

CURRICULUM VITAE

Owatha Loye "Tootie" Tatum, Ph.D., MB(ASCP)^{CM}, HCLD/CC(ABB), PMP

PROFESSIONAL EXPERIENCE

- 2014-present **CEO**, Blackhawk Genomics LLC
- 2013-2015: **Laboratory Director** for Molecular Diagnostics, Pacific Toxicology Inc.
- 2011-present: **Project Management Group Lead**, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory
- 2009-2011: **Associate Professor (tenured)**, Texas Tech University Health Sciences Center School of Allied Health
- 2008-2011: **CLIA Laboratory Director**, Southwest Regional Wound Care Laboratories
- 2008-2011: **CLIA Laboratory Director**, Southwest Regional PCR Laboratories, LLC
- 2003-2011: **Assistant Program Director**, Texas Tech University Health Sciences Center School of Allied Health, Molecular Pathology Graduate Program
- 2002-2011: **CLIA Laboratory Director**, Texas Tech University Health Sciences Center Laboratory for Molecular Diagnostics
- 2002-2009: **Assistant Professor**, Texas Tech University Health Sciences Center School of Allied Health
- 1999-2002: **Research Associate**, Los Alamos National Laboratory, Bioscience Division
- 1996-1999: **Research Associate**, Los Alamos National Laboratory, Center for Human Genome Research/Joint Genome Institute

CURRENT CERTIFICATION AND LICENSURE

- State of New York - Certificate of Qualification (CoQ) in Genetic Testing, Molecular Pathology License Number TATUO1, 2014
- Project Management Institute – PMP certification, 2012
- State of Florida – Clinical Laboratory Director, 2011-present, License Number DI43809
- State of California – Clinical Genetics Molecular Biologist Scientist, 2011-present, License Number MTP347
- American Board of Bioanalysis – Board Certified Clinical Consultant, 2011-present
- American Board of Bioanalysis – Board Certified High Complexity Laboratory Director (HCLD), 2009-present. Certification #2080567
- American Society for Clinical Pathology Board of Certification, MB(ASCP)^{CM}, 2009-present, Certification Number 975

EDUCATIONAL BACKGROUND

University of California, Berkeley Hass School of Business	2015	M.B.A.
University of New Mexico School of Medicine <i>Major: Biomedical Sciences</i>	2002	Ph.D.
Texas Tech University <i>Major: Biology</i>	1997	M.S.
Texas Tech University <i>Major: Cell and Molecular Biology</i> <i>Minor: Chemistry</i>	1994	B.S.

PROFESSIONAL INTERESTS

- Development of advanced project management systems for large-scale genomic science and data management
- Development of novel solutions for delivery of high-quality, low cost next-generation genetic medicine into the hands of every medical practitioner
- Operational Excellence: Lean manufacturing and agile development principles
- Building diverse, powerful teams to address complex problems with innovative solutions

SUMMARY OF PROFESSIONAL ACCOMPLISHMENTS

- Built strategic alliances in genomic medicine translating into \$74M of gross revenue for clients in CY14.
- Introduced standardized project management processes and controls resulting in reduced cycle time, improved tracking and consistent quality of high volume next-generation genomic data
- Developed supply chain systems for DOE's Joint Genome Institute to adapt to growth in volume and diversity of genomic products
- Designed, validated and implemented clinical molecular diagnostics for microbial infections using quantitative real-time PCR and Roche 454 FLX sequencing platforms. These assays are now in use and federally approved for human molecular diagnostic use by Pathogenius and SpiroStat Laboratories. Both laboratories service clients worldwide.
- Founding Director for Southwest Regional Wound Care Laboratory (Molecular Diagnostics); management, validation and implementation of clinical diagnostic testing
- Founding Director for the Texas Tech University Health Sciences Center Laboratory for Molecular Diagnostics; management, validation and implementation of clinical diagnostic testing
- Developed course materials and curriculum, taught and supervised graduate students in the first NAACLS-accredited graduate molecular pathology training program in the

United States; advised and trained 92 graduate students, medical residents and Fellows

