for AY 2006-2007.
- PI: December 8, 2005. Participant. Included as a Participant on an NSF REU Grant RUMBA Biology at San Jose State University. Funded student stipend for summer research and \$1800.00 in supplies in 2006.
- PI: November 10, 2005. SJSU CASA Lottery Grant. Forensic Science Seminar Series support. <u>Amount awarded:</u> \$1,800.00 for 1/2005-08/2006.
- PI: April 3, 2005. CSUPERB Advanced Forensic Biotechnology course development. \$15,000.00. Not funded.
- PI: March 25th, 2005 California Association of Criminalists Endowment Application for Student Scholarships 5 undergraduate fellowships in forensic science to support tuition, fees and graduate school applications. Submitted 03/25/05 Total Requested \$5500.00. Not funded.
- **PI: March 20, 2005. Proposal for Equipment support** and Student Stipends, Submitted to MiraiBio Inc. Total requested = \$6700.00. **Funded** for Delivery, installation and maintenance of a laser-scanning instrument for forensic DNA research.
- PI: March 6, 2005: CSUPERB Travel Grant Support for student volunteer coordination for reduced registration fees for the California Association of Criminalists meeting to be held in Oakland, CA. Submitted 03/06/05 Total Requested = \$482.50 Not funded
- PI: 01/05: Junior Faculty Career Development Grant. SJSU (0.2FTE) <u>Funded \$4000.00</u> release time to develop an interdepartmental, intercampus, interagency forensic science-training program and to write a proposal. 01/01/05-06/30/05. A grant was submitted to NIJ/NFSTC on Dec 03, 2005 and was funded.
- PI: October 2004. CSUPERB Travel Grant. Support for a student to attend and present at the 15th International Human ID Symposium. Funded at \$700.00
- **PI: 04/2004:** <u>Facilitated commitment by Lawrence Livermore National Laboratory for \$10,000.00 match</u> to a CSUPERB grant. 4/04. Grant will be resubmitted (see below).
- PI: 05/2004: CSU Awards for Research, Scholarship or Creative Activity. Validation and population genetics of Y chromosome multiplexes for criminal profiling. 05/04 <u>Funded for \$5000.00</u>.
- PI: 04/05/2004: CSUPERB Curriculum and Development Proposal: Forensic Biotechnology Program Development for students and teachers. \$15,000.00. Submitted 04/05/04 (Matching funds facilitated \$24,884.00). Not Funded.
- PI: 04/05/2004: CSUPERB Entrepreneurial Joint Venture Matching Grant Program: Facilitating Biotechnology contributions for Forensic DNA research and training: \$25,000.00 Submitted 04/05/04 (Matching funds facilitated (\$110,500.00) Not Funded.
- PI: 04/2004: CAC Training Proposal. Forensic Science Student Scholarships Amount requested \$20,000.00. Submitted 31 March 2004. Not funded.

