**Name: Emily S. Mathews, PhD Date of Last Update: 6/3/2024**

**Job Title: DNA Analyst**

**Indicate all disciplines in which you currently perform testing or calibration work:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Seized Drugs** |  |  | **Blood Alcohol (Toxicology – Testing)** |
|  | **Biology** |  |  | **Firearms/Toolmarks** |
|  | **Latent Prints (Friction Ridge)** |  |  | **Crime Scene** |
|  | **Breath Alcohol (Toxicology - Calibration)** |  |  | **Impressions (Footwear)** |

**For each discipline checked in the table above, list all categories in which you perform work:**

|  |
| --- |
| DNA – Nuclear, Body Fluid Identification |

**Education:** List all higher academic institutions attended (list high school only if no college degree has been attained)**.**

|  |  |  |  |
| --- | --- | --- | --- |
| Institution | Dates Attended | Major | Degree Completed |
| University of Colorado | 08/2011 – 05/2016 | Human Medical Genetics and Genomics | Ph.D. |
| University of Dublin -Trinity College | 10/2007 – 05/2011 | Human Genetics | B.A. |

**Continuing Education:**  List formal coursework, conferences, workshops, in-service and other training received applicable to past and current forensic related positions.

|  |  |  |
| --- | --- | --- |
| Course Title | Source of Training | Date(s) of Training |
| Forensic Biology Training Program | Alaska Scientific Crime Detection Laboratory | 01/27/2020 – 09/03/2020 |
| 2020 Quality Assurance Standards Auditor Assessment | Federal Bureau of Investigation | 06/18/2020 – 06/23/2020 |
| CODIS 9.0 CBT | CODIS Computer Based Training Modules | 06/04/2020 |
| 31st International Symposium on Human Identification | Virtual International Conference, Promega | 09/14/2020 – 09/16/2020 |
| National CODIS Conference | FBI | 12/8/2020 – 12/10/2020 |
| AAFS 2021 Conference | American Academy of Forensic Science | 02/15/2021- 02/19/2021 |
| Cognitive Bias | Dr. Itiel Dror | 03/17/2021 |
| Qiagen Training – EZ2 and QIAcube Connect | Carrie Mayes and Bryan Davis | 05/18/2022 |
| Forensic Analysis of Human DNA Conference | Gordon Research Conference | 06/19/2022 - 06/24/2022 |
| Unbiased Policing | Anchorage Police Department – Chelsey Reeves | 10/18/2022 |
| RapidHIT ID Applied Biosystems Training | ThermoFisher Scientific – Kristen Smith | 10/25/2022 |
| Probabilistic Genotyping of Evidentiary DNA Typing Results | Forensic Technology Center of Excellence | 11/09/2023 |
| STRmix Full User Training Workshop | STRmix | 04/08/2024-04/11/2024 |

**Testimony:** Complete the information below for testimony provided.

|  |  |  |
| --- | --- | --- |
| Discipline or Category of Testimony | Period of Time in Which Testimony Occurred | Approximate Number of Times Testified |
| Forensic Biology (Body Fluid Identification/DNA) | 2021 - 2024 | 15 |

**Professional Affiliations:** List professional organizations of which you are or have been a member. Indicate any offices or other positions held and the date(s) of these activities.

|  |  |  |
| --- | --- | --- |
| Organization | Period of Membership | Offices or Positions Held/Dates |
| Colorado Clinical and Translational Sciences Institute | 2013-2016 | N/A |
| Society For Developmental Biology | 2012 | N/A |
| American Association for the Advancement of Science | 2011-2016 | N/A |

