Mark D. Stenglein

Assistant Professor
Department of Microbiology, Immunology, and Pathology
College of Veterinary Medicine and Biomedical Sciences
Colorado State University

EDUCATION and TRAINING

Postdoctoral Researcher — 2010 – 2014

University of California, San Francisco
Mentors: Dr. Joe DeRisi, Dr. Don Ganem
Research focus: The development and application of high throughput unbiased next generation sequencing-based techniques to the study of infectious disease, with a focus on identifying and characterizing pathogens causing infectious human and animal diseases of unknown etiology.

Ph.D. in Biochemistry, Molecular Biology, and Biophysics — 2004 – 2009

University of Minnesota, Minneapolis, MN
Advisor: Dr. Reuben Harris
Thesis title: "*APOBEC3 Proteins Restrict Mobile and Foreign DNA*"

B.A. with Honors in Mathematics and French, — 1993 – 1997

Washington University in Saint Louis, MO

AWARDS

Multidisciplinary Program In Lung Disease Postdoctoral Training Grant — 2011 –2012
University of California, San Francisco

Fredrick J. Bollum Excellence in Research Award — 2009
University of Minnesota

Dr. Marvin and Hadassah Bacaner Research Award — 2009
University of Minnesota

Travel Award — 2008
6th International Conference on Transposition and Animal Biotechnology

Young Investigator Award — 2008
15th Conference on Retroviruses and Opportunistic Infections

Cancer Biology Training Grant Predoctoral Fellowship, — 2007 – 2009
University of Minnesota

3M Graduate Science and Technology Fellowship, — 2004 – 2009
University of Minnesota

Roberta J. Leury Award for Study in France, — 1995
Washington University in Saint Louis, MO

PUBLICATIONS

1. **Stenglein MD***, Jacobson ER*, Wozniak EJ, Wellehan JF, Kincaid A, Gordon M, Porter BF, Baumgartner W, Stahl S, Kelley K, Towner JS, DeRisi JL. (2014) *Ball Python Nidovirus: a Candidate Etiologic Agent for Severe Respiratory Disease in Python regius*. **mBio**. 5(5). pii: e01484-14. (* equal contributions).

2. Szentiks CA, Tsangaras K, Abendroth B, Scheuch M, **Stenglein MD**, Wohlsein P, Heeger F, Höveler R, Chen W, Sun W, Damiani A, Nikolin V, Gruber AD, Grobbel M, Kalthoff D, Höper D, Czirják GÁ, Derisi J, Mazzoni CJ, Schüle A, Aue A, East ML, Hofer H, Beer M, Osterrieder N, Greenwood AD (2014) *Polar bear encephalitis: establishment of a comprehensive next-generation pathogen analysis pipeline for captive and free-living wildlife*. **J Comp Pathol**. 150(4):474-88.

3. Koellhoffer J, Dai Z, Malashkevich VN, **Stenglein MD**, Liu Y, Toro R, Harrison J, Chandran K, DeRisi JL, Almo SC, and Lai JR. (2013) *Structural Characterization of the glycoprotein GP2 Core Domain from the CAS Virus, a Novel Arenavirus-like Species.* **J. Mol. Biol**, in press.

4. Ali S, Karki N, Bhattacharya C, Zhu R, Macduff DA, **Stenglein MD**, Schumacher AJ, Demorest ZL, Harris RS, Matin A, Aggarwal S. (2013) *APOBEC3 inhibits DEAD-END function to regulate microRNA activity*. **BMC Mol Biol**. 14(1):16.

5. **Stenglein MD***, Sanders C, Kistler AL, Ruby JG, Franco JY, Reavill DR, Dunker F, DeRisi JL* (2012) *Identification, characterization, and in vitro culture of highly divergent arenaviruses from boa constrictors and annulated tree boas: a candidate etiological agent for snake inclusion body disease (IBD)*. **mBio** 3(4), e00180-12 (*****co-corresponding)

- mBio "editors' pick 2012". Article highlighted on NPR, the BBC, and the This Week in Virology (TWiV) podcast.