- Participated in the publicly-funded effort for initial sequencing and mapping of the human genome through the International Human Genome Mapping Consortium and International Human Genome Sequencing Consortium and the Joint Genome Institute-Los Alamos National Laboratory (LANL); developed core R&D innovations for high throughput DNA sequencing
- Optimized DNA sequencing protocols and processes for the Los Alamos National Laboratory Center for Human Genome Studies resulting in a four-fold increase in productivity and an annual M&S savings of \$400K while maintaining quality
- Developed a set of seven unique male-specific DNA markers for use in evolutionary biology and forensics which were chosen by LANL for pursuit of a U.S. patent
- Developed and implemented a method for high throughput BAC clone end sequencing that was 75% less expensive and more robust than other methods widely used. This resulted in selection of LANL by the DOE-Joint Genome Institute for the validation of finished BAC clones from other large sequencing centers

HONORS AND AWARDS

- 2013-present: Scientific Advisory Panel, American Board of Bioanalysis
2013-present: Voting Board Member, American Board of Bioanalysis
2011: Outstanding Faculty Member of the Year – Texas Tech University Health Sciences Center
2009: Tenured and Promoted to Associate Professor, TTUHSC School of Medicine
2007: Outstanding Teacher of the Year - Texas Tech University Health Sciences Center
2006: Teacher of the Year – Texas Tech University Health Sciences Center
2005: Outstanding Faculty Award – Texas Tech University Health Sciences Center
2004: Teacher of the Year – Texas Tech University Health Sciences Center
2000: Joint Genome Institute Achievement Award - U.S. Department of Energy
1999: Los Alamos Awards Program Team Performance Award - nominated, DNA Production Sequence Team, LANL-JGI Los Alamos National Laboratory Center for Human Genome Studies
1998-1999: Director's Fellowship Award - University of New Mexico School of Medicine
1998: Los Alamos Awards Program Team Performance Award - DNA Sequence Finishing Team, LANL-JGI Los Alamos National Laboratory Center for Human Genome Studies
1997: Los Alamos Awards Program Team Performance Award - DNA Sequence Finishing Team, LANL-JGI Los Alamos National Laboratory Center for Human Genome Studies

PATENTS

White, P.S., J.L. Longmire, **O.L. Tatum**, L. L. Deaven. Male-Specific DNA Markers. DOE Case No. S-91, 772. retained by Los Alamos National Laboratory, 1999

PROFESSIONAL SERVICE AND PROGRAM DEVELOPMENT

- Lawrence Berkeley Lab, Lab-wide Recognition Committee Member, 2015
- Lawrence Berkeley Lab, Lab-wide Recognition Committee Member, 2014
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Ascendant Laboratories, Seattle, WA December 2014
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Agendia Laboratories, Irvine, CA December 2013
- American Board of Bioanalysis Item Writer's Workshop, St. Louis, MO February 2013
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Pro Genetic Laboratory/ The Children's Hospital, Alhambra, CA September 2012
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of DDC DNA Diagnostics, Cincinnati, OH, May 2012
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Illumina Clinical Service Laboratory, San Diego, CA, May 2011
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Sequenom Laboratories, Grand Rapids, MI, March 2011
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Pathway Genomics, San Diego, CA, January 2011
- NAACLS Program Director and Site Visitor Training Task Force Member, 2010
- Team Leader - College of American Pathologists (CAP) site inspection of Exagen Diagnostics, Albuquerque, NM, March 2010
- NAACLS Program Paper Reviewer - University of Cincinnati Clinical Laboratory Science Program, December 2009
- Team Leader and Molecular Pathology Specialty Inspector - College of American Pathologists (CAP) site inspection of Siemens Medical Solutions, Berkeley, CA, December 2009
- Team Leader - College of American Pathologists (CAP) site inspection of TZAM Laboratories, Chicago, IL June 2009
- American Society of Human Genetics GENA Mentor and Program Participant, 2008-present
- NAACLS Program Paper Reviewer - Michigan State University DMS Program, December 2008
- Member of the American Society for Human Genetics - 2007 to present
- NAACLS Site Visitor – San Francisco State University Clinical Laboratory Science Program March 7-9, 2006
- Team Member – College of American Pathologists (CAP) site inspection of Quest Diagnostics, Chantilly, VA June 2005
- Editorial Review Board, *Lab Medicine*, 2004-2012
- Mentor, Lauro Cavazos and Ophelia Powell-Malone Mentoring Program (mentoring of underrepresented groups), Texas Tech University, 2004-2005
- Molecular Pathology Advisory Committee, Texas Tech University Health Sciences Center, 2003-present

