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CURRICULUM VITAE

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EXPERIENCE

Fall 2016	BYU purchased a PacBio Sequel instrument	Training is finished and we are providing services to the research community on this instrument.
December 2014	BYU purchases an Illumina HiSeq 2500 instrument	We are now providing sequencing services on this platform to many groups including entities outside the BYU research community.
December 2011	BYU purchases an Illumina GAIIx	I am trained in its use and running as well as the initial data analysis for these runs.
Fall 2011	Granted continuing faculty status at Brigham Young University	This is the equivalent of tenure at other Universities
Fall 2008	BYU purchases a 454 Life Sciences Genome Sequencer	I am trained in its use and manage its day-to-day running and maintenance and data analysis
2005 – present	Associate Research Professor Manager DNA Sequencing Center	Brigham Young University: Department of Biology
1998 – 2005	Staff Scientist	National Institutes of Health (NIH), National Institute on Deafness and Other Communication Disorders (NIDCD) Laboratory of Molecular Genetics
2002	Our lab purchases 1 ABI 3730 & 1 ABI 3730xl DNA sequencer	I am one of two Staff Scientists trained in their use and these machines became an essential part of my research.
2001	Appointed Adjunct Faculty Member	Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan
1998	Our lab purchased the first of five ABI 377 DNA sequencing machines	I am one of two Staff Scientists trained in their use and these machines become an essential part of my research.
1994 – 1998	Senior Staff Fellow	Laboratory of Molecular Genetics, NIDCD, NIH
1993	Advanced Training	Advanced Linkage Course by Dr. J. Ott Columbia University
1992	Beginning Training	Beginning Linkage Course by Dr. J. Ott Columbia University
1990	Our lab purchased an ABI 373 DNA sequencer	This machine becomes part of my training and research use.
1989 – 1994	Senior Staff Fellow	Laboratory of Molecular Biology, NIDCD, NIH
1984 – 1989	Staff Scientist	Mycogen Corporation, San Diego, California
1982 – 1984	Postdoctoral Fellow	University of California, San Diego Advisor: Dr. John S. O'Brien
1978 – 1982	Ph.D. Biochemistry & Research Assistant	University of California, Davis Advisor: Dr. John R. Whitaker
1975 – 1977	B.A. Biological Science	University of California, Davis
1973-1975	Missionary Service, Church of Jesus Christ of Latter Day Saints	Mexico Hermosillo Mission

Information Relating to my Work

Fall 2008 – to present:
Since the purchase of the Sequel, we've have had a few requests for RNA libraries, but we spend most of our time preparing and then running multiple SMRTcells for large insert genomic libraries. When we purchased the Sequel, we found that we also needed 3 other pieces of equipment to make large fragment DNA libraries (a Megaruptor, a Fragment Analyzer and a Blue-Pippin size selection system). The College of Life Sciences and the Department of Biology found an additional $80K in their budgets to fund these additional purchases, which was very helpful to us. With the purchase of the Sequel instrument we are supporting more genomic projects here and from outside users.

With the purchase of the Illumina HiSeq2500 instrument in December 2014, we are once again providing sequencing services to many laboratories at BYU as well as for research groups from as far away as Russia, Greece and Australia. There has been a gradual increase in usage over time. We are currently running at about 75% of the capacity of this machine. Recently, as part of the next generation DNA sequencing community and as a member of the ABRF society we participated in a collaborative study with the DSRG subgroup, comparing rRNA depletion kits in performing RNA-Seq experiments. This work was submitted for publication.

I received the Distinguished Service Award from the College of Life Sciences, BYU at the start of Fall, 2011.

In August 2011, Roche agreed to upgrade our 454 Life Sciences Genome Sequencer FLX to the latest GS FLX+ at no cost to us. We believe this is in part due to the repair history on this instrument (an average of 4 runs per breakdown). After several attempts and subsequent repairs, the upgraded instrument passed target specifications on September 29, 2011. Since the upgrade, we have not had a repair issue and the run read lengths have been better than before (and they were not deficient before the upgrade).

In fall 2008, BYU acquired a 454 Life Sciences Genome Sequencer FLX. Since this purchase, my average 57-hour workweek is mostly focused on supporting this technology. There is a large commitment in hours once we receive a sample(s) to run; it takes approximately one week's labor before the data is ready for use by the investigator. Because of this effort, I was awarded a Distinguished Citizenship Award by the Department of Biology at the end of 2009. To be effective in our use of this instrument, I have undergone the following training. Initial training was with a Roche representative coming to BYU twice for several days each in Nov 2008 and again in Jan 2009, online meetings (Webinars), attendance at the two Roche 454 User Group meetings held in Hartford CT (Sept 2008) and in Providence RI (May 2010), accepting an invitation to visit and work for a week at the Arizona Genomics Institute at the University of Arizona (May 2009), and attending the Roche paired-end training meeting in Indianapolis, June 2009.

Starting in March 2010, with a year's worth of runs and work experience in second generation DNA sequencing, I started training Emily Nance, a BYU undergraduate, on

how to prepare samples and perform runs with the 454 machine. She is successfully trained and now works full time (August 2010) in all phases of running this instrument (library construction, emulsion PCR, loading, and running this machine). I have since trained additional students as and when they are needed.

February 2005 – to Fall 2008:
Associate Research Professor responsible for the day-to-day management and maintenance of the DNA Sequencing Center at Brigham Young University. I retain a small portion of my time (10%) for research interests with former colleagues. For example, Dr. Sadaf Naz accepted a position as an Assistant Professor in the School of Biological Sciences, University of the Punjab, Lahore, Pakistan the summer after I left NIDCD employment. We have since started a collaboration that also includes Dr. Anil Lalwani, a former colleague from NIDCD and current Professor of Otolaryngology, New York University School of Medicine. Our focus is the enrollment of consanguineous Pakistani families segregating cleft lip with or without cleft palate. It took several years of effort to reach the current state where we are genotyping samples from three Pakistani families as we work to define loci responsible for this heterogenous genetic trait. Our current focus is to perform whole exome sequencing among affecteds as we look for deleterious mutations responsible for the phenotype segregating in these three families, each capable of supporting highly significant p-values if mutations are found.

February 1998 – January 2005:
Staff Scientist, Laboratory of Molecular Genetics, National Institute on Deafness and Other Communication Disorders (NIDCD), National Institutes of Health (NIH).

At NIDCD, I was one of two investigators responsible for the maintenance and management of the NIDCD DNA sequencing facility. I was also maintaining an oligonucleotide synthesis service from soon after starting work at NIDCD.

