

Michael L. Metzker

I. General Biographical Information

a. Personal:

Home address: 12015 Surrey Lane, Houston, TX 77024
Date of birth: September 20, 1962
Citizenship: United States

b. Education:

1984 University of California — Davis, Davis, CA
B.S. — Biochemistry & Biophysics
1996 Baylor College of Medicine, Houston, TX
Ph.D. — Molecular & Human Genetics

c. Academic Appointments:

2014-to-Present Adjunct Associate Professor, Department of Molecular & Human Genetics & Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX
2009-to-Present Adjunct Associate Professor, Cell & Molecular Biology, Baylor College of Medicine, Houston, TX
2009-to-Present Adjunct Associate Professor, Department of Chemistry, Rice University, Houston, TX
2009-to-2014 Associate Professor, Department of Molecular & Human Genetics & Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX
2001-to-2008 Adjunct Assistant Professor, Department of Chemistry, Rice University, Houston, TX
2000-to-2008 Adjunct Assistant Professor, Cell & Molecular Biology, Baylor College of Medicine, Houston, TX
1999-to-2008 Assistant Professor, Department of Molecular & Human Genetics & Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX

d. Corporate positions and other professional experiences:

2013-to-Present Founder, President & CEO, RedVault Biosciences, Houston TX
2012 Founder, CTO, LaserGen, Inc.
2009 Appeared on ABC's *20/20* profiling Collin Co. HIV criminal case
2009 Collin Co. work appeared on *Oprah*
2007-to-2009 Expert witness for HIV criminal case, Collins Co., TX
2004 Expert witness for HIV criminal case, Thurston Co., WA
2003 Appeared on *truTV's* series *Forensics Files* in episode #152, "Shot of Vengeance"
2002-to-2012 Founder, President & CEO, LaserGen, Inc., Houston TX
1997-to-1999 Expert witness for HIV criminal case, Lafayette, LA
1996-to-1999 Senior Research Biologist, Merck Research Laboratories, West Point, PA
1987-to-1991 Associate Scientist, Applied Biosystems, Inc. (ABI), Foster City, CA
1984-to-1987 Research Chemist, Bio-Rad Laboratories; Richmond, CA

1983-to-1984 Laboratory Technician, Aerojet-General Corporation; Sacramento, CA

e. Prior Expert Experience

In the past four years, I have provided expert testimony at trial or deposition in the following cases:

- Life Technologies, Inc. v. Illumina, Inc., C.A. No. 11-cv-00703-CAB (on behalf of Life Technologies)
- Syntrix Biosciences, Inc. v. Illumina, Inc., C.A. No. 3:10-cv-05870-BHS (on behalf of Syntrix Biosciences)
- Ariosa Diagnostics, Inc. v. Sequenom, Inc., C.A. No. 3:11-cv-06391-SI (on behalf of Sequenom)
- Verinata Health, Inc. v. Sequenom, Inc., C.A. No. 3:12-cv-00865-SI (on behalf of Sequenom)
- Esoterix Genetic Laboratories, LLC and The Johns Hopkins University v. Life Technologies, N.C. No. 1:12-cv-1173 (on behalf of Life Technologies)
- Intelligent Biosciences, Inc. vs. Illumina Cambridge, Ltd, IPR2013-00517 (on behalf of Intelligent Biosciences)
- Scot E. Dowd, individually, and, Molecular Research, LP d/b/a (MR DNA) v. Research & Testing Laboratory of the South Plains, LLC (RTL). No. 5:13-CV-248-C (on behalf of RTL)
- Joseph A. Sorge v. Eric H. Kawashima al., Patent Interference Nos. 106,109 & 106,020 (on behalf of Sorge)
- Wellbeing Genomics v. Dr. Harper, Mr. Urman, PLLG, and Qivana, D-1-G-14-002452 (on behalf of Wellbeing Genomics)
- Intelligent Biosciences, Inc. vs. Illumina Cambridge, Ltd, 3:16-cv-02788-WHA (on behalf of Intelligent Biosciences)
- Irori Technologies v. Procopio, Cory, Hargreaves & Savitch LLP, and Eleanor M. Musick, JAMS Ref No. 1240022033 (on behalf of Procopio)

II. Research Information

a. Research Support

1 — Current research support

Technical description: The research proposed here is oriented toward significantly improving the methods of sample preparation, which will lead to improved efficiency, accuracy, and reduced costs to sequence DNA.