- On-campus recruitment of students for the graduate program in Molecular Pathology at Texas Tech University Health Sciences Center, 2003
- Texas Tech University Health Sciences Center Institutional Biohazards Committee Member, 2002-present
- Texas Tech University Health Sciences Center Biohazardous Agent Security Committee Member, 2003-present
- Organization and promotion of a workshop in large-scale microarray technologies for use in the clinical setting (in conjunction with Affymetrix Corporation) at the TTUHSC, January 29-31, 2003
- Faculty advisor for Clinical Lab Science undergraduate and Molecular Pathology graduate students, 2002-present
- Vice President, Los Alamos Women in Science, 2001

PUBLIC SCIENCE SERVICE ACTIVITIES

- American Society of Human Genetics GENA Program Mentor, 2008-2009
- “Science – It’s a Girl Thing”, Lubbock, TX 2008
- Shake Hand With Your Future, Lubbock, TX 2006
- Shake Hand With Your Future, Lubbock, TX 2005
- Shake Hand With Your Future, Lubbock, TX 2004
- “Science – It’s a Girl Thing”, Lubbock, TX 2004
- Rural Day of Health, Lubbock, TX 2004
- Shake Hand With Your Future, Lubbock, TX 2003
- Science Fair Judge, Los Alamos Public Schools, 2002
- Lecturer for Ghost Ranch Science Day Camp, Ghost Ranch, NM 2002
- Lecturer for Ghost Ranch Science Day Camp, Ghost Ranch, NM 2001
- Science Fair Judge, Santa Clara Pueblo, NM 1997-1999

COMMUNITY OUTREACH AND SERVICE HIGHLIGHTS

- Director and Founder, Carla’s Fund for Disaster Search Dogs, Non-Profit 501(c)3 organization, Concord, CA 2014-present
- Canine Handler, FEMA California Task Force 3 Urban Search and Rescue, 2011-present
- Junior League of Lubbock, Member, 2004-2009
- Regional CERT Coordinator, South Plains Citizen’s Corps US Freedom Corps Program, 2005-2009
- Director and Founder, New Mexico Disaster Dogs, Non-Profit 501(c)3 organization, Los Alamos, NM 2001-2005

PLATFORM PRESENTATIONS- INVITED

10. **Tatum, O.J.** Precision Medicine and the Promise of Molecular Diagnostics. AAB and the College of Reproductive Biology Annual Meeting, Las Vegas, NV May 14-16, 2015

9. **Tatum, T.** Training Graduate Students in the Genomic Age: The Challenges of Molecular Diagnostic Pathology. Texas Association of Clinical Laboratory Science Annual Meeting, Austin, TX April 2-5, 2008
8. **Tatum, O.L.** "DNA-Based Human Identification" as a CEU activity to medical technologists and physicians nationwide. TTUHSC HealthNet Programs. 2008.
7. **Tatum, O.L.** "Update: Introduction to Molecular Diagnostic Technology" as a CEU activity to medical technologists and physicians nationwide. TTUHSC HealthNet Programs. 2007.
6. TTUHSC School of Nursing "DNA Forensics in Nursing" workshop **keynote speaker**, May 6, 2006.
5. **Tatum, O.L.** "Human Identification by STR Typing" as a 2-part CEU activity to medical technologists nationwide. (reference: TTUHSC HealthNet Program # 10605 and 10705). 2006.
4. **Tatum, O.L.** "Introduction to Molecular Diagnostic Technology" as a CEU activity to medical technologists and physicians nationwide. (reference: TTUHSC HealthNet Program # 10205). 2006.
3. **Tatum, O.L.** "The Use of DNA-Based Technologies in the Courtroom." Lubbock Family Law Association. 2003.
2. **Tatum, O.L. (presenter)** and P.S. White. LANL-JGI sequencing process enhancement and quality improvement. International Genome Sequencing and Analysis Conference XI, Miami Beach, FL. 1999.
1. **Tatum, O.L.(presenter)** and L.D. Densmore III. TAPS: A Powerful New Method for Evolutionary Biology. Southwestern Association of Naturalists, Shreveport LA. 1995.