In 1994 while at NIDCD, I became the principal investigator of the Human Subjects Research Protocol entitled: Hereditary Hearing Impairment – gene mapping. I continued to maintain this protocol under two different Laboratory Chiefs up until the time I left NIH employment. From a similar collaboration, the National Eye Institute enrolled many suitable families segregating blindness and others at NIDCD enrolled suitable families segregating stuttering.

June 2001:
Appointed to an adjunct faculty position at the Center of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan with Dr. Sheikh Riazuddin, Director. I worked with three graduate students who worked at the Laboratory of Molecular Genetics while enrolled at the Center of Excellence in Molecular Biology, and all whom eventually obtained Ph.D.'s from CEMB.

February 1994 - 1998:
Senior Staff Fellow, Laboratory of Molecular Genetics, NIDCD, National Institutes of Health. In the first years of this fellowship, I was manager of the laboratory while NIDCD searched for a Laboratory Chief. During this time period I instigated the expansion of our India human subjects research protocol to include the National Centre of Excellence in Molecular Biology, Lahore, Pakistan.

August 1989 - February 1994:
Senior Staff Fellow, Laboratory of Molecular Biology, NIDCD, National Institutes of Health. During this time period I gained needed experience in Molecular Genetics, studying Waardenburg syndrome and generating the first ever cDNA library of inner ear messages. It was also during these years that I made my first trip to India to participate in the Indo-US Symposium on “Mapping Genes for Deafness”, held at the All India Institute of Medical Sciences, Delhi, 1991. From this meeting, some of the participants developed the Human Subjects Research Protocol entitled: “Hereditary Hearing Impairment – gene mapping,” and the initial funding to start the project was sought and obtained through the U.S. held Rupee Fund in India (Principal Investigators were SK Kacker, IC Verma, J Fex and ER Wilcox).

May 1984 - July 1989:
Staff Scientist at Mycogen Corporation, San Diego, California. This successful biotechnology company has been mentioned as a model start-up in an article from Nature [Aaron Bouchie 2006. Getting the right mix. Nature **442**(7105):860-1]. When I joined this company, there were 10-15 researchers with great expectations and little substance. The company grew in this 5-year period to over 100 employees. In 1998 it was purchased by Dow AgroSciences and is currently an industry leader in improved crop seed production. At the time of my employment, our focus was the development of novel insecticidal toxins from *Bacillus thuringiensis* and overexpression of these toxins in microbial hosts.

August 1982 - April 1984:
Postdoctoral Fellow at the University of California, San Diego, with Dr. John S. O'Brien as research advisor. Research experience was in the construction of cDNA libraries for the purposes of cloning human lysosomal enzymes, and in DNA and protein amino acid sequencing. Such enzymes are important to the characterization of human lysosomal storage disorders, such as Tay-Sachs disease.

October 1978 - August 1982:
Research Assistant at the University of California, Davis, with Dr. John R. Whitaker, former associate dean for the College of Agriculture, as my supervisor. Research experience was in non-steady state kinetics, steady state kinetics, protein purification and protein chemistry.

PUBLICATIONS

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78. Malik S, **Wilcox E**, Naz S. 2014. Novel lip pit phenotypes and mutations of IRF6 in Van der Woude syndrome patients from Pakistan. *Clinical Genetics* **85**(5):487-491.

79. Manwaring KF, Whiting MF, **Wilcox E**, Bybee SM. 2015. A study of common scorpionfly (Mecoptera: Panorpidae) visual systems reveals the expression of a single opsin. *Organismal Diversity and Evolotion* 16 (2016): 2001-209.

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82. Herbert ZT, Kershner JP, Butty V, Thimmapuram J, Choudhari S, Alekseyev YO, Fan J, Podnar JW, **Wilcox E**, Gipson J, Gillaspy A, Jepsen K, Bondurant SS, Morris K, Sommerville G, Grimmett L, Adams M, Levine SS. 2017. Cross-Site Comparison of Ribosomal Depletion Kits for Illumina RNASeq Library Construction. Genome Biology, submitted May 2017.

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PATENTS

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2. Herrnstadt C and **Wilcox E**. 1989. Cloning and expression of *Bacillus thuringiensis* toxin gene toxic to beetles of the order Coleoptera. Patent no. 4,853,331

3. Herrnstadt C and **Wilcox E**. 1989. Cloning and expression of *Bacillus thuringiensis* toxin gene toxic to beetles of the order Coleoptera. Patent no. 4,865,981.

4. Herrnstadt C and **Wilcox E**. 1990. Cloning and expression of *Bacillus thuringiensis* toxin gene toxic to beetles of the order Coleoptera. Patent no. 4,910,136

5. Herrnstadt C and **Wilcox E**. 1991. Cloning and expression of *Bacillus thuringiensis* gene toxic to beetles of the order Coleoptera. Patent No. 5,002,765.

6. Herrnstadt C and **Wilcox E**. 1991. Cloning and expression of *Bacillus thuringiensis* gene toxic to beetles of the order Coleoptera. Patent no. 5,017,373.

7 Gilroy TE and **Wilcox ER**. 1992. Hybrid *Bacillus thuringiensis* gene, plasmid and transformed *Pseudomonas fluorescens*. Patent no. 5,128,130.

8 **Wilcox ER**. 1992. Method, vectors, and host cells for the control of expression of heterologous genes from **lac** operated promoters. Patent no. 5,169,760.

9 **Wilcox E**, Edwards DL, Schwab GE, Thompson M, Culver P. 1994. Hybrid diphtheria-B.t. pesticidal toxins. Patent no. 5,290,914.

10 **Wilcox ER**, Edwards DL, Schwab GE, Thompson M, Culver P. 2000. Hybrid pesticidal toxins. Patent no. 6,051,556

11. Edwards DL, Herrnstadt C, **Wilcox ER**, Wong S-Y. 2000. Process for altering the host range or increasing the toxicity of *Bacillus thuringiensis* lepidopteran toxins, and recombinant DNA sequences. Patent no. 6,090,931.

12. Griffith AJ, Kurima K, **Wilcox E,** Freidman T. 2007. Transductin-1 and transductin-2 and applications to hereditary deafness. Patent no. 7,166,433.

13. Griffith AJ, Kurima K, **Wilcox E,** Freidman T. 2007. Transductin-1 and applications to hereditary deafness. Patent no. 7,192,705.

14. Griffith AJ, Kurina K, **Wilcox E**, Freidman T. 2010. Nucleic acid encoding human transductin-1 polypeptide. Patent no. 7,659,115.