Funding agency: NIH/NCI

Investigator relationship: PI: Michael Metzker; co-PI: Chris Weier

Date of funding: 01/14/2016 – 11/13/2016

Annual costs: \$146,801

Grant: R43 CA196134-01A1, entitled, “Efficient Creation of Long-Template Libraries for Next-Generation Sequencing”

Technical description: Leveraging advanced molecular genomics technology and novel nucleic-acid detection methods, RedVault Biosciences’ proposes an innovative approach to reliably interrogate plasma specimens for clinically relevant miRNAs. The methodology is a robust,

rapid, specific, sensitive and cost-effective solution that meets the stringent criteria laid out for effective diagnostic platforms. Successful development of this technology may deliver a fundamental advancement in the cancer screening, tumor surveillance, and miRNA research fields.

Funding agency: NIH/NCI

Investigator relationship: PI: Chris Weier; co-PI: Michael Metzker

Date of funding: 04/01/2016 – 12/31/2016

Annual costs: \$150,000

Grant: R43 CA200398-01A1, entitled “Homogenous digital RCR analysis of plasma miRNAs in pancreatic cancer”

2 — Pending research support

Technical description: The demand for robust, reliable, and minimally invasive diagnostic technologies represents a pressing need in the early detection, stratification, and surveillance of microvascular complications in Type 1 diabetes (T1D). Cell-free microRNAs (miRNAs) represent a novel class of biomarkers that have shown promise during initial studies and may have significant clinical utility. RedVault Biosciences proposes to establish the feasibility of a novel multiplex diagnostic platform to precisely characterize cell-free miRNA signatures, specifically those miRNAs of immediate utility in diagnosis, stratification, and intervention in T1D microvascular complications.

Funding agency: NIH/NIDDK

Investigator relationship: PI: Chris Weier; co-PI: Michael Metzker

Date of funding: 12/01/2016 – 08/31/2017

Annual costs: \$225,000

Grant: R43 DK112501-01, entitled “Non-invasive resolution of miRNAs signatures in Type 1 diabetes”

3 — Completed research support:

Technical description: The major goals of this project are to support sequencing and technology development in the areas of human genetics, cancer, the microbiome and comparative genomics.

Funding agency: NIH/NHGRI

Investigator relationship: Richard A. Gibbs; Co-Director Boerwinkle; co-PIs Muzny, Wheeler, Metzker, Worley

Date of funding: 11/01/2011 – 02/08/2015; effective end 02/08/14

Annual costs: \$20,119,270

Grant: U54 HG003273-09, entitled, “The Human Genome Sequencing Center”

Technical description: This proposal represents a request for continued funding of the Mayo Clinic Pharmacogenomics Research Network (PGRN) grant, “Pharmacogenetics of Phase II Drug Metabolizing Enzymes.” The Mayo PGRN is an integrated, multidisciplinary, pharmacogenomic research effort that is based on a decades-long focus at Mayo on the pharmacogenetics of phase II (conjugating) drug metabolizing enzymes.

Funding agencies: NIGMS, NHLBI, NCI, NIDA, NICHD, NHGRI, NIMH, NIAMS, ORWH

Investigator relationship: Richard Weinshilboum; Co-PIs Gibbs, Metzker, Scherer

Date of funding: 7/01/10 to 06/30/15; effective end 02/08/14

Annual costs: \$425,709

Grant: 2U19GM061388-12, entitled “Pharmacogenetics of Phase II Drug Metabolizing Enzymes”

Technical description: This proposal seeks to expand our existing scientific work on HIV forensic studies by developing a robust 'pathogen toolkit' for source identification across a range of biological agents

Funding agencies: National Institute of Justice

Investigator: Michael L. Metzker

Date of funding: 01/01/12 to 12/31/13

Annual costs: \$341,017

Grant: 2011-DN-BX-K534 entitled, "Extending the Microbial Forensic Toolkit Through Whole Genome Sequencing and Statistical Phylogenomics"

Technical description: This Phase I SBIR grant application proposes three aims: (i) identify the most efficient NGS platform by sequencing *E. coli* MG1655 using six platforms, (ii), conduct mixing experiments using purified gram negative and gram positive bacteria using the platform selected in aim (i), and (iii) conduct mixing experiments described in aim (ii) in the presence of human blood to simulate animal wound models.