- PI: 04/2004: CAC Training Proposal. On-line Forensic Science Seminar Series. Submitted 02-25-04. Amount requested \$ 10,000.00. Not funded.
- PI: 11/2004: SJSU CASA Lottery Grant. Forensic Science Seminar Series support. <u>Amount awarded: \$1,600.00 for</u> 1/2004-08/2005.
- **Co PI:** 2003. Proposal to the National Institutes of Allergies and Infectious Diseases RFA PAR 03-025: Software Development for Real-time analysis of Multiplexed Assays In High Throughput Diagnostics for Public Health and Biothreat Pathogens. Consortium with Los Alamos National Laboratories, NYS Public Health Dept, U. N. Arizona and Purdue University. **Amount Requested: S1,002,925.00. Not funded**
- PI: 2002: Principal Investigator: Proposal to the Federal Bureau of Investigation Construction and Laboratory Contracts Unit, Broad Agency Announcement # BAA-914497 Interest Area: 5.3 DNA 301:Development of SNP Assays for Human Identification- Title: Development of an automated Y chromosome single nucleotide polymorphisms (Y-SNPS) screening test to enhance speed and efficacy of forensic genetic testing. Amount requested: \$616,500 Submitted April 2002. Funded as a Subcontract resulting in\$115,000.00 fy 2003 in equipment and supplies for UNTHS.
- PI: 1996. Principal Investigator NSF Research Experiences for Undergraduates Program. Training Undergraduates in Science and Technology. \$153,000.00 for three years from 5/96-9/98. San Francisco State University. This was a DNA training grant. Topics covered were DNA extraction, PCR amplification, gel electrophoresis (agarose and acrylamide), DNA sequencing and computer data analysis. Funded.
- PI: 1996-1998: Principal Investigator for donations from Perkin Elmer, AT Biochem and Applied Biosystems for materials and supplies for the NSF REU program. **\$10,000/year** from 1996-1998. Funded.
- PI: 1995: Participant on NIJ Crim Bill Funding Grant Proposal. Bring all California crime laboratories up to capability of DNA typing... \$6,489,168.00 1996-2001. First and second year funding 1.3 million.
- PI: 1993: Principal Investigator NSF Division of Environmental Biology Program. REU Supplement to RUI: Molecular Systematics of the Oomycota. Awarded \$20,000.00 for 5/93-8/93. Undergrad projects: Stipends, supplies. Funded.
- PI: 1993: Principal Investigator NSF Division of Environmental Biology Program. Encouraging Under-represented Student Participation in DNA Workshops. \$60,000.00 Funded for 5/93-9/95. Undergraduate summer workshops:
- PI: 1992. Principal Investigator NSF Division of Environmental Biology Program. Molecular Systematics of the Oomycota. Awarded **\$168,000.00** for three years from 9/92-9/95. Funded
- PI: 1992: Principal Investigator for UNC Research Corporation Grant. Awarded \$28,467.00 for matching funds to NSF grant for faculty release time, refurbishing the laboratory and travel to meetings from 9/92-9/95