REFEREED POSTER PRESENTATIONS AND ABSTRACTS

19. D. L. Campos, **T. Tatum**, M.M. Brashears, E. Karunasena. IL-17 Production in Granulomas from Mycobacterium avium subsepcier paratuberculosis-infected tissues. American Society for Microbiology Annual Meeting. New Orleans, LA, May 20-24, 2011.
18. **Owatha L. Tatum.** Training Graduate Students in the Genomic Age: The Unique Challenges of Molecular Diagnostic Pathology. American Association of Bioanalysts Annual Meeting, 2009. Orlando, FL, June 4-6, 2009.
17. Shen CL, Yeh JK, Stoecker BJ, Samathanam C, Graham S, Dunn DM, **Tatum O**, Dagda R, Chyu M-C, Liu X, Tubb C, Wang X, Wang JS. Green tea polyphenols protects bone microarchitecture in female rats with chronic inflammation-induced bone loss. Annual Meeting of American Society of Bone and Mineral Research, September 2008. JBMR 23:s458, 2008.
16. **Owatha L. Tatum.** Training Graduate Students in the Genomic Age: The Challenges of Molecular Diagnostic Pathology. American College of Medical Genetics Annual Meeting, 2008. Phoenix, AZ March 11-16, 2008.

15. Lori Rice-Spearman, Ericka Hendrix, and **Tootie Tatum**. Designing a 21st Century Molecular Pathology Degree Program. Clinical Laboratory Educator's Conference. Annual Meeting. Savannah, GA 2008.
- 14 Chwan-Li Shen, James K. Yeh, **Tootie Tatum**, Jia-Sheng Wang. Green Tea Polyphenols Protect Bone Microarchitecture in Female Rats. American Society for Bone and Mineral Research, Annual Meeting. 2008.
13. Kathryn McMahon, Chwan-Li Shen, Brooke Stewart, Jodie Peterson and **Tootie Tatum**. Effect of long-chain n-3 PUFA on inflammation during osteoblastogenesis. American Society for Bone and Mineral Research, Annual Meeting. 2006.
12. **Owatha L. Tatum**, Mira Dimitrijevic-Bussod, Viviana S. Balzaretta-Maggi and Donna M. Gadbois. The Cell Environment and the Cell Cycle Response to Ionizing Radiation. Bioscience Division Review – Los Alamos National Laboratory, May 31, 2001.
11. Lynne Goodwin, **Owatha Tatum**, Olga Chertkov, Judith Cohn, and P. Scott White. Development and Evaluation of a PCR-Based Sequencing Routine for Use on the ABI 3700 Capillary Machine. Department of Energy Human Genome Program Contractor-Grantee Workshop VIII, Santa Fe, NM, February 27-March 2, 2000.
10. **Owatha L. Tatum**, Andrew W. Womack, Mark O. Mundt, and Norman A. Doggett . Contamination of BAC Clones by E. coli IS186 Insertion Elements. Department of Energy Human Genome Program Contractor-Grantee Workshop VIII, Santa Fe, NM, February 27-March 2, 2000.
9. **Tatum, O.L.**, White, P.S. JGI-LANL Sequencing cost reduction and quality improvements: R&D results. Department of Energy Human Genome Program Contractor-Grantee Workshop VII, Oakland, CA, 1999.
8. Bussod, M., N. Doggett, J. Fawcett, D. Ricke, K. Watson, **O.L.Tatum**, P.S. White, and M. Mundt. Sequence validation and quality assessment at the Joint Genome Institute. Department of Energy Human Genome Program Contractor-Grantee Workshop VII, Oakland, CA, 1999.
7. Torney, D.C., J.L. Longmire, D.C. Bruce, J. Fawcett, M. Campbell, J. Tesmer, M. Maltbie, B. Taggett, **T. Tatum**, P. Jewett, J. Meyne, N. Lenhert, Y. Valdez, S. Bailey, A. Schliep1, L.L. Deaven, and N.A. Doggett. One Tier Pooling of a Total Genomic BAC Library. Department of Energy Human Genome Program Contractor-Grantee Workshop VII, Oakland, CA, 1999.
6. White, P.S., H. Chi, L.L. Deaven, E. Saunders, **O.L. Tatum**, R. K. Moyzis. Finished sequence of 7q telomere region: features, validation and polymorphism detection. Department of Energy Human Genome Program Contractor-Grantee Workshop VI, Santa Fe NM, 1997.
5. Chi, H-C, E. H. Saunders, J. M. Buckingham, D. O. Ricke, A. C.Munk, R. Lobb, S. Y.-J. Ueng, M. O. Mundt, P. S. White, **O. L. Tatum**, and R. K. Moyzis. 7q telomere: complete sequencing. Department of Energy Human Genome Program Contractor-Grantee Workshop VI, Santa Fe NM, 1997.
4. White, P.S., **O.L. Tatum**, L.L. Deaven, J. L. Longmire. New male-specific, polymorphic tetranucleotide microsatellites from the human Y chromosome. Department of Energy Human Genome Program Contractor-Grantee Workshop VI, Santa Fe NM, 1997.