Professional Service

Invited Seminars

2004 Brigham Young University, Department of Integrative Biology, Provo UT
2004 Genetics Unit, Department of Pediatrics, All India Institute of Medical Sciences, New Delhi, India
2004 Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan.
2002 Kresge Hearing Research Institute, University of Michigan, Ann Arbor MI
2002 NIDCD lecture entitled "Elucidating molecular components of hearing and what we have learned in the process of mapping inbred families", Bethesda, MD.
2001 Children's National Medical Center, Washington DC
2000 Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan.
1998 Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan.
1998 Genetics Unit, Department of Pediatrics, All India Institute of Medical Sciences, Delhi, India
1997 Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan.
1997 Genetics Unit, Department of Pediatrics, All India Institute of Medical Sciences, Delhi, India
1996 Department of Communicological Disorders, University of Puerto Rico, San Juan, Puerto Rico
1995 Genetics Unit, Department of Pediatrics, All India Institute of Medical Sciences, Delhi, India
1995 Institute of Rehabilitation of Speech and Hearing Handicapped. Chennai, India.
1994 Catholic Pontifical University of Ecuador, Quito, Ecuador.
1993 Kresge Hearing Research Institute, University of Michigan, Ann Arbor MI
1993 Genetics Unit, Department of Pediatrics, All India Institute of Medical Sciences, Delhi, India
1993 Ali Yawar Yung National Institute of Hearing Handicapped, Mumbai, India
1993 Department of Otolaryngology – Head & Neck Surgery, University of California San Francisco, San Francisco, CA
1992 The Molecular Biology of Hearing and Deafness, sponsored by NIDCD and UCSD, La Jolla, CA.
1992 Department of Otolaryngology & the Department of Pediatrics, All India Institute of Medical Sciences, New Delhi, India (3 lectures).
1991 National Institutes on Deafness and Other Communication Disorders, NIH, Bethesda, MD
1990 Children's National Medical Center, Washington DC
1989 Laboratory of Molecular Otology, National Institutes on Deafness and Other Communication Disorders, NIH, Bethesda, MD.
1984 Mycogen Corporation, San Diego, CA.
1984 Syntro Corporation, San Diego, CA.
1982 Temple University School of Medicine, Philadelphia, PA
1982 Department of Microbiology, University of Virginia, Charlottesville, VA
1982 Milton S. Hershey Medical Center, Hershey, PA

Referee

Ad Hoc Manuscript Reviewer

2011 – 2

2010 – 2
2009 – 2
2008 – 2
2007 – 2
2006 – 1

In the years prior to 2005, I have not tracked how many manuscripts I reviewed, but it would be more than 20 and less than 50. In late 2007 I was invited to be listed as an ad Hoc reviewer for "Ear and Hearing" by one of the section editors.

Reviewed for the following journals: Proceedings of the National Academy of Sciences USA, American Journal of Human Genetics, Human Molecular Genetics, Biochimica et Biophysica Acta, Genomics, Journal of Experimental Biology, Clinical Genetics, Human Mutation, Archives of Otolaryngology-HNS, Audiology & Neurotology, Molecular Biology Reports.

1996-1998 Editor Hum Mol Gen, an electronic board for the dissemination of knowledge and information on genetics and disease.

Invited External Theses Examiner for students seeking a Ph.D. from the University of the Punjab

2017 – 5 thesis reviews were performed
2016 – 2 thesis reviews were performed
2015 – 4 thesis reviews were performed
2014 – 6 thesis reviews were performed
2013 – 5 thesis reviews were performed
2012 – 5 thesis reviews were performed
2011 – 5 thesis reviews were performed
2010 – 5 thesis reviews were performed
2009 – 3 thesis reviews were performed
2008 – 1 thesis review was performed

Consulting

March 2010, I accepted an invitation to become a consultant for Guidepoint Global, New York.
February 2009, I accepted an invitation to join Round Table Group's expert consultants.

Awards and Honors

2011 Distinguished Service Award from the College of Life Sciences, BYU
2009 Distinguished Citizenship Award from the Department of Biology, BYU
2003 Staff Recognition Award from NIDCD.
2002 Recognition of Mentorship award, NIDCD Partnership Program.
2001 Recognition of Mentorship award, NIDCD Partnership Program.
2000 Recipient of the NIH Director's Award for excellence in research.
1999 Recognition of Mentorship award, NIDCD Partnership program.
1999 Equal Employment Opportunity Award for special achievement.
1999 Ten years of service in the government of the United States of America.
1992 Poster presentation entitled "A novel zinc finger encoding gene is expressed in the organ of Corti" at the American Society for Cell Biology was selected as one of the 25 most exciting.

Professional Experience

Invited Podium Presentations at Meetings

2000 American Society of Human Genetics annual meeting, Philadelphia, PA
1996 Association for Research in Otolaryngology, annual meeting, St. Petersburg, FL
1994 Inner Ear Biology meeting, Montpelier, France.
1993 Inner Ear Biology meeting, Budapest, Hungary
1993 Association for Research in Otolaryngology, annual meeting, St. Petersburg, FL
1992 Conference entitled the Molecular Biology of Hearing and Deafness, San Diego, CA
1992 Association for Research in Otolaryngology, annual meeting, St. Petersburg, FL
1991 Association for Research in Otolaryngology, annual meeting, St. Petersburg, FL

Invited review articles

2003 A review entitled "The Molecular Genetics of Usher syndrome", published by *Clinical Genetics*.
2002 A review entitled "Claudin 14", published in "*The genetics of hearing loss*"
2002 A review entitled "Clinical manifestations of DFNB29 deafness", published in *Advances in Otorhinolaryngology*.
2002 A review entitled "Genetic modifiers of hereditary hearing loss", published in *Advances in Otorhinolaryngology*.
2001 A review entitled "Some deafness-causing mutations can be silenced with the appropriate gene partner", published in The Scientific World.
2000 A review entitled "The PDS gene, Pendred syndrome and non-syndromic deafness", published in *Advances in Otorhinolaryngology*.
1992 A review entitled "Strategies for constructing a guinea pig organ of Corti cDNA library and its potential use", published in *The Otolaryngologic Clinics of North America*.

Television Broadcast

2002 Broadcast was generated for the series entitled "Secrets of the Sequence" episode #132, Deafness in the balance, which aired on PBS November 8, 2002. Produced by Ward Television of Washington, D.C.

Society Membership

Association of Biomolecular Resource Facilities, American Society of Human Genetics, Association for Research in Otolaryngology, American Association for the Advancement of Science

Second Language

I am fluent in speaking and reading Spanish, having lived in Latin America for 8 years.