- PI: 1992: Principal Investigator for UNC Arts and Sciences Graduate Student Grant. Awarded \$95,704.00 in matching funds to NSF grant for 3 student stipends and tuition waivers 12/92-9/95.

DONATIONS

- PI: August 2013. Thermo Fisher donation of FTIR valued at \$2000.00 to support Forensic Chemistry research and teaching.
- **PI: February 2012.** Oakland Police Department Crime Laboratory Donation of two ABI 310 Genetic Analyzers valued at \$20,000.00 each to support the research and teaching.
- **PI: October 2011.** Oakland Police Department Crime Laboratory Donation of \$10,000.00 in molecular biology reagents to support the research and teaching.
- PI: July 2011. Santa Clara County Crime Laboratory Donation of two Alternate Light Sources Valued at \$15,000.00 each to support forensic biology research and teaching.

- **PI: January 2011.** Oakland Police Department Crime Laboratory Donation of \$10,000.00 in molecular biology reagents to support the research and teaching.
- PI: 2010. Facilitated donation from FireEx Forensics, Dr. John DeHaan of Forensic Science Journals (Approximate value of \$1000.00)
- PI: 2008. Facilitating donation from San Francisco Police Department Crime Laboratory of Analytical Balances (Pending-value undetermined)
- PI: 2007. Facilitating donation from Lowell Bradford Estate of a Comparison Microscope and photography equipment (approximate value \$10,000).
- PI: October 2006. Facilitating donation from San Francisco Police Department Crime Laboratory of a UV Spectrophotometer and Gas Chromatograph. Funded (value not known).
- PI: August 2006. Facilitated Donation of a PCR Thermal Cycler TC 480 by Santa Clara County Crime Laboratory Funded value \$5000.00.
- PI: June, 2006 CASA IES fund \$10,000.00 to support the forensic science program.
- PI: April 2006 Facilitated donation of Y STR and screening kits from Reliagene. Funded value=\$5000.00
- PI: December, 2005. CA DOJ Donation of \$10,000.00 in molecular biology reagents to support the CSUPERB grant.
- PI: September, 2005. Technical Support for instrument maintenance \$10,000.00 annually for 3 years commenced S'06from Provost Carmen Sigler.
- PI: September 2005. Operational expenses of \$8000.00 funded for a single year by CASA
- PI: July, 25 2005. Facilitated donation of field service and equipment support from Applied Biosystems. Funded value \$10,000.00.
- PI. 09/2004: <u>Facilitated Donations of \$145,000.00</u> molecular biology equipment to the SJSU Forensic Science research and training laboratory at SJSU- ABI 310 Genetic Analyzer Capillary Electrophoresis unit and an ABI 7700 real time detection system. Delivered and installed 09/04 from Celera Diagnostics
- PI: 09/2004: <u>Faciliated donations of \$10,000.00</u> in computers, reagents and consumables to the SJSU Forensic Science research and training laboratory- G3, Dell and consumables from MiraiBio Inc.
- **PI:** 09/2004: Faciliated donations of \$10,000.00 in reagents and kits from Reliagene, Promega and Applied Biosystems to support forensic science student research and training.

