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Attorney for Petitioner

**IN THE DISTRICT COURT OF THE SEVENTH JUDICIAL DISTRICT OF  
THE STATE OF IDAHO, IN AND FOR THE COUNTY OF FREMONT**

|                  |   |                                  |
|------------------|---|----------------------------------|
| STATE OF IDAHO   | ) | CASE NO. CR22-21-1623            |
|                  | ) |                                  |
| Plaintiff        | ) |                                  |
|                  | ) |                                  |
| vs.              | ) | <b>AFFIDAVIT OF GREG</b>         |
|                  | ) | <b>HAMPIKIAN IN OPPOSITION</b>   |
| CHAD GUY DAYBELL | ) | <b>TO MOTION FOR CONSUMPTIVE</b> |
|                  | ) | <b>TESTING</b>                   |
| Defendant.       | ) |                                  |
| _____            | ) |                                  |

**AFFIDAVIT OF DR. GREG HAMPIKIAN IN RESPONSE TO THE STATE'S BRIEF IN SUPPORT OF MOTION FOR CONSUMPTIVE TESTING OF FORENSIC EVIDENCE**

STATE OF IDAHO, Plaintiff,

vs.

CHAD GUY DAYBELL

Defendant.

Case No.: CR22-21-1623

Greg Hampikian, Ph.D., being first duly sworn, deposes and states as follows:

1. I am currently a Professor of Biology and Criminal Justice at Boise State University. I have a Ph.D. in Genetics from the University of Connecticut, and performed postdoctoral research at La Trobe University in Australia, and the Worcester Foundation for Experimental Biology in Massachusetts. A true copy of my curriculum vitae is attached to this affidavit as "Exhibit A". Currently, my research focuses on DNA analysis, including DNA database and population studies, forensic casework analysis, and forensic DNA technology development.
2. I have been retained as a DNA expert for Chad Daybell, through his attorney John Prior.
3. This affidavit concerns the State's proposed consumption of evidence for trace/touch DNA testing of the "Ridge detail on the adhesive side of tape reported by Rexburg Police Department to be associated with JJ Vallow's body"
4. My understanding is that this latent print was lifted from a shovel owned by Chad Daybell. I am concerned that since this latent was lifted was the handle of Mr. Daybell's shovel, I would expect to find his DNA on it, even if he was not the source of any latent prints, or smudged latents, lifted from the handle. His DNA on the handle of a tool that he owns is expected, and may be the predominant DNA profile, even if he were not the source of any particular latent print.

5. If the latent print is tested for DNA, I would like to observe the DNA extraction and PCR set-up for this sample at the laboratory that does the work.
6. I would also like to be notified of all results when the quantification is completed, before any further testing is done. This will tell us about the concentration and total DNA amount extracted (male and total), as well as the degradation index for the mixture, and possible information about the number of contributors.
7. If sufficient DNA is obtained, I would like to reserve one-half of the DNA for further testing by the defense.

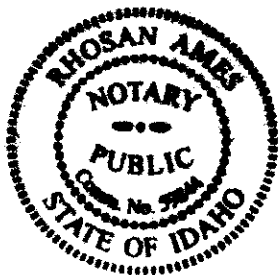
FURTHER YOUR AFFIANT SAYETH NAUGHT.

DATED this 3<sup>rd</sup> day of August, at Boise, Idaho.

By: *Greg Hampikian*  
Greg Hampikian

State of Idaho,  
County of Ada

Subscribed and sworn to or affirmed by GREG HAMPIKIAN before me this 3<sup>rd</sup> day of August, 2022

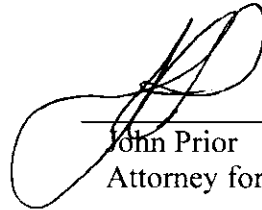


*Rhosan Ames*  
Notary signature

**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a true and correct copy of the foregoing was delivered to the  
FREMONT COUNTY PROSECUTING ATTORNEY'S OFFICE, by email and service to  
prosecutor@co.fremont.id.us.

DATED this 5<sup>th</sup> day of August 2022.