DNA Sequencing Center usage from 2005 - 2016

2005 I started managing the DNASC. This first year there were 33 BYU Faculty who submitted samples to the DNASC. We processed 136,757 samples, 123,299 (90.2%) were submitted as ready to load, 8,381 (6.1%) were submitted as cycle sequencing and 5,077 (3.7%) as fragment analysis. We billed $194.5K for these services, of which $73.4K was for BigDye, the rest for lane usage, cycle sequencing and fragment analysis. We also received $30K from the College for student salaries and service contracts to maintain DNASC equipment. The DNASC employee student hours were at 54 hours/week. Dr. Leigh Johnson was awarded an NSF, MRI grant. These funds were used to purchase a Parallab (an automated nano-pipetter) and a Genetix QPix2XT colony picker. This added to the automation available at the DNASC.

2006 In this year, there were 33 BYU Faculty who submitted samples to the DNASC. We processed 116,005 samples, 103,189 (89%) were submitted as ready to load, 7,578 (6.5%) were submitted as cycle sequencing and 5,238 (4.5%) as fragment analysis. We billed $100.5K for these services, of which $50.2K was for BigDye, the rest for lane usage, cycle sequencing and fragment analysis. The DNASC employee student hours were at 39 hours/week. In addition, we received $35K from the University for upgrading the DNASC server to accommodate new equipment purchased from Dr. Johnson's grant. We also received $30K from the College for student salaries and service contracts. There were 16 of the 33 Faculty that used external grants to pay for these services. Our billing efforts, methods and prices changed several times during the year. I made a concerted effort to work with Faculty submitting samples for cycle sequencing to help their students learn the techniques involved to perform their own sequencing reactions.

2007 During this year, there were 33 BYU Faculty who submitted samples to the DNASC. We processed 91,294 samples, 80,655 (88.3%) were submitted as ready to load, 2,781 (3%) were submitted as cycle sequencing, and 7,858 (8.6%) as fragment analysis. In addition, we processed 7,885 samples on the Parallab prior to loading them. We received $72.6K for these services, of which $42K was for BigDye, the rest for lane usage, cycle sequencing and fragment analysis. The DNASC employee student hours were at 36.4 hours/week. There were 15 of the 33 Faculty that used external grants to pay for these services at the cost of $54.3K (75%) from these grants. The remaining $18.3K (25%) came from 18 Faculty members purchasing these services using internal BYU funds. As the DNASC is a nonprofit entity and there was a large surplus of money built up over several years, prices were lowered significantly to the point of purposely billing less money than was spent as a way of returning money to DNASC users.

2008 In this year, there were 35 BYU Faculty who submitted samples to the DNASC. We processed 131,821 samples, 112,852 (85.6%) were submitted as ready to load, 3,252 (2.5%) were submitted as cycle sequencing and 15,717 (11.9%) as fragment analysis. In addition, we processed 2,333 samples on the Parallab prior to loading them. We received $107.7K for these services, of which $63.3K was for BigDye, the rest for lane usage, cycle sequencing and fragment analysis. The DNASC employee student hours were at 39.7 hours/week. There were 14 out of the 35 Faculty that used external grants to pay for these services at the cost of $84.1K (78%) from these grants. The remaining $23.6K (22%) came from 21 Faculty members purchasing these services using internal BYU funds. Pricing for services continued to be less than cost as decided in the previous year. Dr. Joshua Udall was awarded an NSF grant for purchasing a 454 Life Sciences Genome Sequencer FLX in September 2008. We started training on this new machine in November 2008.

2009 There were 48 BYU Faculty who submitted samples to the DNA Sequencing Center to be processed on the 3730xl DNA Analyzer. We processed 123,753 samples, 117,016 (94.5%) were submitted as ready to load, 3,536 (2.9%) were submitted as cycle sequencing, and 3,201 (2.6%) as fragment analysis. We received $150.7K for these services, of which $75.6K was for BigDye, the rest for lane usage, cycle sequencing and fragment analysis. The DNASC employee student hours were at 20 hours/week. There were 19 out of the 48 Faculty that used external grants to pay for these services at the cost of $117.3K (78%) from these grants. The remaining $33.4K (22%) came from 29 Faculty members purchasing these services using internal BYU funds. In early 2009, prices for DNASC services were raised so that income would equal outlay for these services. Pricing for the 3730xl DNA Analyzer and for the 3100 Genetic Analyzer have not needed to change from this point forward. One ready to load sample will cost the BYU Faculty member $0.50 to load, one cycle sequencing sample will cost $6.00 and a fragment analysis lane will cost $0.75. At the end of the year, there was no

net gain or loss to the DNASC in supporting this effort. During this year, I made a concerted effort to reduce student work hours and to hire students willing to work at the times most suitable for the daily function of the DNASC.

This was also the year when we began providing 454 Genome Sequencing services to the BYU campus. We performed 22 runs for 9 different faculty members costing $68.1K to research grants and $63.2K to internal BYU funds. There was no net gain or loss to the DNASC in supporting this effort. This averages to ~$6K per run. We performed runs on 6 cDNA pools, 2 paired-end libraries (3 Kb), 10 shotgun libraries, 1 capture library, 1 Meta-genome sample and 4 genome reduction libraries. These genome reduction libraries are from the protocol published by Dr. Maughan. The average number of bases generated per run was 436 ± 60 million across all these different types of runs.

2010 Prices for a 454 run have dropped to ~$5,000 per run in 2010 as our reagent costs have come down as our purchasing of reagents increases. Our current price structures can always be found at http://dnasc.byu.edu. We performed as many 454 runs in the first half of 2010 as we performed in all of 2009 (22 runs). In addition to those types of runs performed in 2009, we have now performed runs on amplicon and 20Kb paired-end libraries. The number of outside contracts for 454 sequencing has gone from 0 in 2009 to 5 outside users in 2010, with several users talking of 10 or more repeat runs over the course of the year. Student work hours were higher than in 2009. We employed a student full time for spring and summer in support of the 454 sequencing efforts, in addition to a different student working ~20 hours per week in support of the 3730xl DNA Analyzer and 3100 Genetic Analyzer. At the end of 2010, the Department found sufficient funds to purchase a second 3730xl DNA Analyzer in exchange for the old 3100 Genetic Analyzer.