STUDENTS: 2 Post-Docs, 1 Research Associate, 2 Ph. D., 10 M.A., 45 B.A./B.S. and 5 HS -Bold indicates current position

Dates	<u>Title</u>	Student	<u>Program</u>	<u>Project</u>
2014-	Advisor-	Zach Goecker	MS PSU	CTS Fingerprint development
2013-14	Advisor-	Jesse Ramirez	Student assistant	Innogenomics Quant kit test
2013	Advisor-	Niki Konstantinides	Student assistant	Degraded DNA quant kit test
2013	Advisor-	Dominique Cooper	Student assistant	Mutant taq polymerases inhibition
2013	Advisor-	Nikki Roda	Student assistant	Phaedebas Press test
2012	Advisor-	Luis Sandoval	Student assistant	Automation of DNA extraction
2012	Advisor-	Hanna Bennett	Student assistant	Overcoming PCR Inhibition
				-
2011	Advisor-	Corissa Harris	Student assistant	Comparison of Wearer DNA collection
2011	Advisor-	Mariela Rivera	Student assistant	Recovery of DNA from handguns
2011	Advisor-BTE	Jaihao Liang	HS Student assistant	Storage of DNA standards

2011 2010 2010 2010 2009 2010	Advisor Advisor Advisor Advisor Advisor Advisor	Kelly Conroy Lauren Buban Erica Dinaro Breeana Baker Alex Bethea Phil Nahn	Student Research Asst Student Research Asst Student Researh Asst Student Researh Asst Student Research Asst Student Research Asst	Optimizing fluor detection of semen Recovery of DNA from Molotovs Teflon vs. Polypropylene storage Stutter calculations w/enhancers Enhanced mixture amplification Evaluation of BSA fractions
2009	Advisor	Lauren Pijanowski	Student Researh Asst	Comparison of DNA extraction tech
2008-2011	Advisor	Clarissa Trogdon	Student Research Asst	Overcoming PCR inhibition
2008-2010	Advisor	Linda Le	Student Research asst	Recovering DNA profiles
2008-2010 2007-2009	Advisor Advisor	Marissa Meinenger Kimberly Clabaugh	Student Research asst Student Research asst	DNA Column evaluation Samplematrix DNA storage
2007-2009	Advisor	Arturo Aguilar	Student Research asst	Y alu detection
2007-2009	Advisor	Kingsley Odigie	Student Research asst	DNA repair
2007	Co-Advisor	Milani Fisher	MS Grad Student	Effect of DNA stats
2006-2007	Advisor	Kristy Ballinger	Student Research asst	Y molecular beacon detection
		Courtney Cook	Student Research asst	Zeolite for blood collection
		Brie Silva Erica Villa	Student Research asst Student Research asst.	Storage of blood and saliva on zeolite Development of Y screening assay
2006	Advisor	Jamie Lunkley	Student Research asst. Student Research asst.	Chemistry of Latent print aging
2006	Advisor	Wendy Farell	Student Research asst	QD Check Ink validation
2003-2005	Advisor	Keri Smith	Investigator DOI	Comparison of DNA storage methods
		Sal Murillo	Student asst DOI	Forensic DNA from aquatic samples
		Danielle Seele	Student asst. SJSU	.Polynesian Y STR population studies
2002-2003	Advisor-BBEI prog	Kenisha Bell	Student assistant	Temperature and humidity monitoring
2001 1998-2000	Advisor-BBEI prog Co -Advisor	Miacah Pugh Bill Hudlow	Student assistant MS Cham CSLI Havward	Marketing and reference research Mechanisms of Repeat Slippage
1770-2000	CO -Auvisoi	Dili i ludiow	Sr. Crim CA DOJ DNA	invectionisms of Repeat Suppage
1999- 2000	Advisor-BBEI prog.	LaSandra Ivy	Student Research Assistant	Camera imaging of DNA
Sum 1998	Co- Advisor	Colette Betters	NSF REU Student Intern	STR primer testing
	with G Sensabaugh	1		on Yeast DNA samples
Spr98	Advisor	Bonnie Rhee	Student Research Assistant	DNA Technology in Forensics
Fall 97	Advisor	Mavis Hendson	Post Doc volunteer Criminalist-Research	Magnetic bead DNA isolation for databank blood samples and
Sum 1997	Co- Advisor	Shamsah Ebrahim	CA DOJ DNA Lab NSF REU Student Intern	automation of differentials STR & D1S80 primer testing
Juin 1777	CO- / (UV)501	with G Sensabaugh	PhD candidate Harvard	on microbial DNA samples
Sum1996	Advisor	Carmela Thompson		s STRs from cortical vs trabec bone
		Byron Gainers		Repeat slippage
		Joy Kong	DOLDANA A	Species testing of FFFL
Sum1996	Advisor	Sonja Brinkop	DOJ DNA Intern	Amplification of STRs
			MS Forensic Science Strathclyde University	from heat treated and fire abused human bone
			Technical Support Hitach	
			CA DOJ DNA criminali	
1995-1996	Advisor	Keith Garrison	DOJ DŇA Intern	Rapid DNA extraction
			BS Cell and Mol Biol	from bloodstains
			UC Berkeley	for RFLP and PCR
			Technical Support Hitach	
1995-1996	Advisor	Sherrie Post	PhD UC Davis- Faculty DOJ DNA Intern	Comparisons of fluorescent
1773-1770	AUVISOI	Sherrie i Ost	MPH UC Berkeley	scanners for detection
			Crim at Seri	of STRs
1995	Advisor	Karen Brown	DOJ DNA Intern	
			MPH UC Berkeley	STR analysis on UV
1005	A 1 ·	11 D 1	NIACA CIIADDI :	abused bloodstains
1995	Advisor	Jake Brayboy	NASA SHARP Interns	STR analysis on
		David Owens	via SFSU JB-UNC Chapel Hill	fingernail samples
1994	Advisor	Beth McNamee	DOJ DNA Intern	
		_ this in the control	BA UC Davis	DNA Technology in
			Harvard Genetics Ph.D.	Forensics

