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EDUCATION:

- 2011-Current Postdoctoral Research Fellow,
Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- 2010 Ph.D. in Biomedical Sciences
Creighton University, Omaha, NE
- 2000 B.A. in Philosophy
Santa Clara University, Santa Clara, CA

PROFESSIONAL EXPERIENCE:

- 2011-Current Postdoctoral Research Fellow, Department of Obstetrics and Gynecology,
Brigham and Women's Hospital and Harvard Medical School, Boston, MA
- Identification of genes involved in hearing and deafness, determine the physiological role of the encode proteins, and develop methods to hasten the investigation in this research
- 2004-2010 Graduate Student, Department of Biomedical Sciences, Creighton University,
Omaha, NE
- Developed methods and techniques to analyze functional role of prestin oligomerization, a protein involved in hearing, through advanced fluorescent imaging, electrophysiology measurements, molecular cloning, and bioinformatic analysis
- 2000-2004 Manager of Cryopreservation, Manger of Therapeutic Drug Monitoring,
Consolidated Laboratory Services, Van Nuys, CA
- Developed and refined methods to determine level of HIV HAART drugs within blood plasma utilizing LC-MS/MS methodology. Managed quality control, testing, and reporting of patient drug levels.
Developed database as well as cryopreservation, storage, and retrieval protocols for >600,000 various patient biological samples stored in -80°C and liquid nitrogen environments.

INNOVATIONS AND PATENTS:

BOSToN – Invention Disclosure Form, Filed November 15, 2013
BLA(S)T BOSToN is a web-based tool for cytogenetic interpreting FASTA sequence
Output data of chromosomal breakpoints. BOSToN can be used in the laboratory and
Sequence Tool clinic as an easy way to standardize and diagnosis Next-Generation
of Nomenclature Sequencing data for chromosomal rearrangements.

***C2orf43* Tumor Invention Disclosure Form, Filed March 2, 2013**
Suppression We discovered *C2orf43*'s role in prostate tumors and have created animal
models, cDNA constructs and antibodies based on the *C2orf43* gene. These
findings can be used in the diagnosis and potential treatment of *C2orf43*-
related cancer.

INVITED TALKS:

2014 Convergent Genomics Validates *C2orf43* Role in Prostate Cancer/Podium (abstract)
American Society of Human Genetics, San Diego, CA, USA
2014 A Common Lipase: The Role of the Poorly Annotated Gene *C2orf43* in Hearing Loss,
Obesity and Prostate Cancer/Podium (abstract)
Association of Research in Otolaryngology, San Diego, CA, USA
2013 A Balanced Chromosomal Translocation Reveals Involvement of a Predicted Lipase in
Sensorineural Hearing Loss/ Podium (abstract)
Association of Research in Otolaryngology, Baltimore, MD, USA

LEADERSHIP POSTIONS:

2013-Present	Director of Mentoring Circles Program	Brigham and Women's Hospital
2013-Present	Outreach Research Committee	Brigham and Women's Hospital
2012-Present	Postdoctoral Leadership Council; Chair of Mentoring Subcommittee (2013-2014)	Brigham and Women's Hospital
2007-2010	Graduate Student Government	Creighton University
1999	Junior Class Vice President	Santa Clara University

HONORS AND AWARDS:

2014	Peer Mentoring Award	Brigham and Women's Hospital
2013	Founder of Mentoring Circles Program	Brigham and Women's Hospital
2012	Poster of Distinction, Pathology Depart.	Brigham and Women's Hospital
2009	Alpha Sigma Nu; Jesuit Honor Society	Creighton University
2007	Founder of Graduate Student Government	Creighton University
2000	Phi Sigma Tau; Philosophy Honors Society	Santa Clara University
1996-2000	Alpha Sigma Nu; Jesuit Honor Society	Creighton University