2011 Prices for the 454 runs continued as in 2010. The number of non-BYU runs increased from 33% to 60% of our total runs for the year. The total number of runs increased to 60 for the year. There were an additional 10 runs performed for Roche (in exchange for free reagents). We used the additional funds to purchase equipment such as a Caliper LabChip and to pay for half the cost of a refurbished Illumina GAIIx from SeqGen. Our student hours increased over 2010, but things were hectic enough to justify hiring a non-student Category 1 full time person. This position was filled in September when we hired Kori Agee. The number of students working at the DNASC went from 5 (spring term) down to 1 (fall 2011).

2012 Pricing for 454 runs was increased to ~$5,500 in late 2012. The number of non-BYU runs increased from 60% to 71% of our total runs for the year. Our student hours decreased over 2011 as we had fewer student employees. The total hours increased as we had a full time employee, Kori Agee. In late 2012, we requested the College of Life Sciences replace the 454 machine with a MiSeq instrument in 2013. This is because usage dropped from 60 for the year to 52 and this drop was much more precipitous towards the end of 2012.

2013 Pricing for 454 runs remained constant from the year before. The total number of runs on the 454 dropped to 10 for the year, of which 6 were from non-BYU users. Roche announces in 2013 that all 454 support will end by 2016. We again requested that the College of Life Sciences replace the 454 with a MiSeq instrument. Student hours remained about the same as 2012 with some 1.5 students employed throughout the year. The full time employee, Kori Agee, left BYU in January of 2013 and headed for Los Angeles. BYU faculty usage at the DNASC continues about the same as always with 43 faculty submitting samples for analysis. Total lane usage on the 3730xl DNA analyzers dropped to 63,925 samples for the year. In part because high end users either left the University or submitted many fewer samples.

2014 Pricing for 454 runs remained stable, but the number of runs was down to 6 for the year. We terminated all services on this machine once the service contract expired in September. Dr. Byron Adams successfully appealed to the University for funds to purchase a HiSeq 2500 from Illumina. This arrived on December 23, 2014 and will be installed in January 2015. Total lane usage on the 3730xl DNA analyzers continues to drop. Many faculty are seeking next generation solutions to their DNA sequencing needs.

2015 I was trained in how to maintain and perform runs on the newly purchased Illumina 2500 HiSeq instrument in January. Our first runs were performed in May. We had a slow start but by the end of the year we were performing runs on a routine basis. Our goal for this year is to double the number of runs (lanes) we performed over last year. Some 40% of the lane usage on this instrument came from non-BYU faculty. Total lane usage on the 3730xl DNA analyzers was up over last year, as were the number of users. We're employing only 1 student at a time, this might change if usage continues to increase on the Illumina machine.

2016 I was trained in how to maintain and perform runs on the newly purchased PacBio Sequel instrument in November. Our first runs were performed in December. We hope to run it on a routine basis throughout 2017. Our goal for this year is to have sufficient capacity to include outside users as well. We increased our Illumina HiSeq runs from 72 to 246 lanes. This is a 3.4 fold increase in the number of runs. We hope to run as many if not more this year. Much of the increase last year, occurred in the last 4 months of the year. Total lane usage on the 3730xl DNA analyzers dropped compared with 2015, but about the same as 2014. We currently have 2 students working at the DNASC. This might need to change to meet demands at the center.

2017 We are running the Sequel instrument routinely and have a backlog of SMRTcells to run for BYU faculty as well as off campus users. Priority is given to BYU faculty over outside users for SMRTcells runs. We continue to increase our Illumina HiSeq lane usage. We've already run more than 200 lanes worth of samples. We continue to maintain steady usage on the 3730xl DNA analyzers. We've stayed with 2 students working as part time technicians at the center.

Research & DNASC Support funds

Competitive Funds from outside BYU.

Aug 2005	Dr. Leigh Johnson was awarded an NSF, MRI grant for $337,502 entitled: "Acquisition of DNA-manipulation robotics for increased throughput and data integrity in biological research, teaching and student research training." I was a contributing factor in applying this instrumentation for student and faculty use at BYU.
Sept 2008	Dr. Joshua Udall was awarded an NSF, MRI grant for $630,000 entitled: "Acquisition of Genome Sequencer FLX system." I continue to be a contributing factor in applying this instrument for student and faculty use at BYU.
Aug 2013	Dr. Seth Bybee is turned down on an NSF, MRI submission seeking funds towards the purchase of a HiSeq instrument. We resubmitted this request in early 2014 and again were turned down.

Aug 2016 Dr. Seth Bybee received an NSF, MRI submission seeking funds towards the purchase of a PacBio Sequel instrument. This, along with funds from the College of Life Sciences, towards the purchase of equipment needed in handling large DNA fragments was a significant addition to the DNA Sequencing Center.

Competitive Intramural Funding at BYU

2005-2007 BYU Mentoring Grant (MEG). A study of the inheritance of Cleft Lip with or without Cleft Palate among consanguineous families in Pakistan. $18,000. This is money by which we enrolled and started genotyping DNA from three families enrolled in Pakistan, segregating cleft lip with or without cleft palate. There has also been some Faculty development funds applied to the above project.

2006 BYU funding from ORCA to further develop the DNASC database and browser. $35,000. This money allowed us to make changes to the billing process and add additional fields for some of the new instrumentation acquired through Dr. Johnson's grant of August 2005.

BYU Funding for Students

2005-06 BYU ORCA Award to Elliott Richards and Robert Kolts entitled "A higher density microsatellite marker set for reliable, cost effective genotyping."

For the Years Prior to my Arrival at BYU

1997-2005 Research support was provided through the Laboratory of Molecular Genetics, NIDCD primarily under project number Z01 DC000035 entitled "Mapping and cloning hereditary hearing impairment genes". I was also a collaborator on several other projects: Z01 DC000038 entitled "Positional cloning of DFNB3 reveals a novel unconventional myosin, MYO15"; Z01 DC000039 entitled "Identification of genes causing syndromic and nonsyndromic hearing impairment"; and Z01 DC000060 entitled "Molecular analysis of human hereditary deafness".

1997-2000 An exploratory meeting entitled "Indo-US workshop on mapping genes of deafness" was held in New Delhi, India, Jan 8-9, 1992. From this meeting we started a process to request funding through the USIF rupee fund (an extension of the former PL480 funds). This was a U.S. held Rupee Fund spent in India under advisement of researchers in both countries. Principal Investigators were SK Kacker, IC Verma, J Fex and ER Wilcox. The grant USIF Project N-436-645 was funded from 1997-2000 and entitled "Gene mapping on non-syndromic hereditary hearing impairment – a multi-centric study." Regrettably, the U.S. – Indo Fund was depleted in 1997, ours was one of the last projects to be funded for a total of 3,493,000 rupees spent in India over a three-year period.