MA Forensic Anthro UWy from ancient bone M.A. at UNC Molecular Evolution of PhD UCBerkeley M.A. at UNC Phosphofructokinase PhD Auburn Univ. Post-Doc Morph and Mol. Pop. of Protostelids Fall 1993 Major advisor Kristin Young Sum. 1993 Major advisor Dave Droegmueller Nikki Kramer Eric Oleyjar Carlos Rodriguez Sharyn Rusk MD Medical School 1992-1995 Co-Major Advisor Sharyn Rusk Ph. D. DNA Evolution of Faculty Casper College WYSlime Molds Ph. D. DNA Evolution of Faculty SE Okla State 1992-1993 Committee member Carol Jacobs-Carre Fall 1992 Co-Major advisor Min Liu Fall 1992 Major Advisor Dave Droegmueller Miki Washing Molecular Evolution of Faculty SE Okla State Ph. D. DNA Evolution of Monotremes MA. A. Honors study Mycorrhizal PhD CSU Multiplex PCR of Phytopathogens Fall 1992 Co-Major Advisor Dave Droegmueller M.A. independent study Scientist in Denver CO Under grad Research Wolecular Evolution of Morph and Mol. Pop. of Protostelids Population analysis of Population analysis of PhD program Kansas SU Elk Kelp REU Undergrad researchers-REU Molecular Evolution of PhD DNA Evolution of Monotremes M.D Major Advisor Kristin O'Connor Monotremes M.A. Mycorrhizal PhD CSU Morph and Mol. Pop. of Protostelids PhD program Kansas SU Elk Kelp REU Undergrad research PhD Program Kansas SU Elk Kelp REU Undergrad researchers-REU Molecular Evolution of PhD DNA Evolution of Monotremes M.D Major Advisor Min Liu M.A. independent study Scientist in Denver CO PhD Under grad Research Multiplex PCR of PhD CSU PhD Under grad Research	A. at UNC D UCBerkeley A. at UNC D Auburn Univ. St-Doc D Protostelids D Protostelids D Program Kansas SU D Undergrad research Population analysis of D program Kansas SU D Undergrad researchers-REU Molecular Evolution of Oomycota D DNA Evolution of Ulty Casper CollegeWYSlime Molds D. DNA Evolution of Ulty SE Okla State D DNA Evolution of Monotremes A. Mycorrhizal D CSU D Omycota
1993-1994 Major Advisor Scott Boback 1993-1994 Major Advisor Rick Bortnick, Ph.D. Fall 1993 Major advisor Kristin Young Sum. 1993 Major advisor Fall 1993 Major advisor Fall 1993 Major advisor Dave Droegmueller Nikki Kramer Eric Oleyjar Carlos Rodriguez 1992-1995 Co-Major Advisor Patrick Alan Lennon Patrick Alan Lennon Patrick Alan Lennon 1992-1993 Major Advisor Kristin O'Connor MA. at UNC PhD Auburn Univ. Post-Doc Morph and Mol. Pop. of Protostelids Population analysis of PhD program Kansas SU Elk Kelp REU Undergrad researchers-REU Molecular Evolu Oomycota MD Medical School Ph. D. Faculty Casper CollegeWYSlime Molds Ph. D. Faculty SE Okla State Pathogen DNA ID DNA Evolution of Monotremes Mycorrhizal PhD CSU Fall 1992 Co-Major advisor Min Liu M.A. independent study Scientist in Denver CO phytopathogens	A. at UNC D Auburn Univ. D Auburn Univ. St-Doc Morph and Mol. Pop. of Protostelids dergraduate research D program Kansas SU U Undergrad researchers-REU Molecular Evolution of Oomycota D dical School D. DNA Evolution of sulty Casper CollegeWYSlime Molds D. Ulty SE Okla State D DNA Evolution of Monotremes A. Mycorrhizal D CSU Phosphofructokinase gene analysis Morph and Mol. Pop. of Protostelids Population analysis of Domycota D Human funden D NA Evolution of Monotremes Mycorrhizal population studies
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Scientist in Denver CO phytopathogens	
Sum. 1992 Major Advisor Douglas C. Goodwin Under grad Research Microwave Rec. PhD from Utah SU DNA mini-prep	
Spr. 1992 Major Advisor Tim May UNC On-Site Research HS Senior Bio Project ascomycetes	
TEACHING EXPERIENCE (* with laboratory):	
Spring 2014 Internships Professor SJSU	
	ascomycetes Professor SJSU
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	ascomycetes Professor SJSU Professor SJSU Professor SJSU
Spring 2013 Forensic Senior Seminar Professor SJSU	ascomycetes Professor SJSU Professor SJSU Professor SJSU
Spring 2013 Internships Professor SJSU	ascomycetes Professor SJSU Professor SJSU Professor SJSU Professor SJSU Professor SJSU
Fall 2012 Special Topics- Advances in Forensic DNA Professor SJSU	ascomycetes Professor SJSU Professor SJSU Professor SJSU Professor SJSU Professor SJSU Professor SJSU