  
\_\_\_\_\_  
John Prior  
Attorney for the Defendant

**Exhibit A: CV of Greg Hampikian**  
**Greg Hampikian**

Professor of Biology, with a joint appointment in Criminal Justice  
Boise State University (BSU)

**Current Sponsored Activities**

**Boise Wastewater Virus Lab, PI**

2021 PI SARS-CoV-2 in Wastewater, CARES act, 625K

2022 PI Optimization of Virus Identification in Wastewater, CDC Sub-award through the ID  
Dept. of Health and Human Welfare, 550K

Undergraduate researcher: Erin Milliken

- Developed protocol to detect and measure COVID-19 in wastewater, supply data for the city of Boise Dashboard.

**HIV Early Detection and Vaccination, PI**

2020 PI HIV Early Detection, ID Department of Commerce, 320K

Graduate Students

Nida Ajmal, Ph.D. Biomolecular Sciences (delayed till Spring 22)

Lexi Skinner, MS Biology (Co-supervised with Brad Morrison)

**Forensic Justice Project (FJP) at Boise State University, Director**

Forensic DNA analysis in international and out-of-state criminal cases

2022 PI US Department of Justice (DOJ), Postconviction DNA Testing, 455K

2020 PI US Department of Justice (DOJ), Postconviction DNA Testing, 500K

2016 PI US DOJ, Postconviction DNA Testing, 629K

Graduate student: David Henry, MS Interdisciplinary Studies (Ph.D. Public Policy anticipated).

Probabilistic genotyping in postconviction claims of innocence.

Undergraduate researcher: Maggie Schumer, analysis of defense lawyers versus self-represented defendants in Boise felony cases.

- Kerry Robinson: Freed 2020, after 16 years wrongful imprisonment for rape. Applied novel DNA analysis techniques, produced peer-reviewed study on the DNA evidence in the case, testified in GA.
- Lacino Hamilton: Freed 2020, after 26 years wrongful imprisonment for murder. DNA analysis of newly tested evidence.

**Idaho Innocence Project at Boise State University, founder and Co-Director**

Forensic DNA analysis of Idaho cases

2019 PI US DOJ, Upholding the Rule of Law, DNA analysis, 274K

- Idaho Compensation Law for Wrongful Conviction Compensation, 2021

Helped write the law and secured legislative and executive support (2009-2021)  
Applied for and secured the first two compensations for wrongful conviction in Idaho.

- Idaho Certificate of Innocence, 2021  
Developed the legal mechanism for postconviction innocence in Idaho.  
Applied for and secured the first two certificates.
- Christopher Tapp: Freed, secured Certificate of Innocence and state compensation for his wrongful incarceration (20 years) for rape and murder. Trained Idaho Falls police in forensic genealogy that led to the DNA identification of the man who confessed to the crimes (sentenced in 2021).
- Charles Fain: Secured Certificate of Innocence and state compensation (2021) for Fain who spent 16 years on death row wrongfully convicted of the rape and murder of a child. Worked with Canyon County Sheriff's office to use new DNA technology to identify a new suspect (warrant currently served).

### **Education**

Ph.D. Genetics, The University of Connecticut, 1990

M.S. Genetics, The University of Connecticut, 1986

B.S. Biological Sciences, The University of Connecticut, 1982

### **Past Experience**

1993-2004

#### **Professor, Biology, Clayton State University (CSU)**

(Assistant Professor 1993-97, Associate Professor, 1997-2003)

Coordinated the Forensic Science Track for biology major. Courses: Biotechnology, Biotechnology Lab, Genetics, Human Genetics (on-line), Recombinant DNA Laboratory, Bioregulatory Affairs, Microbiology, Microbiology Lab, Anatomy and Physiology (A&P) sequence, A&P Labs, Sex and Reproduction, Introductory Biology (majors and non-majors sequence), Introductory Biology Labs, Biotechnology for teacher education students. Served as 2001-2002 Biology Coordinator, Natural Science Department.

#### **National Science Foundation Research Opportunity Award, Georgia Tech, Biochemistry Dept., Research Faculty Member**

Enzymatic nucleotides, and chromatin structural changes caused by anti-cancer drugs, with Loren Williams.