3. White, P.S., **O.L. Tatum**, L.L. Deaven, J. L. Longmire. New male-specific, polymorphic tetranucleotide microsatellites from the human Y chromosome. Human Evolution Meeting, Cold Spring Harbor Laboratory, Cold Spring Harbor NY, 1997.
2. White, P.S., **O.L. Tatum**, L.L. Deaven, J. L. Longmire. New male-specific, polymorphic tetranucleotide microsatellites from the human Y chromosome. American Society of Human Genetics 47th Annual Meeting, Baltimore MD, 1997.
1. White, P.S., **O.L. Tatum**, M. Petrovic, Z. Wang, B. Marrone. HLA genotype analysis of chronic beryllium disease sensitivity. Department of Energy Human Genome Program Contractor-Grantee Workshop VI, Santa Fe NM, 1997.

REFERREED PUBLICATIONS

22. E. Karunasena, P.C. Kurkure, R.D. Lackey, K.W. McMahon, E.P. Kiernan, S. Graham, M.S. Alabady, D.L. Campos, **O.L. Tatum** and M.M. Brashears. 2013. Effects of probiotic *Lactobacillus animalis* in murine *Mycobacterium avium* subspecies *paratuberculosis* infection. BMC Microbiology. 13:8
21. **O.L. Tatum** and S. E. Dowd. 2012. Wound Healing Finally Enters the Age of Molecular Diagnostic Medicine. Adv. Wound Care. 3(10)
20. C. L. Shen, C. Samathanam, **O. L. Tatum**, S. Graham, C. Tubb, J. J. Cao, D.M. Dunn and J. S. Wang. 2011. Green tea polyphenols avert chronic inflammation-induced myocardial fibrosis of female rats. Inflammation Research. 2011, 60(7): 665-672.
19. Camp, C. and **O. L. Tatum**. 2010. *Acinetobacter baumannii* as a Highly Successful Nosocomial Pathogen in Times of War. Lab Medicine. 41(11): 649-657.
18. G. Gibson and **O. L. Tatum**. 2010. Molecular Methods on the Horizon for Improved Diagnosis of Adult Polycystic Kidney Disease. Assoc. Genet. Tech. 36(2): 52-57.
17. C.L. Shen, J.K. Yeh, J.J. Cao, **O. L. Tatum**, R.Y. Dagda, J.S. Wang. 2010. Synergistic effects of green tea polyphenols and alphacalcidol on chronic inflammation-induced bone loss in female rats. Osteoporosis International. 21(11):1841-1852.
16. C.L. Shen, J.K. Yeh, J.J. Cao, **O.L. Tatum**, R.Y. Dagda and J.S. Wang. 2009. Green Tea Polyphenols Mitigate Bone Loss of Female Rats in a Chronic Inflammation-induced Bone Loss Model. J. Nutr. Biochem. 21(10):968-974.
15. **O.L. Tatum**. 2009. "Molecular Diagnostics." In: *A Concise Review of Clinical Laboratory Science*. (Joel Hubbard, et al.), Williams and Wilkins, Baltimore, MD.
14. K. Andrews and **O.L. Tatum**. 2008. Cystic Fibrosis Carrier Screening: Making the Right Choice for Patients and for the Laboratory. J. Assoc. Genet. Tech. 34(4): 172-176
13. E. Cardenas and **O.L. Tatum**. 2008. von Willebrand Disease: Elucidating the Clinical Picture Through the Use of Molecular Methods. Lab Medicine. 39(12)6-11
12. Chwan-Li Shen, Kathryn K. McMahon, Jodie Peterson, **Owatha L. Tatum**, Dale M. Dunn. 2008. Effect of long-chain n-3 PUFA on inflammation mediators during osteoblastogenesis. J. Med. Food. 11(1) 105-110.
11. S. Roper and **O.L. Tatum**. 2008. Clinical Aspects of DNA-Based Human Identity Testing. J. Forensic Nurs. 4(4):150-156.
10. Ravirala RS, Barabote RD, Wheeler DM, Reverchon S, **Tatum O**, Malouf J, Liu H, Pritchard L, Hedley PE, Birch PR, Toth IK, Payton P, San Francisco MJ. Efflux pump gene expression in *Erwinia chrysanthemi* is induced by exposure to phenolic acids. Mol Plant Microbe Interact. 2007 Mar;20(3):313- 20.
9. Swackhammer, R. and **O. L. Tatum**. 2007. Survey of Candidate Genes for Autism Susceptibility. J. Assoc. Genet. Tech. 33:8-16.
8. **T. Tatum**, and Hendrix, E. 2006. Training Technologists for the Genomic Age. Clin Lab Sci. 19(3):148-152.