Fall 2012 Forensic Senior Seminar Professor SJSU	ascomycetes Professor SJSU SJSU Professor SJSU
Foll 2012 Internation CIGI	ascomycetes Professor SJSU
Fall 2012 Internships Professor SJSU	ascomycetes Professor SJSU
Spring 2012 Internships Professor SJSU Spring 2012 Forensic Molecular Biology Professor SJSU	ascomycetes Professor SJSU
Spring 2012 Forensic Molecular Biology Professor SJSU Forensic Science Senior Seminar Professor SJSU	Professor SJSU SJSU Professor SJSU
Spring 2012 Forensic Molecular Biology Professor SJSU	Professor SJSU SJSU Professor SJSU
Spring 2012 Forensic Molecular Biology Professor SJSU Forensic Science Senior Seminar Professor SJSU Fall 2011 Forensic Biometrics Professor SJSU Internships Professor SJSU	Professor SJSU
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Fall 2008	The Real CSI	Professor	SJSU
	Senior Seminar	Professor	SJSU
Fall 2007	*Introduction to Forensic Science	Professor	SJSU
	Senior Seminar	Professor	SJSU
Spring 2007	*Forensic Molecular Biology	Associate Professor	SJSU
1 6	Internships	Associate Professor	SJSU
Fall 2006	DNA and Crime	Associate Professor	SJSU
1 411 2000	The Real CSI	Associate Professor	SJSU
Spring 2006	Genetics, Law and Society (graduate)	Associate Professor	SJSU
Spring 2000	Criminalistics	Associate Professor	SJSU
	Internships	Associate Professor	SJSU
Eall 2005	Criminalistics		
Fall 2005		Associate Professor	SJSU
G.,	The Real CSI	Associate Professor	SJSU
Spring 2005	*Introduction to Forensic Science	Associate Professor	SJSU
	Criminalistics	Associate Professor	SJSU
	Internship	Associate Professor	SJSU
Fall 2004	*Introduction to Forensic Science	Associate Professor	SJSU
	Criminalistics	Associate Professor	SJSU
	DNA and Crime	Associate Professor	SJSU
	Internships	Associate Professor	SJSU
Spring 2004	*Introduction to Forensic Science	Associate Professor	SJSU
	Criminalistics	Associate Professor	SJSU
Fall 2003	*Introduction to Forensic Science	Associate Professor	SJSU
	Criminalistics	Associate Professor	SJSU
Spring 2003	*Chemistry of Forensic DNA	Adjunct Professor	FIU
Fall 2001	*Chemistry of Short Tandem Repeats	Adjunct Professor	FIU
1998-1999	STR II- Advanced STR typing	Assistant Lab Director	CADOJDNA
Sum. 1998	*DNA Technology Workshop	Adjunct Asst Prof	SFSU
Fall 1997	Genetics of Forensic DNA Typing	Adjunct Asst Prof	UC Davis extension
Sum. 1997	*DNA Technology Workshop	Adjunct Asst Prof	SFSU
Sum. 1996	*DNA Technology Workshop	Adjunct Asst Prof	SFSU
Sum. 1995	*DNA Technology IV: Sequencing	Adjunct Assistant Professor	UNC
Sum. 1994	*DNA Technology III: Sequencing	Adjunct Assistant Professor	UNC
1996-1997	Intro to D1580	Assistant Lab Director	CADOJ DNA
1997-2000	Intro to STR typing	Assistant Lab Director	CADOJ DNA
	DNA academy-Intro to Forensic DNA-RFLP		
1994-2000		Assistant Lab Director	CADOJ DNA
Fall 1993	Principles of Biology	Assistant Professor	UNC
Fall 1993	Biology as a Profession	Assistant Professor	UNC
Sum. 1993	*DNA Technology II: PCR	Assistant Professor	UNC
Spr. 1993	Introduction to Biology	Assistant Professor	UNC
Spr. 1993	*Molecular Genetics	Assistant Professor	UNC
Fall 1992	Principles of Biology	Assistant Professor	UNC
Fall 1992	Foundations of Biological Research	Assistant Professor	UNC
Fall 1992	Biology as a Profession	Assistant Professor	UNC
Sum. 1992	Guest Lecturer for AP Institute section on DNA	Assistant Professor	UNC
Sum. 1992	*DNA Tech. : Sequencing	Assistant Professor	UNC
Spr. 1992	*Principles of Biology	Assistant Professor	UNC
Spr. 1992	*Molecular Genetics	Assistant Professor	UNC
Sum. 1991	*DNA Sequencing Workshop	Instructor	UGA
Spr. 1991	*Polymerase Chain Reaction Laboratory	Instructor	UGA
Fall 1988	Motivating and Advising Students	TA Trainer	UCB
Fall 1989	Diversity and Retention	TA Trainer	UCB
1980-1981	*Botany	Teaching Assistant	SUNYB
Spr. 1988	*Mycology	Teaching Assistant	UCB
Fall 1984	*Biology	Teaching Assistant	Columbia
1983-1984	*Ecological Bot., *Genetics, *Plant Systematics	Teaching Assistant	NYU
	20-11-21-1, Continued, Land Officendates		· = =