TRANSFERABLE/TECHNICAL SKILLS

Standard Biology Techniques

- Chemistry
- Extraction – liquid-liquid, distillation
 - Chromatography – multiple techniques (GC, HPLC, TLC and column) and chemistries (normal phase, reverse phase, size exclusion and ion exchange)
 - Colorimetric assay – direct (*e.g.*, 260/280) and indirect (*e.g.*, Bradford, resazurin)
- Molecular Biology
- DNA/RNA – extraction (*e.g.*, chromatography), purification (*e.g.*, gel) and analysis (qPCR, Sanger sequencing and NGS)
 - Protein – extraction (*e.g.*, liquid-liquid), purification (*e.g.*, chromatography, pull-down) and analysis (*e.g.*, WB)
 - Tissue – extraction (*e.g.*, rodent microdissection), embedding (*e.g.*, paraffin, OCT) and analysis (*e.g.*, IHC, IF)
- Tissue Culture
- Constructs – design, engineering and transfection of plasmids
 - Cell culture – maintenance and storage of standard adherent and suspension immortalized cell lines, establishment of cell line from primary culture
 - Tissue cultures – organ of Corti culture
- Rodent Management
- Database – programming skills in SQL and database design
 - Genetic Engineering – design and establishment of KO/KI mice lines
 - Husbandry – breeding, tracking and genetic screening
 - Physiology – metabolic (*e.g.*, weight, activity and calorimetric) and rodent necropsy

Advanced Biology Techniques

- Bioinformatics
- Programming – R, python, VB, SQL, html
 - Analysis – genetics/genomics (*e.g.*, alignment, annotation), protein/proteomics (*e.g.*, structural and functional prediction, interaction networks), pathology prediction (*e.g.*, ontology, population genetics)
- Physiology
- Electrophysiology – whole-cell patch clamp
 - Audiometry – DPOAE and ABR
- Advanced Microscopy
- Super-Resolution Microscopy - FRET
 - Fluorescent Lifetime Microscopy (FLIM)
- Spectrometry
- Small molecular analysis using triple quadrupole mass spectrometry (MS)

Clinical Experience

- Laboratory Practices
- Over 4 years of clinical experience practicing, implementing and development of SOPs under Good Laboratory Practice (GLP) environment
 - Over 10 years of academic experience practicing, implementing and development of advanced protocols
- Human Research
- Over 4 years of clinical experience developing and running assays under the Clinical Laboratory Improvement Amendments (CLIA)
 - Over 4 years of academic experience in human subject research regulated under an Internal Review Board (IRB)

Management

- Communications
- Several invited talks and awards and local and international science conferences
- Leadership
- Personally educated, trained and managed many students and technicians
 - Led and developed organizations involving hundreds of individuals

BIBLIOGRAPHY:

Original Publications:

Currall BB, Wong KE, Robertson NE, Penney KL, Cotter M, Wong GT, Chen M, Lunardi A, Reschke M, Hickox AE, Yin Y, Brown KK, Williamson RE, Ivanov A, Shen J, Quade BJ, Signoretti S, Arnos KS, Patsopoulos N, Banks AS, M. Liberman MC, Pandolfi PP, Morton CC. *Convergent Genomics Unveils C2orf43 in a Syndromic Prostate Cancer Disorder*. [In Preparation].

Currall BB, Wong KE, Morton CC. *The Significance of Balanced Chromosomal Rearrangements*. Clinical Genetics. [In Preparation - Solicited Review].

Ordulu Z, Wong KE, **Currall BB**, Ivanov RA, Pereira S, Gusella JF, Talkowski ME, Morton CC. *Describing Sequencing Results of Structural Chromosome Rearrangements with a Suggested Next-Gen Cytogenetic Nomenclature*. Am. J. Hum. Gen., 2014

Currall BB, Chiang C, Talkowski ME, Morton CC. *Mechanisms for Structural Variation in the Human Genome*. Curr Genet Med Rep. 2013 Jun 1;1(2):81-90.

Hallworth R, Stark K, Zholudeva L, **Currall BB**, Nichols MG. *The Conserved Tetrameric Subunit Stoichiometry of Slc26 Proteins*. Microsc Microanal, 2013. 19(4):799-807.

Currall, B., Rossino, D., Jensen-Smith, H., Hallworth, R. *The Roles of Conserved and Nonconserved Cysteiny Residues in the Oligomerization and Function of Mammalian Prestin*. J Neurophysiol, 2011. **106**(5):2358-67.

Currall, B., Jensen-Smith, H., Hallworth, R. *Homo- and Hetero-Oligomerization in the SLC26A Protein Family*. What Fire is in Mine Ears: Progress in Auditory Biomechanics: Proceedings of the 11th International Mechanics of Hearing Workshop. AIP Conference Proceedings, 2011. **1403**: 154-159.