1994-1995

#### **Visiting Scientist, Emory University and The Centers for Disease Control and Prevention (CDC), Atlanta**

Sex-determination in malarial mosquitoes with John Lucchesi, Biology Department Chair, Emory University; and Frank Collins of the CDC.

1992

**Worcester Foundation for Experimental Biology, Postdoctoral Associate with William Crain**

Gene expression in mouse embryogenesis, toxicity of antisense therapies on pregnant mice.

1990-1991

**U.S. National Science Foundation, Postdoctoral Fellow with Jennifer Graves, La Trobe University, Australia**

The sequence and expression of mammalian sex-determining genes.

1986-1990

**Ph.D. thesis with Linda Strausbaugh, The University of Connecticut**

Transcriptional regulation of tagged histone genes in relation to the cell cycle in synchronized culture cells. Instructor in the Summer Institute of Molecular Biology, secured all funding for course from corporate sponsors.

1985-1986

**Master's research with Paul Goetinck, University of Connecticut.**

Cartilage Link protein c-DNA.

1983-1984

**Yale University, School of Medicine, New Haven, Conn.**

Research assistant, human keratins and drug response, psoriasis research with Joseph McGuire, Head of Pediatric Dermatology.

### **Selected Publications**

Hampikian, G. "Correcting Forensic DNA Errors". *Forensic Science International: Genetics*, 4132-33 (2019).

Hampikian, G. "The Dangers of DNA Testing," *New York Times*, 9.21.18 (2018).

Hampikian, G., et al., "Case report: Coincidental inclusion in a 17-locus Y-STR mixture, wrongful conviction and exoneration," 31 *Forensic Science International: Genetics* 1-4 (2017).  
Alileche A., Hampikian G., The effect of Nullomer-derived peptides 9R, 9S1R and 124R on the NCI-60 panel and normal cell lines, *BMC Cancer*, Volume 17, 2017

Besecker, Jason; Peri, Gianluca; Davis, Michael; Zubizarreta, Josu; and Hampikian, Greg. (2018). "Allele Frequencies of 15 STR Loci (Identifiler™ Kit) in Basque-Americans". *Legal Medicine*, 31, 17-19. <http://dx.doi.org/10.1016/j.legalmed.2017.12.009>

William A. Bourland, Laura Wendell, Greg Hampikian, Peter Vd'ačný, Morphology and phylogeny of *Bryophryoides ocellatus* n. g., n. sp. (Ciliophora, Colpodea) from in situ soil percolates of Idaho, U.S.A., *European Journal of Protistology*, Volume 50, Issue 1, February 2014, Pages 47-67.

William A. Bourland, Laura Wendell, Greg Hampikian, Morphologic and molecular description of *Metopus fuscus* Kahl from North America and new rDNA sequences from seven metopids

(Armophorea, Metopidae), *European Journal of Protistology*, Volume 50, Issue 3, June 2014, Pages 213-230.

Pham-Hoai, E., Crispino, F., Hampikian, G., The first successful use of simple low stringency familial searching in a French criminal investigation, *Journal of Forensic Sciences*, Volume 59, Issue 3, pages 816–819, May 2014.

Besecker, J., Cornell, K. A., and Hampikian, G., Dynamic Passivation with BSA Overcomes LTCC Mediated Inhibition of PCR, *Sensors and Actuators*, Vol. 176, Pages 118–123 (January 2013).

W.A. Bourland, G. Hampikian, P. Vd'achný, Morphology and phylogeny of a new woodruffiid ciliate, *Etoschophrya inornata* sp. n. (Ciliophora, Colpodea, Platyophryida), with an account on evolution of platyophryids, *Zool. Scr.*, 41 (2012), pp. 400–416

Allileche, A., Goswami, J., Davis, M., Bourland, B., Hampikian, G., Nullomer Derived Anti-Cancer Peptides, *Peptides*, Volume 38, Issue 2, Pages 302–311, (December 2012).

Goswami, J., Davis, M.S, Andersen, T., Alileche, A., Hampikian, G. Safeguarding Forensic DNA Reference Samples with Nullomer Barcodes, *Journal of Forensic and Legal Medicine*, Vol. 20, Issue 5, Pages 513–519, (July 2013).