6. Mayer J, Tsangaras K, Heeger F, Avila-Arcos M, **Stenglein MD**, Chen W, Sun W, Mazzoni CJ, Osterrieder N, Greenwood AD. (2013) *A novel endogenous betaretrovirus group characterized from polar bears (Ursus maritimus) and giant pandas (Ailuropoda melanoleuca)*. **Virology**. 443(1):1-10.

7. **Stenglein MD**, Velazquez E, Greenacre C, Wilkes RP, Ruby JG, Lankton JS, Ganem D, Kennedy MA, DeRisi JL (2012) *Complete Genome Sequence of an Astrovirus Identified in a Colony of Domestic Rabbits (Oryctolagus cuniculus) Experiencing an Outbreak of Gastroenteritis*. **Virology J**, 9(1):216.

8. Yozwiak N*, Skewes-Cox P*, **Stenglein MD***, Balmaseda A, Harris E, DeRisi J (2012) *Virus Identification in Unknown Tropical Febrile Illness Cases Using Deep Sequencing*. **PLoS Neglected Tropical Diseases**. 6(2):e1485 (***** Equal Contributions)

9. **Stenglein MD**, Burns MB, Li M, Lengyel J, and Harris RS (2010) *APOBEC3 proteins mediate the clearance of foreign DNA from human cells*. **Nature Struct Mol Biol**. 17(2):222-9.

- Article highlighted in: Flintoft L (2010) Research Highlight: Cellular defence: Human cells clear foreign DNA. Nature Rev Gen. 11:172.

10. Refsland EW*, **Stenglein MD***, Shindo K, Albin JS, Brown WL, and Harris RS (2010) *Quantitative Profiling of the Full APOBEC3 mRNA Repertoire in Lymphocytes and Tissues: Implications for HIV-1 Restriction.* **Nucleic Acids Research** 38(13):4274-84. (***** Equal Contributions)

11. Sadler AH, **Stenglein MD**, Harris RS, and Mansky LM (2010). *APOBEC3G Contributes to HIV-1 Variation Through Sublethal Mutagenesis.* **J. Virol.** 84(14):7396-404.

- Article designated as being "of significant interest" by the editors in the issue's "Spotlight".

12. **Stenglein MD**, Mastsuo H, and Harris RS (2008) *Two regions within the amino-terminal half of APOBEC3G*

cooperate to determine cytoplasmic localization. **J**. **Virol**. 82: 9591-9.

13.Jónsson SR, LaRue RS, **Stenglein MD**, Fahrenkrug SC, Andrésdóttir A, and Harris RS (2007) *The restriction of zoonotic PERV transmission by human APOBEC3G*. **PLoS One**, 2: e893.

14.**Stenglein MD**, and Harris RS. *APOBEC3B and APOBEC3F inhibit L1 retrotransposition by a DNA deamination-independent mechanism* (2006) **J**. **Biol**. **Chem**., 281: 16837-41.

15.Jónsson SR, Haché G, **Stenglein MD**, Fahrenkrug SC, Andresdottir V, and Harris RS. *Evolutionarily conserved and non-conserved retrovirus restriction activities of artiodactyl APOBEC3F proteins* (2006) **Nucleic Acids Research**, 34: 5683-94.

Book Chapters

1. **Stenglein MD**, Schumacher AJ, LaRue RS, and Harris RS. *Host factors that restrict retrovirus replication* (2009) In **Viral Genome Replication**, C. Cameron, M. Götte, and K. Raney, eds., Springer, 297-336.