1994-1997 Funding for the years 1994 to 1997 was provided through the Laboratory of Molecular Genetics, NIDCD under project number Z01 DC000026 entitled "Molecular genetics of the inner ear."

1989-1994 My research support was provided through the Laboratory of Molecular Otology, later called the Laboratory of Molecular Biology, NIDCD under project number Z01 DC00001 entitled "Molecular biology of the inner ear".

1984-1989 Funding for research while I was at Mycogen Corp. came from various private investors.

1982-1984 Postdoctoral fellow support came through NIH grants NSO8682, GM17702 and AM07318, the Gould Family Foundation and the Weingart Foundation. This was money granted to Dr. John S. O'Brien or Dr. Donald R. Helinski.

1978-1982 My Graduate Research Assistant funds were provided through the State of California in support of Dr. Whitaker's research as a Food Science specialist.

Teaching Experience

In Years Prior to my Arrival at BYU

None

Teaching Experience at BYU

I taught PDBio 120, "Science of Biology", to 149 students in Fall 2008 with helpful input from Dr. Bell, Dr. Kooyman and Dr. Jellen, whose classes I attended in preparation.

I taught Book of Mormon 122 to 43 students in Winter 2007 and Book of Mormon 121 to 39 students in Winter 2008.

I taught InBio 559R entitled "DNA Sequencing Methods and Analysis" in winter 2007 to 5 students and again to 11 students in Winter 2008.

BYU Course Student Evaluations

Course	Title	Semester/Year	Enrollment	Maximum score = 8 (course / instructor)
PDBio 120	Science of Biology	Fall 2008	149	5.3/4.6
REL A 121	Book of Mormon	Winter 2008	39	6.4/6.2
REL A 122	Book of Mormon	Winter 2007	43	5.4/4.9
InBio 494R	Mentored Research	Fall 2005	3	not rated
InBio 494R	Mentored Research	Winter 2006	5	8/8
InBio 494R	Mentored Research	Spring 2006	1	not rated
InBio 494R	Mentored Research	Fall 2006	1	8/8
InBio 494R	Mentored Research	Winter 2007	1	not rated
Bio 494R	Mentored Research	Summer 2009	2	7/8
Bio 494R	Mentored Research	Winter 2010	1	not rated
InBio 559R	DNA Sequencing	Winter 2007	5	not rated
InBio 559R	DNA Sequencing	Winter 2008	11	6/6

Biology 494R	Mentored Research	Winter 2006	1	not rated
Biology 494R	Mentored Research	Spring 2006	1	not rated
Biology 494R	Mentored Research	Fall 2006	7	7/8
Biology 494R	Mentored Research	Winter 2007	3	not rated
Biology 494R	Mentored Research	Fall 2007	2	7/7
LifeSci 494R	Mentored Research	Fall 2008	2	8/8
LifeSci 494R	Mentored Research	Winter 2009	1	8/8

Teaching Improvement Activities

Participated in the Fall 2009, Style Matters Workshop, a 10-week course team taught by Beth Hedengren and Kristine Hansen

I observed Dr. Bell, Dr. Kooyman and Dr. Jellen over three semesters by faithfully attending classes and taking notes.

I sought council from Trav Johnson at the Center for Teaching & Learning while teaching.

Mentoring

BYU Undergraduate Students

1. Hailey Olsen, a biology student was hired as a second student replacing Elizabeth. She started working at the beginning of Winter semester 2018.
2. Elizabeth Vance, a student majoring in Bioinformatics, was hired as a second student to work alongside Sara. She started working at the beginning of Fall semester, 2016. She terminated employment at the end of Fall semester 2017.
3. Sarah Thacker, a student working towards a degree in Biology that has worked in several laboratories was hired to replace Liesl. She started working in August 2015.
4. Liesl Hansen, a BYU student was hired to replace Alyssa Heath in late June 2014. She worked through till August of 2015.
5. Alyssa Heath, a student working towards a degree in Molecular Biology that has worked in a DNA sequencing facility run by the NIH was hired to replace Abbey Thornock. She worked through spring of 2014.
6. Garrett Edmunds, a student working towards a degree in Biochemistry that responded to our advertisement for a student employee. He worked through Spring term 2011 and part of summer term 2011. We let him seek other opportunities towards the end of the summer.
7. Alex DaBell, a Masters student responded to our advertisement for a student employee. We hired him from Feb through April 2011, then the demands to finish his degree were sufficient that he needed to quite. He worked mostly on maintaining the 3730xl DNA Analyzer's in the Winter 2011 semester.
8. Abbey Thornock (nee Moore), a student working towards a degree in PDBio. She was hired in May 2011. She spent several summers working the 3730xl DNA Analyzer's as well as being trained on 454. She finished her employment in the Dec 2013 so

that she could do her student training winter semester 2014. She graduated from BYU in April 2014.

9. Kori Agee, a student working towards a Biochemistry degree. She volunteered ~20 hours in June and July 2010 to learn how to run the 3730xl DNA Analyzer. She was hired to work part time at the end of July. She has had many Chemistry laboratory courses including Analytical and Organic Chemistry. Kori was working at the Utah County's Sheriff's Office, in their urine analysis lab in Provo prior to being hired at the DNASC. She graduated in summer of 2011. She spent Winter, Spring and Summer terms of 2011 in training on the 454 and was the best candidate for the non-student Category 1 full time position that we advertised over the summer. She left full time employment in Jan 2013.
10. Emily Nance, a student working towards a Biology degree and a prospective graduate school applicant. She enrolled for research credit with me in the summer of 2009 and again during the winter semester 2010. I hired her to work part time at the DNA Sequencing Center (DNASC) starting fall 2009; she was employed here till the end of Spring 2011, at which point she graduated and went to Illinois with her husband. Emily has worked in many different laboratories since high school, and is the most talented worker I have hired at the DNASC. Since February 2010, Emily has one-by-one acquired many of the skills and techniques needed in preparing samples for and running the 454 Life Sciences Genome Sequencer FLX.
11. Brittney Wilkin (nee Holbein), a student enrolled for research credit in Fall 2008 and also Winter 2009. Also employed as a student technician at the DNASC fall 2009 semester, but left for an internship in Winter 2010. Brittney had interests in attending dental school. She was involved in screening and analyzing markers for cleft lip with or without cleft palate in a large consanguineous Pakistani family. She will graduate from BYU in 2011.
12. Charly Kuecks, a student enrolled for research credit with me in Fall 2006. She graduated with a degree in French Studies, though when she first started working with me she was majoring in Biology. As of Fall 2009, she is working towards a degree in a post-graduate language program. Charly worked at the DNASC from winter semester, 2007 through winter semester 2009.
13. Michael Lundberg, a student employed at the DNASC from January, 2008 through winter semester 2009 and graduated with a degree in Biology April, 2009. Mike started medical school training as of fall 2009.
14. Elizabeth Eichenmiller (nee Swanson), a student employed at the DNASC from September 2008 through June 2009 and left upon graduation. She is a Molecular Biology graduate and has since worked in several different professional laboratory jobs in the Seattle Washington area.
15. Elliott Richards, a student enrolled for research credit in Fall 2005, Winter 2006, Fall 2006 and Winter 2007 and was a student employee from spring 2007 through the summer of 2008. He graduated with a degree in Bioinformatics and completed an honor's thesis entitled "Genetic linkage study of nonsyndromic cleft lip with or without cleft palate in consanguineous Pakistani families." In Fall 2005, he applied for and received, along with Robert Kolts, an ORCA award dealing with markers for linkage analysis. He accepted a summer fellowship at the Beijing Genomics Institute for the summer of 2006. Upon graduation from BYU, he accepted a prestigious Post-