7. International Human Genome Sequencing Consortium. 2004. Finishing the euchromatic sequence of the human genome. *Nature* 431:931-945. (Full author list appears in supplementary information at <http://www.nature.com/nature> .)
6. J. A. Wilkinson, L. Drewes, **O.L. Tatum**. 2002. A molecular phylogenetic analysis of the family Rhacophoridae with an emphasis on the Asian and African genera. *Mol. Phylogenetics and Evol.* 24(2) pp. 265-273.
5. International Human Genome Sequencing Consortium. 2001. Initial sequencing and analysis of the human genome. *Nature* 409:860-921. (Full author list appears in the supplementary information at <http://www.nature.com/nature> .)
4. Longmire JL, JL Roach, M Maltbie, PS White, **OL Tatum**, KD Makova, DC Hahn. 2001. Tetranucleotide microsatellite markers for the brown-headed Cowbird *Molothrus ater* . *J Avian Biol.* v. 32(#1) pp. 76-78
3. Wang, Z., P.S. White, M. Petrovic, **O.L. Tatum**, L. S. Newman, L.A. Maier, B.L. Marrone. 1999. Differential susceptibilities to chronic beryllium disease contributed by different Glu-69 HLA-DPB1 and -DPA1 alleles. *J. Immun.* 163:1647-1653
2. White, P.S., **O.L. Tatum**, L.L. Deaven, J.L. Longmire. 1999. New polymorphic tetranucleotide microsatellites from the Y chromosome. *Genomics* 57:433-437
1. White, P.S., **O.L. Tatum**, L.D. Densmore. 1998. Mitochondrial DNA. In *Molecular Genetic Analysis of Populations: A Practical Approach*. (A.R. Hoelzel, ed.), IRL Press, Oxford

CLINICAL WORKSHOPS PRESENTED

Annual two-week practicum in molecular diagnostics for TTUHSC Department of Pathology residents (School of Medicine). 2005, 2006, 2007, 2008, 2009, 2011.

TTUHSC SON National CNE Workshop in Forensic DNA Testing. May 2006.

PROFESSIONAL MEMBERSHIPS (CURRENT)

- Project Management Institute, 2012-present
- American Association of Bioanalysts, 2009-present
- American Society for Clinical Pathology (ASCP), 2003-present