Dempsey, K., **Currall, B.**, Hallworth, R., Ali, H. *A New Approach for Sequence Analysis: Illustrating an Expanded Bioinformatics View through Exploring Properties of the Prestin Protein*. Handbook of Research on Computational and Systems Biology: Interdisciplinary Applications, 2011. **1**: p. 202-23.

Dempsey, K., **Currall, B.**, Hallworth, R., Ali, H. *An Intelligent Data-Centric Approach Toward Identification of Conserved Motifs in Protein Sequences*. Association for Computer Machinery's International Conference on Bioinformatics and Computational Biology, 2010. **1**: p. 398-401.

Jensen-Smith, H., **Currall, B.**, Rossino, D., Tiede, L., Nichols, M., Hallworth, R. *Fluorescence Microscopy Methods in the Study of Protein Structure and Function*. Methods Mol Biol, 2009. **493**: p. 369-79.

Wang, X., Jia, S., **Currall, B.**, Yang, S., He, D. Z. *Streptomycin and Gentamicin have no Immediate Effect on Outer Hair Cell Electromotility*. *Hear Res*, 2007. **234**(1-2): p. 52-8.

Wu, X., **Currall, B.**, Yamashita, T., Parker, L. L., Hallworth, R., Zuo, J. *Prestin-Prestin and Prestin-GLUT5 Interactions in HEK293T Cells*. *Dev Neurobiol*, 2007. **67**(4): p. 483-97.

Hallworth, R., **Currall, B.**, Nichols, M., Wu, X., Zuo, J. *Studying Inner Ear Protein-Protein Interactions using FRET and FLIM*. *Brain Res*, 2006. **1091**(1): p. 122-31.

Abstracts:

Currall, B.B., Pillalamarri, V., Wong, K.E., Kammin, T., Pereira, S., Talkowski, M.E., Morton, C.C. *Advanced Next-Generation Sequencing Unveils Hearing Loss Genes*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2015.

Currall, B.B., Wong, K.E., Robertson, N.G., Lunardi, A., Reschke, M., Pandolfi, P.P., Morton, C.C. *Convergent Genomics Validates C2orf43 Role in Prostate Cancer*. American Society for Human Genetics Annual Meeting 2014. **Podium Presentation**.

Kammin, T., Wong, K.E., **Currall, B.B.**, Ordulu, Z.Z., Brand, H., Pillalamarri, V., Hanscom, C., Blumenthal, I., Gusella, J.F., Liao, E.C., Talkowski, M.E., Morton, C.C. *Balanced Chromosome Rearrangements Rapidly Annotate the Morbid Human Genome*. American Society for Human Genetics Annual Meeting 2014. **Podium Presentation**.

Currall, B.B., Yin, Y., Hoyos, T., Wong, K.E., Liao, E., Liberman, M.C., Morton, C.C. *A Common Lipase: The Role of the Poorly Annotated Gene C2orf43 in Hearing Loss, Obesity and Prostate Cancer*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2014. **Podium Presentation**.

Currall, B.B., Wong, K.E., Robertson, N.G., Hoyos, T., Hickox, A.E., Yin, Y., Quade, B.J., Liberman M.C., Liao, E. Morton, C.C. *A Balanced Chromosome Translocation Reveals Involvement of a Predicted Lipase in Weight Gain, Hearing Loss and Tumor Suppression*. American Society for Human Genetics Annual Meeting 2013.

Wong, K.E., Blumenthal, I., Brand, H., **Currall, B.B.**, Hanscom, C., Hoyos, T., Lucente, D., Ordulu, Z.Z., Stone, M.R., Pereira, S., Pillalamarri, V., Yuan, L.P., Gusella, J.F., Harris, D.J., Liao, E.C., Maas, R.L., Quade, B.J., Talkowski, M.E., Morton, C.C. *The Developmental Genome Anatomy Project (DGAP): Annotating the Human Genome from Balanced Chromosomal Rearrangements*. American Society for Human Genetics Annual Meeting 2013.

Currall, B.B., Robertson, N., Hoyos, T., Hickox, A.E., Wong, K.E., Liberman M.C., Liao, E. Morton, C.C. *A Balanced Chromosome Translocation Reveals a Predicted Lipase's Involvement in Sensorineural Hearing Loss*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2013. **Podium Presentation**.