Visser, R. and Hampikian G., When DNA Won't Work, *Idaho Law Review*, 49 *Idaho L. Rev.* 39 (2012).

Ullakko, K., Wendell, L., Smith, A., Müllner, P. and Hampikian, G., Magnetic shape memory micropump: contact-free, and compatible with PCR and human DNA profiling, *Smart Materials and Structures* 21 (2012).

Valverde, L., Rosique, M., Köhnemann, S., Cardoso, S., García, A., Odriozola, A., Aznar, JM, Celorrio, D., Schuerenkamp, M., Zubizarreta, J., Davis, M., Hampikian, G., Pfeiffer, H., de Pancorbo, M. Y-STR variation in the Basque diaspora in the Western USA: evolutionary and forensic perspectives, *Int J Legal Med*, DOI 10.1007/s00414-011-0644-8 (2011).

Zubizarreta, J., Davis, M., Hampikian, G., “The Y-STR genetic diversity of an Idaho Basque population, with comparison to European Basques and US Caucasians”, *Human Biology*, Dec;83(6):685-94 (2011).

Hampikian, G, West, E., Askelrod, O. “The Innocence Network: Analysis of 194 American DNA Exonerations,” *Annual Review of Genomics and Human Genetics* 12, (2011).

Dror, I. and Hampikian, G., Subjectivity and bias in forensic DNA mixture interpretation, *Science & Justice*, DOI 10.1016/j.scijus.2011.08.004, (2011)

Bourland, W., Vdacny, P, Davis, M., and Hampikian, G., Morphology, Morphometrics and Molecular Characterization of *Bryophrya gemmea* n. sp. (Ciliophora, Colpodea): Implications for the Phylogeny and Evolutionary Scenario for the Formation of Oral Ciliature in Order Colpodida, *Journal of Eukaryotic Microbiology*, vol 58, Issue 1, p 22-36, January/February (2011).

Davis, M., Novak, S., Hampikian, G., Mitochondrial DNA analysis of an immigrant Basque population: loss of diversity due to founder effects, *American Journal of Physical Anthropology*, Vol. 144, Issue 4, p516-525, April (2011).

Karalova, E. M., Sargsyan, Kh.V., Hampikian G.K., Voskanyan , H. E., Abroyan L. O., Avetisyan A. S., Hakobyan, & L. A, Arzumanyan , H.H., Zakaryan H. S., Karalyan, Zaven A., Phenotypic and cytologic studies of lymphoid cells and monocytes in primary culture of



porcine bone marrow during infection of African swine fever virus, *In Vitro Cell. Dev. Biol.—Animal*, (2011) 47:200–204.

Bullock, C., Jacob, R., McDougal, O., Hampikian, G., Andersen, T. DockoMatic - Automated Ligand Creation and Docking, *BMC Research Notes* 2010, 3:289.

Abu B. Kanu, Greg Hampikian, Simon D. Brandt, Herbert H. Hill Jr., Ribonucleotide and ribonucleoside determination by ambient pressure ion mobility spectrometry, *Analytica Chimica Acta* 658 (2010) 91–97.

D. E. Krane, et al. (39 authors) “Time for DNA Disclosure”, *Science*, Vol. 326. no. 5960, pp. 1631 – 1632, 18 December, 2009.

Lucian A. Lucia, Lambrini Adamopoulos, Jason Montegna, Greg Hampikian, Dimitris S. Argyropoulos, John Heitmann (2007), “A Simple Method to Tune the Gross Antibacterial Activity of Cellulosic Biomaterials, *Carbohydrate Polymers* 69”; 805–810.

Greg Hampikian and Tim Andersen (2007), “Absent Sequences: Nullomers and Primes,” *Pacific Symposium on Biocomputing*, 12:355-366.

K. Moeller, J. Besecker, G. Hampikian, A. Moll, D. Plumlee, J. Youngsman and J.M. Hampikian, (2007), “A Prototype Continuous Flow Polymerase Chain Reaction LTCC Device,” *Materials Science Forum* Vols. 539-543 pp. 523-528.