**Employment History:** List all scientific or technical positions held, particularly those related to forensic science. **List current position first.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Title** | DNA Analyst | **Tenure** | 01/27/2020 - present |
| **Employer** | Anchorage Police Department | | |
| Provide a brief description of principal duties: | | | |
| Perform biological/DNA screening on submitted evidence for body fluids. DNA analysis on forensic casework. Prepare reports, perform technical and administrative reviews, and provide expert witness testimony in court. Generate DNA profiles of forensic samples for entry into state and national databases. Equipment maintenance, reagent preparation and verification, and validation support as needed. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Title** | Postdoctoral Research Associate | **Tenure** | 09/01/2016 – 01/24/2020 |
| **Employer** | Washington University, School of Medicine, St. Louis, MO | | |
| Provide a brief description of principal duties: | | | |
| Conducted independent research on two independent projects in malaria using genetic techniques. Main project focused on temperature tolerance of the malaria parasite during the blood-stage. Additional technical expertise gained in cell culture, *in vitro* and cell culture bioassays, recombinant protein expression, flow cytometry, etc. Generated graphics for data presentations. Wrote and aided in production of grant proposals and papers for peer-reviewed journals (publications still in progress as of 02/2020). Awarded two fellowships during postdoctoral tenure, the Infectious Disease Training Fellowship through Washington University and the highly competitive Ruth L. Kirschstein Postdoctoral Individual National Research Service Award from the National Institute of Allergy and Infectious Diseases. Routinely presented at local and national conferences. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Title** | PhD Candidate/Graduate Research Associate | **Tenure** | 08/2011 – 06/2016 |
| **Employer** | University of Colorado, Anschutz Medical Campus, Aurora, CO | | |
| Provide a brief description of principal duties: | | | |
| Conducted independent genetics research that resulted in two first author publications and one textbook chapter. Expertise gained in wide range of genetics techniques including nucleic acid purification, polymerase chain reaction [PCR], immunohistochemistry, microscopy, quantitative PCR, western blot analysis, sequence analysis, microarray analysis, gene expression analysis, etc. Managed independent projects and generated graphics for data presentation. Wrote and aided in production of grant proposals and papers for peer-reviewed journals. Awarded the highly competitive Colorado Clinical and Translational Sciences Institute Predoctoral Fellowship, which required additional coursework and shadowing experience at hospital. Routinely presented at local, national, and international conferences. Helped in laboratory equipment maintenance. Thesis Title: Cholesterol Synthesis Requirements in Oligodendrocyte Development and Myelination. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Title** | Undergraduate Research Assistant | **Tenure** | 10/2010 – 03/2011 |
| **Employer** | Smurfit Institute of Genetics, University of Dublin- Trinity College, Dublin, Ireland | | |
| Provide a brief description of principal duties: | | | |
| Performed undergraduate genetics thesis research experiments with minimal supervision. Thesis Title: FoxM1, Grhl3, and Hmgb2 candidate transcriptional regulators of cellular senescence: a role in cancer development and cellular reprogramming. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Title** | Student Research Assistant | **Tenure** | 05/2010 – 09/2010 |
| **Employer** | University of California, Los Angeles, CA | | |
| Provide a brief description of principal duties: | | | |
| Performed experiments on various genetics projects collaborating with colleagues. Organized laboratory reagents to maintain ease in the running of a large research laboratory. | | | |

**Other Qualifications:** List below all personal certifications identifying the issuing organization and the dates; all scientific publications and/or presentations you have authored or co-authored, research in which you are or have been involved, academic or other teaching positions you have held, and any other information which you consider relevant to your qualifications.

|  |
| --- |
| **Scientific Publications:**  **Mathews E.S.,** Jezewski A.J., Odom John A.R. **(2021)** Protein Prenylation and Hsp40 in Thermotolerance of Plasmodium falciparum Malaria Parasites. mBio, 12(3), e0076021.  **Mathews, E.S.,** Odom John, A.R. **(2018)** Tackling resistance: emerging antimalarials and new parasite targets in the era of elimination. F1000Research, 7:1170.  **Mathews, E.S**., Appel B. **(2016)** Cholesterol Biosynthesis Supports Myelin Gene Expression and Axon Ensheathment through Modulation of P13K/Akt/mTor Signaling. Journal of Neuroscience 36, 7628-7639.  **Mathews, E.S**., Appel B. **(2016)** Oligodendrocyte Differentiation. Chapter for Methods in Cell Biology, The Zebrafish: Cellular and Developmental Biology 4th Edition.  **Mathews, E.S.,** Mawdsley, D.J., Walker, M., Hines, J.H., Pozzoli, M., Appel B. **(2014)** Mutation of 3-hydroxy-3-methylglutaryl CoA synthase I reveals requirements for isoprenoid and cholesterol synthesis in oligodendrocyte migration arrest, axon wrapping, and myelin gene expression. Journal of Neuroscience 34, 3402-3412.  **Selected Scientific Presentations:**  **Mathews, E.S**., Odom John, A.R. **(2019)** The role of heat shock protein prenylation in *Plasmodium falciparum*. Selected for oral presentation. Tropical Infectious Diseases Gordon Seminar and Conference, Galveston, TX.  **Mathews, E.S.,** Odom John, A.R. **(2018)** The role of heat shock protein prenylation in *Plasmodium falciparum*. Abstract for poster presentation. Biology of Host Parasite Interactions Gordon Seminar and Conference, Newport, RI.  **Mathews, E.S**., Appel B. **(2015)** Investigating the mechanistic basis of cholesterol-mediated myelination. Abstract for poster presentation. European Meeting on Glial Cells in Health and Disease, Bilbao, Spain.  **Mathews, E.S**., Mawdsley, D.J., Walker, M., Hines, J.H., Pozzoli, M., Appel B. **(2014)** The cholesterol biosynthetic pathway is required for oligodendrocyte migration, axon wrapping and myelin gene expression. Selected for oral presentation. Myelin Gordon Seminar and Conference, Ventura, CA. |