

Kristian J. Herrera

Email: kjherrera23@gmail.com
kherrera01@fas.harvard.edu

D.O.B: 08/23/1992

Education

Florida International University (Fall 2006-May 2011)

- B.A. in Physics with a concentration in Biophysics
- Minors in Biology, Chemistry, and Mathematics

Harvard University (August 2011-May 2019)

- M.A. in Molecular and Cellular Biology (Nov 2013)
- PhD in Biology

Positions & employment

Harvard University (2012-2019)

- Graduate student researcher in Florian Engert's laboratory

Harvard University (2019-)

- Post-doctoral researcher in Florian Engert's laboratory

Peer-reviewed publications

Herrera KJ, Somarelli JA, Lowery RK, Herrera RJ (2009) To what extent did Neanderthals and modern humans interact? *Biological Reviews* **84**: 245-257.

Herrera KJ, Lowery RK, Hadden L, Calderon S, Chiou C, Yepiskoposyan L, Regueiro M, Underhill PA, Herrera RJ (2011). Neolithic patrilineal signals indicate that the Armenian plateau was repopulated by agriculturalists. *European Journal of Human Genetics* **20**: 313-320.

Lowery RK, **Herrera KJ**, Barrett DA, Rodriguez R, Hadden LRM, Harutyunyan A, Margaryan A, Yepiskoposyan L, Herrera RJ (2011) Regionalized autosomal STR profiles among Armenian groups suggest disparate genetic influences. *American Journal of Physical Anthropology* **146**: 171-178.

Mirabal S, **Herrera KJ**, Gayden T, Regueiro M, Underhill PA, Garcia-Bertrand RL, Herrera RJ (2011). Increased Y-chromosomal resolution of Haplogroup O suggests genetic ties between the Ami aborigines from Taiwan and the Polynesian Islands of Samoa and Tonga. *Gene* **492**: 339-348.

Simms TM, Martinez E, **Herrera KJ**, Wright MR, Perez OA, Hernandez M, Ramirez EC, McCartney Q, Herrera RJ (2011) Paternal lineages signal distinct genetic contributions from British Loyalists and continental Africans among different Bahamian islands. *American Journal of Physical Anthropology* **146**: 594-608.

Lowery RK, **Herrera KJ**, Uribe G, Reguiero M, Herrera RJ (2012) Sub-population structure evident in forensic Y-STR profiles from Armenian geographical groups. *International Journal of Legal Medicine* **15**: 85-90.

Jordi J, Guggiana-Nilo D, Bolton AB, **Herrera KJ**, Prabha S, Ballotti K, Miller J, Rennekamp AJ, Peterson RT, Engert F (2018) High throughput screening for selective appetite modulators in zebrafish: a multi-behavioral drug discovery strategy. *Science Translational Medicine* **4**: eeav1966

Thyme SB, Pieper LM, Li EH, Pandey S, Wang Y, Morris NS, Sha C, Choi JW, **Herrera KJ**, Soucy ER, Zimmerman S, Randlett O, Greenwood J, McCarroll SA, Schier AF (2019) Phenotypic landscape of schizophrenia-associated genes defines candidates and their shared functions. *Cell*. <https://doi.org/10.1016/j.cell.2019.01.048>

Johnson RE, Linderman S, Panier T, Wee C, Song E, **Herrera KJ**, Miller A, Engert F (2019) Probabilistic models of larval zebrafish behavior: structure on many scales. *Current Biology* **30**, 70-82

Preprints and incomplete publications

Zhu ML, **Herrera KJ**, Vogt K, Bahl A (2020). Navigational strategies underlying temporal phototaxis in *Drosophila* larvae. *Bioarxiv*. <https://doi.org/10.1101/2020.01.06.896142>

Herrera KJ, Panier T, Guggiana-Nilo D, Engert F (2020) Olfactory detection of sodium and chloride drive salt-water avoidance in larval zebrafish. **Under preparation.**

External posters and presentations

Herrera KJ, Engert FA (2017) Unveiling the mechanisms that underlie reduced responsiveness in larval zebrafish to inescapable stimuli. SFN.

Herrera KJ, Engert FA (2018) Multisensory processing of external salinity by larval zebrafish. SFN.

Herrera KJ (2019) *The neural mechanisms of salt avoidance in a freshwater fish*. Talk presented at LMU Young Scientists Conference in Munich

Herrera KJ, Engert FA (2019) Mechanisms of salt avoidance in a freshwater fish. SFN.

Herrera KJ, Engert FA (2020) Neural correlates of salt avoidance in larval zebrafish. FENS.

Awards and honors

FIU Presidential Scholarship

Bright Futures Florida Medallion Scholarship

Phi Beta Kappa Member

Graduated FIU magna cum laude

2011 NSF Graduate Fellowship Honorable Mention

Derek Bok Teaching Certificate (Spring '15, '17, '18, '19)

2018-2019 Harvard Minds Brain Behavior Fellowship (award amount \$50,000)

2020 FENS-IBRO/PERC (award amount EUR 310)

Teaching experience

Teaching fellow for Harvard MCB 80, Neurobiology of Behavior (Fall '12)

Teaching fellow for Harvard MCB 111, Mathematics in Biology (Spring '13)

Teaching fellow for Harvard MCB 105, Systems Neuroscience (Spring '15- '20)

Research Experience

(May 2007-June 2011) Volunteer undergraduate researcher in the Human Genetic Diversity Research Group under the supervision of Dr. Rene J. Herrera

- 6 manuscripts published from this work
- Leader of a team of up to 6 working on a Y-chromosome analysis of Armenia
- Mentor to 10+ undergraduates over this time

(June 2012 – present) Graduate student researcher in the Engert lab at Harvard University

- Performing research on the neural circuitry of NaCl avoidance in larval zebrafish (publication in preparation)
- Performing research on the neural circuitry of sensory adaptation in larval zebrafish
- Performing research on olfactory circuits for attraction and aversion in larval zebrafish in collaboration with the Liberles laboratory (publication in preparation)

Outreach

(Summer 2012, 2013) Neutral mentor for *Summer Research Opportunities at Harvard* (SROH) program for undergraduates of underrepresented backgrounds

- Responsible for organization of various activities for SROH students as well as providing career advice and mentoring

(2014) Part of two student committee in charge of running MCO's URM outreach program, including running aforementioned SROH.

(Summer 2015, 2016) Created *Introduction to Programming for Biological Researchers* (IPBR) to introduce coding and MATLAB to summer interns performing research at Harvard

(Fall 2016) Science in the news (SITN) lecture with two other students for general audience entitled "Brain-mapping in the 21st century"

<https://www.youtube.com/watch?v=QwEuoPkcOUA>

Skills and qualifications

- Proficient in MATLAB and Python, experience in C#, C++, HTML, CSS
- Image analysis
- Blender for 3-D animations
- Adobe Suite (Illustrator, Photoshop, After Effects, Premier Pro)
- Proficiency in a number of molecular biology techniques, including PCR amplification, STR analysis, electrophoresis, RFLP digestion, DNA extraction, Gibson assembly, minipreps etc.
- Experienced use of two-photon, light sheet imaging, confocal microscopy