SERVICE:

Department, College and University F13 Member JS RTP Committee

F13-S14 Member JS Recruitment Committee F12 Member CASA RTP committee S 09& F10 Member CASA RTP committee Member College Professional Leaves Committee F07 F'06-S'07 Chair University SERB committee F'05-Co-chaired the IS Forensic Chemistry Recruitment committee F'05 Served on the JS Department Recruitment committee F'04-F'05 Served on the JS Department Reunion Committee F'05-pres Serve on the Advisory Board of the Administration of Justice Bureau F'04 Serve on the JS Department Recruitment committee F'04-pres Chair Forensic Science Advisory Board F'04-pres Chair Forensic Science Undergraduate Curriculum Committee F'03-pres Serve on the JS Scholarship committee Serve on the College Research and Faculty Development Committee F'03-S'06 F'03-F'06 Serve on the University SERB committee **Scientific Community** 2013 Selected as an Academic Participant for the FBI Facial Identification Scientific Working group Selected as a Neutral Expert Witness for the 7th District Court of Appeals Promega v. Life Technologies 2013 Reviewer of 5 manuscripts for Forensic Science International: Genetics 2013 Selected for the Editorial board of Life: The Excitement of Biology (www.blaypublishers.com) 2013 2013 Hosted the 2013 AAFS FSEC conference, SJSU, San Jose, CA 2012 Hosted the 2012 Fall California Association of Criminalists Meeting-San Jose, CA 2012 Hosted the 2012 AAFS FSEC conference, SJSU, San Jose, CA 2011 Hosted the 2011 AAFS FSEC conference 2010 Served as FEPAC Lead Inspector to BS and MS Programs in Forensic Science at Chaminade University. 2009 Invited to submit to FS Review special issue on Assessment and preparation of biological specimens for DNA analysis: Optimizing storage and handling of DNA extracts 2009 Served as FEPAC Lead Inspector to the MS Programs in Forensic Science at Marshall University. 2007-2009 Forensic DNA consultant to Biomatrica, San Diego, CA 2006-2009 Forensic DNA consultant to CA Department of Justice, Jan Bashinski DNA Laboratory, Richmond, CA Forensic DNA consultant to Trace Genetics, Richmond, CA. 2006 2005 Reviewer of 1 manuscript Clinical Chemistry 2005 Invited to scientific advisory board of Biosphere Genetics 2004 Invited to Advisory Board of the Administration of Justice Bureau, San Jose State 2004 Reviewer of 2 Book Chapters: 1- Handbook of Information Security, 2- Forensics in the Criminal Justice Profession 2003 Editorial Advisor, Drug Discovery & Development 2002 Selected participant for Science Magazine Proteomics Supplement (Published August 2002) 2002 Selected participant for Science Magazine DNA Biochips Supplement (Publication expected Spring 2003) 2001 Reviewer for Journal of Forensic Science- 1 manuscript reviewed Selected participant for Science Magazine Microarray Supplement 2001 2000 Reviewer for Mycological Research- 1 Manuscript Reviewed. 1999 Reviewer for Biotechniques- 1 manuscript Reviewer for Journal of Forensic Science- 1 manuscript 1999 1999 Invited to serve on NIJ grant panel (declined due to conflicts) 1998 Reviewer for Journal of Forensic Science 1998 Reviewer for International Journal of Legal Medicine 1998 TWGDAM Inspection Oakland PD DNA Program 1997 Reviewer for Biotechniques - 2 manuscripts 1996

Reviewer for Biotechniques- 2 manuscripts reviewed

1995 Reviewer for Biotechniques- 1 manuscript reviewed 1994 NSF Panel Member - Division of Environmental Biology REU Site Grant Program

1994 Reviewer for Mycologia - 1 manuscript reviewed

1993 Reviewer for 1 National Science Foundation Systematic Biology Proposal

1993 Reviewer for Mycologia - 1 manuscript reviewed 1993 Reviewer for Phytopathology - 1 manuscript reviewed 1993 Reviewer for Mycological Research - 1 manuscript reviewed