baccalaureate position at the NIH where he worked for a year. He is now attending medical school at Baylor College of Medicine.

16. Aaron Ferguson, a student who worked at the DNASC in the spring of 2006 and then enrolled for research credit in Fall 2006, Winter 2007 and Fall 2007 through the summer of 2008. He graduated with a degree in Biology and is currently attending Arizona Dental School in Mesa, Arizona.
17. Brandon Egbert, a student enrolled for research credit in Fall 2006, Winter 2007 and Fall 2008. Brandon was employed at the DNASC from spring 2007 though the summer of 2008. He graduated with a Biology degree. While doing undergraduate research with me he focused on our database of genotyping markers. Brandon was helpful in handling DNA from our Pakistani samples as we looked to identify loci for cleft lip. He is currently attending medical school at the University of Iowa.
18. Robert Kolts, a student enrolled for research credit with me in Fall 2005, Winter 2006 and Fall 2006. He was a student working towards a Biology degree. While doing undergraduate research with me he focused on our database of genotyping markers. Robert changed schools at the end of 2006 because of family health issues. He applied and received, along with Elliott Richards, an ORCA award entitled "Genetic linkage study of nonsyndromic cleft lip with or without cleft palate in consanguineous Pakistani families." Robert worked at the DNASC from spring 2006 till the end of 2006, when he left BYU. He has accepted a fellowship for summer 2008 at the cleft lip/palate research center at the University of Minnesota dental school contingent upon attending their dental school program (to which he was also accepted).
19. Reece Jones, a student enrolled for research credit in Fall 2008 and was involved in screening and analyzing markers for cleft lip with or without cleft palate in a large consanguineous Pakistani family. He planned to apply to medical school after graduating from BYU.
20. William David Brubaker, a student enrolled for research credit in Winter 2006 and Spring 2006. He was a student working towards a Biology degree. William was involved in screening and analyzing markers for cleft lip with or without cleft palate in a large consanguineous Pakistani family. Accepted a summer fellowship at the California Heart Center Foundation, associated with UCLA medical school.
21. Paul Fjeldsted, a student enrolled for research credit in Winter 2006 and Fall 2006, working towards a Biology degree. While doing undergraduate research with me he focused on our database of genotyping markers. Upon graduation, he was accepted to dental school.
22. Sam Ashby, a student enrolled for research credit in Winter 2006, and was a student working towards a Biology degree. While doing undergraduate research with me he focused on our database of genotyping markers. He applied for and accepted an internship doing lung cancer research at City of Hope, Duarte, CA for the summer of 2007.
23. Derek Hatch, a student enrolled for research credit in Winter 2006, Spring 2006 and Fall 2006, a student working towards a Biology degree. While doing undergraduate research with me he focused on our database of genotyping markers. He graduated from BYU and worked at several jobs as he prepared for and was accepted to Physician's Assistant training. Derek worked at the DNASC for his last semester (Winter 2007).

24. Joshua Adcox, a student enrolled for research credit in Winter 2006, Fall 2006 and Winter 2007, a student working towards a Biology degree, focusing on our database of genotyping markers.
25. Steven Dent, a student enrolled for research credit in Fall 2005, majoring in Nutritional Science. Steven worked on consent issues for the enrollment of families segregating cleft lip from Pakistan.
26. Ksenia Andrukhiv, a student who worked at the DNASC from before the time I arrived at BYU. She graduated from BYU and was accepted into a Masters program at Portland State University. She planned on becoming a Biology teacher.
27. Adam Hoybjerg, a student who worked at the DNASC from before the time I arrived at BYU. He graduated from BYU and entered dental school at the University of Oklahoma College of Dentistry.
28. Sarah Taylor, a student who worked at the DNASC from before the time I arrived at BYU. Graduated from BYU and went to work at Myriad genetics in Salt Lake City.

Postdoctoral Associates that I was privileged to work with when I was at NIDCD

1. Dr. Saima Riazuddin arrived at the LMG in the summer of 1998 and worked for 6 months. She then returned to the Center of Excellence in Molecular Biology, Lahore, Pakistan, to continue her studies as a graduate student at the University of the Punjab. In 1999 she was offered a postbaccalaureate IRTA fellowship to do her thesis work in the United States, which she accepted. Upon receiving her Ph.D. in 2001, she was offered a postdoctoral fellowship at the LMG. Dr. Riazuddin was offered a position, along with Dr. Zubair Ahmed at the Cincinnati Children's Hospital and started work in fall 2008.
2. Dr. Zubair Ahmed arrived at the Laboratory of Molecular Genetics (LMG) in 2000 to complete his thesis research for his Ph.D. He finished this work late in 2002 and was awarded a Ph.D. by the University of the Punjab. He continued as a fellow at NIDCD, until accepting a joint position in the Departments of Human Genetics and Ophthalmology at Cincinnati Children's Hospital in fall 2008.
3. Dr. Sadaf Naz arrived at the LMG in 1998, worked for 6 months and then returned to University of the Punjab to finish her Ph.D. training. She returned to the LMG as a postdoctoral associate in early 2001. Dr. Naz left NIDCD employment the summer of 2005 to accept a position as an Assistant Professor in the School of Biological Sciences, University of the Punjab, Lahore, Pakistan. We have been collaborating in the study of cleft lip with or without cleft palate since she returned to Pakistan.
4. Dr. Manjula Maheshwari finished her Ph.D. in 1983 and was part of the US-India project. After working at the LMG for 6 months in 1999, went back to India, but then accepted a position at the Human Genome Sequencing Center at Baylor College of medicine.
5. Dr. Manju Ghosh, (1998-2004). Present at the first meetings when the US-India project started, but had to wait until Dr. Pawan Jain finished his training before she could work in the United States. A pediatrician trained in India, she worked in the LMG for six months in 1998, 2001 and then for a one-year period in 2003-4. Responsible for enrolling and genotyping samples from many Indian families and worked diligently in both countries for the success of our project. Is currently working at the All India Institute of Medical Sciences.
6. Dr. Xiaoyan Cindy Li, (1995-1998). Earned an M.D. in China and a Ph.D. in the United States. Was responsible for mapping several Indian families as well as defining what