G. Hampikian, (2005), “The Future of Forensic DNA,” *The Canadian Journal of Police and Security Services*, (Spring, 2005).

M. Crayton, C. Ladd, M. Sommer, G. Hampikian, L. Strausbaugh, (2004), “An organizational model of transcription factor binding sites for a histone promoter in *D. melanogaster*,” *In Silico Biology* 4, 40-45 (October, 2004).

“Exit to Freedom,” Johnson and Hampikian (University of Georgia Press, 2003): Calvin C. Johnson, Jr.’s autobiography (written by Hampikian). The true story of a man who served 16 years in Georgia prisons for a rape he did not commit until DNA evidence freed him. Afterward by Barry Scheck.

P. Henderson, D. Jones, G. Hampikian, Y. Kan, and G. Schuster (1999), “Long-distance charge transport in duplex DNA: The polaron-like hopping mechanism,” *Proceedings of the National Academy of Sciences, USA*, Vol. 96, Issue 15, 8353-8358, July 20, 1999.

G. Hampikian, J. Graves, D. Cooper, (1994), “Sex- determination in the marsupial” in *Molecular Genetics of Sex Determination*, (Ed. S. Wachtel), Academic Press.

M. Gaudette, G. Hampikian, V. Metelev, S. Agrawal and W. Crain, (1993), “Effect on embryos of phosphorothioate modified oligos. into pregnant mice,” *Antisense Res. & Dev.*, 3:391-397.

J. Graves, J. Foster, G. Hampikian, F. Brennan, (1993), "Sex- determination in marsupial mammals," in Sex Chromosomes and Sex Determining Genes, (Editors, K. Reed and J. Graves) Gordon and Breach, Melbourne.

J. Foster, F. Brennan, G. Hampikian, P.N. Goodfellow, A. Sinclair, R. Lovell-Badge, L. Selwood, M. Renfree, D. Cooper and J. Graves, (1992), "Evolution of sex determination and the Y chromosome: SRY- related sequences in marsupials," Nature: 359:531-533.

F. Deak, Y. Kiss, K. Sparks, S. Argraves, G. Hampikian and P. Goetinck (1986), "Amino acid sequence of chicken cartilage link protein from c-DNA clones," Proc. National Academy of Science, U.S.A.: 83:3766- 3770.

### **Patent Awards and Applications**

US Patent 8,008,816: Magnetomechanical Transducer, and Apparatus and Methods for Harvesting Energy, Hampikian and Mullner inventors, awarded August 30, 2011.

US 11/24,293 filed December 23, 2004. Reference Markers for Biological Samples. DNA marker to be added to samples as a safeguard. The oligomers are based on sequences not found in GenBank, and can be coded to contain a wide variety of information.

US 13/358,952 filed January 26, 2012 Absent and Rare Peptides and Therapeutic Uses Thereof.

US 13/550,386 filed July 16, 2012 Actuation method and Apparatus, Micropump, and PCR Enhancement Method.

### **Professional Memberships**

- American Academy of Forensic Sciences, workshop leader.
- International Society for Forensic Genetics, presenter.
- International Society for Computational Biology.

### **Reviewer**

*Forensic Science International, Genetics*

*PLOS ONE*

*Science and Justice*

*Journal of Forensic Investigation*

### **Selected Honors and Awards**

#### **Selected Keynote and Plenary Speaker:**

INBRE 2021

First Annual Teri Talk, Pacific Symposium on Biocomputing (Hawaii, 2020)

Harvard University, Radcliffe Seminar on the future of DNA (2015)

Midwestern Forensic Science Annual Meeting (2015)

Convocation, Boise State University (2013)

Pacific Symposium on Biocomputing (Hawaii, 2010)

Scientific Advisor for Idaho Microbes, Book of the Year winner of the 2016 Idaho Library Society Association; National Silver Medal for science books, Independent Publisher Book of the Year (IPPY) 2016 Award.

Idaho Fourth District Bar Association's Liberty Bell Award (2013) for contributions to justice.

Charter Fellow of the National Academy of Inventors (2012).