1993 Reviewer for Smithsonian - 1 manuscript reviewed

1993 NSF Panel Member - Division of Environmental Biology REU Site Grant Program

1993 Program Chair and President (Elect) Sigma Xi

Mycological Society of America Sustaining Membership Committee 1992-1994

	1992	Reviewer for 1 National Science Foundation Systematic Biology Proposal
	1992	Reviewer for Systematic Botany - 1 manuscript reviewed
	1992-1993	Reviewer for Journal of Clinical Microbiology - 7 manuscripts reviewed
	1992	Reviewer for Plant Pathology - 1 manuscript reviewed
	1992	Reviewer for Molecular Ecology - 1 manuscript reviewed
	1992	Co-Chair Molecular Evolution and Taxonomy Oral Session at the MSA Annual Meeting
	Community	at Large
	2013	Hosted a CSI Camp Held at SJSU Summer 2013
	2012	Hosted a CSI Camp Held at SJSU Summer 2012
	2012	Forensic Science at SJSU, Tour for Sunnyvale Senior Center Held at SJSU
	2012	Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU
	2011	Forensic Science DNA Analysis. El Cerrito High School El Cerrito, CA
	2011	Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU
	2011	Facilitated participation of SJSU FS students in Urban Shield, LBNL and Emeryville CA site
	2010	Forensic DNA Technology. El Cerrito High School El Cerrito, CA
	2010	Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU
	2010	Saving lives with Forensic Science. Middle School Portola El Cerrito, CA
	2010	Facilitated participation of SJSU FS students in Urban Shield, LBNL, CA site
	2009	Forensic DNA Technology, El Cerrito High School, El Cerrito, CA
	2009	Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU
	2008-	
	2008	Saving lives with Forensic Science. Middle School Portola El Cerrito, CA
	2007-	Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU
		Scientists against Crime day Middle school: Portola, El Cerito CA 12/13/07
		Scientists against Crime day Elementary school: Kensington CA 12/06/07
	2006	NSF Teachers Conference- Introduction to SJSU forensic science 08/09/06
	2006	Seminar on SJSU Forensic Science for Qingdao University Scholars 05/18/06
	2006-	Scientists against Crime Tour for 5 th grade class, Washington Elementary –Held at SJSU
	2006	CASA winter reception piano playing 12/12/06
	2006	Leading monthly family dad support groups. Family Specialist- YMCA Berkeley, CA
	2005	Volunteer Berkeley YMCA Special Events
	2005	Invited Speaker Stanford Genome Technology Center Club Seminar 10-27-05
	2005	Scientists against Crime day camp YMCA Berkeley CA
	2005	Silver Creek High School forensic science laboratory tour
	2004	Scientists against Crime seminar for 3 rd grade class, Kensington CA
	2004	Instructor of Fingerprints and Presumptive tests as a part of a MonteVista High School Forensics Day
		Co-sponsored by Chemistry at SJSU
	2004	Silver Creek High School forensic science laboratory tour
	2004	Berkeley YMCA Special Events Volunteer
	2004	Keynote Speaker Edward Teller Education Center Teacher/Scientist Dinner, LLNL (09/24/04)
	2002-03	Berkeley YMCA Campaign Captain Volunteer
	2001	Keynote Speaker at Summer Fellows Forum of Bio-Link held at UC Berkeley
	2001	Laney College Biotech Curriculum Advisory Board member
	2000	Speaker on Microarray DNA Technology, Cal State Hayward Seminar
	2000	Speaker on Microarray, Bioinformatics technology, San Francisco State University
	1999	Appearance before CA State Senate on Forensic DNA databank law
	1998	Speaker on Forensic DNA Technology, St. Mary's High School
	1998	Panel Participant for Northern California Biotechnology Consortium Curriculum Development
	1997	Speaker on DNA Technology in Forensics at Contra Costa College
	1997	Speaker on DNA Technology in Forensics at University of San Francisco
	1996	Speaker on DNA in Forensics at CSU Stanislaus Undergraduate Faculty Enhancement Dinner
	1995	Monte Vista High School BioTech night speaker
	1995	Volunteer Cardiovascular training (Alternate Saturdays) and Childwatch- YMCA Berkeley
	1993	Faculty Advisor for the UNC Ultimate Frisbee Club
	1993	Advisor for NSF Alliance for Minority Participation (AMP) Grant
	1993	Science Fair Judge- Ft. Lupton CO
	1992-1993	Sound Mind Sound Body Program Conditioning Spa UNC Students with improved GPA get discounts
	1992	Interviewed for NPR Radio Program - Army DNA Dog tags
R	FERENCES:	References available on request

REFERENCES: References available on request # Memorial Sloan-Kettering Cancer Center Summer Volunteer, % Albert Einstein College of Med., Hosp. for Joint Diseases, + Held concurrently, * Transfer to UCB based on USDA fellowship, **= Armed Forces Institute of Pathology, ***= Federal Bureau of Investigation