Hallworth, R., Stark, K., Zholudeva, L., **Currall, B.B.**, Nichols, M. *The Slc26 Family Proteins in Membranes Are All Tetramers*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2013.

Currall, B.B., Robertson, N.G., Lindgren A.M., Talkowski, M.E., Morton, C.C. *Identifying Genes Associated with Hearing Loss through Chromosomal Translocations*. American Society for Human Genetics Annual Meeting 2012.

Currall, B.B., Robertson, N.G., Lindgren A.M., Talkowski, M.E., Morton, C.C. *Identifying Genes Associated with Hearing Loss through Chromosomal Translocations*. Harvard Inter-Hospital Pathology Research Celebration, 2012.

Currall, B.B., Robertson, N.G., Lindgren A.M., Talkowski, M.E., Morton, C.C. *Identifying Genes Associated with Hearing Loss through Chromosomal Translocations*. Brigham and Women's Pathology Research Celebration, 2012. **Winner of Poster of Distinction Award**.

Currall, B.B., Jensen-Smith, H., Hallworth, R. *Homo- And Hetero-Oligomerization in the Slc26a Family*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2012.

Lindgren, A.M., Talkowski, M.E., Hanscom, C., Chiang, C., Ernst, C., Ahsan, S., **Currall, B.B.**, Yuan, L., Lachke, S., Saadi, I., Harris, D.J., Maas, R.L., Quade, B.J., Gusella, J.F., Morton, C.C. *The Developmental Genome Anatomy Project (DGAP): Annotating the Genome by Cytogenetic and Sequencing Approaches*. American Society for Human Genetics Annual Meeting 2011.

Currall, B., Robertson, N., Brown, K., William, R., Morton, C. *A Balanced Chromosomal Translocation Reveals a Predicted Lipase involved in Sensorineural Hearing Loss*. Molecular Biology of Hearing and Deafness Conference, 2011.

Currall, B., Robertson, N., Brown, K., William, R., Morton, C. *A Balanced Chromosomal Translocation Reveals a Predicted Lipase involved in Sensorineural Hearing Loss*. Brigham and Women's Pathology Research Celebration, 2011.

Currall, B., Dempsey, K., Ali, H. Hallworth, R. *Homology Modeling of Prestin 1: The SulP Domain*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2011.

Currall, B., Dempsey, K., Ali, H. Hallworth, R. *Homology Modeling of Prestin 2: The STAS Domain*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2011.

Currall, B. and Hallworth, R. *Oligomerization in the Slc26 family*. Association for the Research in Otolaryngology Mid-Winter Meeting, 2010.

Dempsey, K., **Currall, B.**, Hallworth, R., Bastola, D., Ali, H. *Motif Identification in the Motor Protein Prestin*. 8th Annual Conference on Computational Systems Bioinformatics, 2009.

Dempsey, K., **Currall B.**, Bastola, D., Hallworth, R., Ali, H. *Pattern Detection in the Motor Protein Prestin: A Collaborative Approach*. 6th Annual Biotechnology and Bioinformatics Symposium (BIOT 2009), 2009. **Winner of Student Travel scholarship and Best Poster Award.**

Dempsey, K., **Currall, B.**, Bastola, D., Hallworth, R., Ali, H. *Motif Identification in the Motor Protein Prestin*. 7th Annual Nebraska Idea Networks of Biomedical Research Excellence (INBRE) Meeting, 2009.

Currall, B., Woods, J., Hallworth, R. *Mutation of Conserved Cysteines in Mammalian Prestin*. Association for Research in Otolaryngology Mid-Winter Meeting, 2009.

Currall, B., Tiede, L., Nichols, M., Hallworth, R. *Interactions of Inner Ear Proteins Prestin and GLUT5 Studied with a Novel Fluorescence Lifetime Imaging Method (apFLIM)*. Nebraska Innovation and Research Conference, 2007. **Winner of Student Poster Competition.**

Gunawan, S., **Currall, B.**, Scarsella, A. J. *et al. Monitoring of Total and Free (Unbound) Amprenavir Plasma Levels in HIV-1 Infected Patients*. 54th American Association for Clinical Chemistry Annual Meeting, 2003.

Gunawan, S., **Currall, B.**, Urmanita, T., Scarsella, A. J. *Treatment Drug Level Monitoring of Antiretroviral Agents in Patients with AIDS*. American Association of Pharmaceutical Scientists Annual Conference, 2002.