SELECTED RESEARCH PRESENTATIONS

- Colorado State University, Department of Microbiology, Immunology, and Pathology, October 2013. Fort Collins, CO. Invited talk.
- NIAID National RCE meeting, April 2013. Seattle, WA. Talk.
- UC Davis Avian and Exotics Medicine Club Symposium, March 2013. Davis, CA. Talk.
- The Association of Reptile and Amphibian Veterinarians Annual Conf., Oct. 2012. Oakland, CA. Talk.
- Bay Area Virology Symposium. May 2012. Berkeley, CA. Poster.
- University of Minnesota, Department of Veterinary & Biomedical Sciences, University of MN, May 2012. Invited talk.
- Howard Hughes Medical Institute Scientific Meeting. April 2012. Ashburn, VA. Poster.
- The American Society for Virology Annual Meeting, July 2011. Minneapolis, MN. Talk.
- The Institute for Molecular Virology Symposium, May 2009. University of Minnesota, Minneapolis, MN. Talk.
- Keystone Pattern Recognition Molecules and Immune Sensors of Pathogens Symposium, March 2009. Banff, Alberta, Canada. Poster.
- The 6 th International Conference on Transposition and Animal Biotechnology, June 2008. Berlin, Germany. Talk.
- The Fifteenth Conference on Retroviruses and Opportunistic Infections, February 2008. Boston, MA. Talk and poster.
- Cold Spring Harbor Laboratory Meeting on Retroviruses, May 2007, Cold Spring Harbor, NY. Poster.
- Cold Spring Harbor Laboratory Meeting on Retroviruses, May 2006, Cold Spring Harbor, NY. Talk.
- The National Cancer Institute's HIV Drug Resistance Program's 6th Annual Symposium on Antiviral Drug Resistance, November 2005. Chantilly, VA. Poster.

TEACHING and MENTORING EXPERIENCE

University of California, San Francisco

- Guest instructor, BioPhys205, Dynamical Systems 2013
  - Taught graduate level module on bioinformatics and sequencing analysis
- Guest instructor, BioPhys205, Dynamical Systems 2012
  - Taught graduate level module on next generation sequencing
- Mentor, Kristoffer Leon, HHMI Extraordinary Research Opportunities Program 2013
- Mentor, Eli Leavitt, undergraduate research volunteer 2013
- Mentor, Michael Abramovich, summer high school research volunteer 2013
- Mentor, Kelly Crotty, Tetrad Graduate Program 2012
- Mentor, Peter Fellowes, Integrative Program in Quantitative Biology Graduate Program 2012
- Mentor, Jessica Franco, HHMI Extraordinary Research Opportunities Program 2011
- Mentor, Eric Velazquez, HHMI Extraordinary Research Opportunities Program 2010

University of Minnesota

- Teaching assistant, BioChem 8002 2007
  - Graduate level Molecular Biology and Regulation of Biological Processes course
  - Responsibilities included leading lecture on occasion
- Teaching assistant, Biol 1009, General Biology 2006
  - Led laboratory section

ACADEMIC SERVICE

University of Minnesota Institute for Molecular Virology 2008-2009
Student representative to Advisory committee

SELECT COMPUTING AND BIOINFORMATICS SKILLS

- Expertise in creating and analyzing genome-scale datasets
- Proficiency programming in C, C++, and JAVA, and scripting in PERL, Python, and BASH
- Proficient in all aspects of operating in the UNIX environment
- Extensive experience developing and applying bioinformatics analysis tools
- University-level coursework in probability, statistics, and computer science (24 credits)
- Experience managing and analyzing terabyte-scale datasets
- Proficiency in software engineering and project management

COMMUNITY OUTREACH

- Guest, This Week in Virology Podcast Aug, 2012
- Guest, The Reptile Living Room Podcast Aug, 2012
- Guest speaker, Bay Area Amphibian and Reptile Society, Palo Alto, CA Feb, 2012
- Guest speaker, Avian and Exotic Medicine Club, UC Davis March, 2013

ADDITIONAL PROFESSIONAL EXPERIENCE

Computer and Project Engineer, Cenco, Inc, Minneapolis, MN 1997 - 2004

- As a Project Engineer, I managed budget and scheduling and led a group of software engineers working on several successful multimillion dollar, high profile projects.

- As a Computer Engineer, I developed data acquisition, analysis and control software for jet engines
- I installed and validated data analysis and acquisition systems during the commissioning of jet engine test facilities worldwide (in Thailand, Mexico, Scotland, Sweden, Canada, and the USA).

COMMUNITY AND VOLUNTEER SERVICE

- Compost coordinator and steering committee member 2010-2012
  White Crane Springs Community Garden, San Francisco, CA
- Volunteer, Animal Humane Society of Ramsey County Saint Paul, MN 2000-2003
- Volunteer, Washington University Alumni & Parents Admissions Program 1998-2002

SOCIETY MEMBERSHIP

- American Society for Virology 2014-
- American Society for Microbiology. 2012-
- Member, International Committee on Taxonomy of Viruses; Arenaviridae Study Group 2014-

CONTACT INFORMATION

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