was probably the first real DFNB4 mutation (published in Nature Genetics). She was a Senior Research Associate at the House Ear Institute, Los Angeles, CA when I left NIDCD.

7. Dr. Marci Lesperance, (1994-1995) M.D. She is an Otolaryngologist who came for 1 year of training in molecular genetics of deafness and was responsible for first identifying the DFNA6 locus and then defining the gene for this locus. She is currently a Professor of Otolaryngology, University of Michigan, Ann Arbor MI.
8. Dr. Pawan Jain, (1992-1995). He was a collaborator from the All India Institute of Medical Sciences. He mapped several loci, including the DFNB7 and DFNB18 loci. Pawan left NIDCD employment for a fellowship in New York University. When I left NIDCD employment, he was employed by the Center for Biologics Evaluation and Research, FDA.
9. Dr. Anil Lalwani, (1992-1994) M.D. Otolaryngologist. He came for two years training in molecular genetics of deafness, and published details on a new X-linked locus as well as characterized mutations in several families segregating Waardenburg syndrome. He continued as a collaborator helping with our clinical characterization of families enrolled in the India project; he performed this service up until the year 2000. He left NIH for an Assistant Professorship in the Department of Otolaryngology at the University of California, San Francisco and is currently a Professor in the Department of Otolaryngology, New York University Medical Center after recently stepping down as Chair of that Department.
10. Dr. Marcelo Rivolta (1991-1995). A postdoctoral fellow from Argentina with interests in learning molecular biology, he was also working with Dr. Kachar of NIDCD. When I left NIDCD, he was a Senior Research Fellow at the Centre for Stem Cell Biology, University of Sheffield, UK.
11. Ronald Wagner (1990-1991). An M.D. who spent 1 year in our laboratory and was instrumental in enrolling several large families segregating Waardenburg Syndrome (a dominant form of syndromic hearing loss). Left science to become an anesthesiologist.

Graduate Students that I worked with while at NIDCD

1. Dr. Saima Riazuddin, see listing above under postdoctoral associate.
2. Dr. Zubair Ahmed, see listing above under postdoctoral associate.
3. Dr. Sadaf Naz, see listing above under postdoctoral associate.
4. Alireza Moujoodii, (2002). He was a student at the National Research Center for Genetics Engineering & Biotechnology (NRCGEB) of Iran, and was part of a three-way collaborative project between NRCGEB in Iran, The Center of Excellence in Molecular Biology in Pakistan and NIDCD in Maryland. He spent 5 months at NIDCD genotyping Iranian DNA samples from families segregating deafness. This was post-Sept. 11, and when he left our Institute to a position in Canada, that was the end of our Iranian collaboration.
5. Fatemeh Alasti, (2001). She was a student at the NRCGEB of Iran, and was another student involved in our collaborative three-way project between NRCGEB in Iran, The Center of Excellence in Molecular Biology in Pakistan and NIDCD in Maryland. She spent 6 months at NIDCD genotyping Iranian DNA samples from families segregating deafness. She then returned to Iran, but applied for several different Ph.D. programs in Europe and has now completed a Ph.D. in molecular genetics of deafness at the University of Antwerp, Belgium.

6. Caley M. Castelein (1997). He was a medical student desiring to apply to otolaryngology residency when he finished with medical school. He and I spent a few months working together at NIDCD. Our goal was to generate genotypes for three families, one of which was the PK-2 family, which resulted in a publication to Nature Genetics describing the DFNB26 and DFNM1 loci. A second family resulted in a publication describing DFNA17 and dominant inheritance of cochleosaccular degeneration.
7. Teresa Singleton (1992). She was enrolled in graduate school at the University of Maryland, Baltimore. She started working for me in the summer of 2001 and then continued on to do her research project entitled "Yeast RN polymerase II largest subunit replaced in vivo with a mouse RNA polymerase II largest subunit". Her degree was awarded in 1996 after many years of hard work on her part. She is currently an associate professor of biotechnology at Delaware State University (founded in 1890 as the State College for Colored Students). I contacted her when I arrived at BYU with the thought that we might be able to form a collaboration, to which she responded favorably.

Postbaccalaureate students that worked with me while I was at NIDCD

1. Mussaber Ahmad, 2001-2002. A postbaccalaureate student spent his year working in the LMG on genotyping DNA samples from Pakistan and India. Went on to a school of Osteopathic medicine.
2. Tenesha Smith, 1997 - 2000. Was responsible for DNA sequencing all families at the DNB1 locus. She also genotyped many DNA samples, and screened all incoming families by DNA sequence analysis for mutations in GJB2. Left NIDCD employment to work at Athersys, Inc. in Cleveland, Ohio.
3. Shannon Albright (1995-1997). A postbaccalaureate student who spent two years working with our group. She went on to study for a Ph.D. in molecular biology and genetics at Cornell University.
4. Marketa Wills (1994-1995). A postbaccalaureate student who spent the year working with our group, mostly working on genotyping DNA samples from a family segregating the DFNA6 locus. She subsequently attended medical school.
5. Carla Young, 1991, 1992. Summer student working with me for several consecutive summers on the analysis of family DNA samples segregating Waardenburg syndrome. She was accepted to medical school for fall 1992, at the University of Oklahoma.
6. Benjamin Hu, 1990. Summer student in medical school, working with me to get the ABI 373 sequencer functional.
7. Steven B Potterf, (1990-1991). A postbaccalaureate student who spent the year working with our group at NIDCD, mostly on genotyping markers for Waardenburg syndrome. He left to study for a Ph.D. at Johns Hopkins University and then worked at NIH in several different laboratories as a postdoctoral fellow.