Awarded the 2004 Silver Medal in biography, for "Exit to Freedom," (ForeWord Magazine's Book of the Year Awards).

- Nominated for the 2004 Robert F. Kennedy Book Award.
- Nominated for the 2004 African American Literary Awards.

### **Partial List of Professional Education**

STRmix™ Training Workshop, June 7-10, 2021.

The Future is Now for MPS mtDNA Analysis, International Symposium on Human Identification, Phoenix, September 24, 2018.

TrueAllele™ Training Workshop, July 19-21, 2016.

Tutorial Workshops, 2011 Pacific Symposium on Biocomputing, Hawaii: "Mining the Pharmacogenetics Literature," and, "Identification of Aberrant Pathway and Network Activity from High Throughput Data", Hawaii, January 3-7, 2011

Familial Search Workshop, International Symposium on Human Identification, San Antonio Texas, October 14, 2010

Low Copy Number Analysis Workshop, Ethics and Forensic Science, International Symposium on Human Identification, San Antonio Texas, October 11, 2010

SNP analysis of physical characteristics (ie., eye color) as well as ancestry. HITA/AABB Workshop, International Symposium on Human Identification, San Antonio Texas, October 10, 2010

Ethics and Forensic Science, International Symposium on Human Identification, Las Vegas, October 15, 2009.

Post-conviction DNA Case Management Symposium, US Department of Justice, Office of Justice Programs, National Institute of Justice, invited participant, Tampa, Fla., January 23-24, 2009.

Tutorial Workshops, 2009 Pacific Symposium on Biocomputing, Hawaii: "Open Science: Tools, Approaches and Implications", "Post-Transcriptional Gene Regulation: RNA-Protein Interactions", "RNA Processing" and "mRNA Stability and Localization," 2009.

Applied Biosystems Gene Mapper & ID-X Software Training, Boise State University, May 26-29, 2009.

DNA Mixture Interpretation: Principles and Practice in Component Deconvolution and Statistical Analysis, American Academy of Forensic Sciences workshop, Washington, D.C., Feb. 19, 2008.

Mixture Interpretation Workshop, taught by Gary Schutler, Ph.D., Northwest Association of Forensic Science, Boise, Idaho, 2008.

Forensic Population Genetics Workshop, 19<sup>th</sup> International Symposium on Human Identification, Hollywood, CA, 2008.

2008 Pacific Symposium on Biocomputing, Hawaii, 2008

Tutorial Workshops: "Multiscale Modeling and Simulation", "Computational Tools for Next-Generation Sequencing."

Applied Statistics Workshop, 18<sup>th</sup> International Symposium on Human Identification, (covered DNA Mixtures, Statistics, Parentage and Kinship, Pedigree Analysis), Hollywood, CA, 2007.

Pacific Symposium on Biocomputing, Hawaii, 2007: "Computational Proteomics."

**DNA Statistics, 17<sup>th</sup> International Symposium on Human Identification, Workshop, Nashville, TN, 2006.**

Advanced Topics in STR DNA Analysis, American Academy of Forensic Sciences, workshop, Seattle, WA, Feb. 20, 2006.

Li-Cor DNA sequencing training for the Li-Cor 4300, Boise State University, 2005.

On-site evaluator training Forensic Science Education Programs Accreditation Commission (FEPAC), American Academy of Forensic Sciences workshop, New Orleans, 2005.

"Symposium: Emerging and Enabling Technologies for Biological and Chemical Detection" and "Federal Bio-Chem Detection R&D Opportunities," 15.5 hours, Information Forecast, Washington, DC, 2005.

Forensic Human Mitochondrial DNA Analysis, American Academy of Forensic Sciences workshop, Dallas, Texas, 2004.

Forensic Science for Medicolegal Professionals Course (co-organizer), Atlanta, 2004.

Mass Fatalities Incident Response Planning Course, (Local coordinator), Atlanta, 2004.

Science in the Courtroom for the 21<sup>st</sup> Century: Issues in Forensic DNA, Chicago, 2004.

Legal Communication in the 21<sup>st</sup> Century, 3-hour course, Clayton State University, 2003.