Funding agency: Office of the Secretary of Defense, Defense Health Program

Investigator relationship: David Hertzog; co-PI Metzker

Date of funding: 02/01/11 to 08/31/12

Annual costs: \$150,000 *Total costs:* \$150,000

Contract: W81XWH-12-C-0061, entitled "Feasibility Study to Explore NGS Technologies in Pathogen Identification"

Technical description: The goal is to evaluate the feasibility of our next-generation, cyclic reversible termination (CRT) sequencing approach by targeting 1,000 candidate genes on high-density oligonucleotide chips.

Funding agency: NIH: NHGRI

Investigator: Michael L. Metzker

Date of funding: 08/01/08 to 05/31/11

Annual costs: \$230,250 *Total costs:* \$422,125

Grant: 1R21 HG004757, entitled "Targeted CRT Sequencing of 1000 Genes in KPD Patients"

Technical description: The goal is to develop ultrafast sequencing-by-synthesis (SBS) technology that is practical on a genomic scale.

Funding agency: NIH: NHGRI

Investigator: Michael L. Metzker

Date of funding: 10/01/04 to 09/30/08

Annual costs: \$468,575 *Total costs:* \$2,933,762

Grant: 1 R01 HG003573-01 entitled, "Ultrafast SBS Method for large-Scale Human Resequencing"

Technical description: Development of a novel portable DNA sequencer for rapid identification of single nucleotide polymorphisms (SNPs) in common disease.

Funding agency: NIH: NHGRI

Investigator: Michael L. Metzker

Date of funding: 06/07/04 to 02/28/06

Annual costs: \$421,914 *Total costs:* \$532,761

Grant: 1 R41 HG003265-01 entitled, "Development of a Portable PME DNA Sequencer"

Technical description: Development of novel FluoroBase dyes and associated nucleotide triphosphates, which have the potential to create sets of spectrally resolvable dye-terminators.

Special note: Originally awarded to Michael L. Metzker as STTR application: Grant converted in SBIR

Funding agency: NIH:NHGRI

Investigator relationship: Vladislav A. Litosh; co-PI Metzker

Date of funding: 07/11/03 to 12/31/05

Annual costs: \$213,064

Total direct costs: \$289,689

Grant: 1 R43 HG002632-01A1 entitled, "Synthesis of FluoroBase Nucleotides for DNA Sequencing"

Technical description: The major goal of this project is to produce a draft sequence of the rhesus macaque and bovine genomes and extract maximal biological information from these data.

Funding agency: NIH: NHGRI

Investigator relationship: Richard A. Gibbs; co-Director Weinstock, co-PIs Muzny, Wheeler, Metzker, Worley

Date of funding: 11/10/03 to 10/31/06

Annual direct costs: \$21,028,110

Total direct costs: \$89,072,698

Grant: 1 U01 HG02051 entitled, "Large Scale Sequencing at BCM-HGSC"

Technical description: The goal of this project is to generate a draft sequence of the genome of *Bos Taurus*.

Funding agency: USDA

Investigator relationship: Richard A. Gibbs; co-Director Weinstock, co-PIs Muzny, Wheeler, Metzker, Worley

Date of funding: 12/01/03 to 11/31/05

Annual direct costs: \$3,879,953

Total direct costs: \$7,853,612

Grant: TEXR-2003-05478 entitled, "Bovine Genome Sequencing Project (BGSP)"

Technical description: Development of a novel multi-color fluorescent detection apparatus with potential application for direct detection of targeted regions from genomic DNA materials.

Funding agency: NIH: NHGRI

Investigator: Michael L. Metzker

Date of funding: 04/01/03 to 03/31/05

Annual costs: \$150,000

Total costs: \$250,000

Grant: 1 R21 HG002443-01A2, entitled "Development of Fluorescent Detector for DNA Sequencing"

Technical description: Development of a novel DNA sequencing strategy by synthesis for application in high-throughput single nucleotide polymorphism (SNP) analysis.

Funding agency: NIH: NHGRI

Investigator: Michael L. Metzker

Date of funding: 09/30/03 to 03/31/05

Annual costs: \$310,504

Total costs: \$436,400

Grant: 1 R41 HG003072-01 entitled, "Screening *Taq* Pol I Variants using 3'-O-Modified-dNTPs"

Technical description: Pilot project to synthesize and characterize modified nucleoside for potential activity against HIV-1.

Funding agency: Robert A. Welch Foundation

Investigator: Michael L. Metzker

Date of funding: 06/01/01 to 07/31/04

Annual costs: \$50,000

Total costs: \$158,000

Grant: Q-1518 entitled, "Characterization of HIV-1 drug resistance using 3'-saturated nucleotides"

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.