

PEER-REVIEWED, ORIGINAL RESEARCH PUBLICATIONS

- 1) **Hirschstein, Z.**, Vanga, G. R., Wang, G., Novakovic, Z. M., & Grasso, P. (2020). MA-[D-Leu-4]-OB3, a Small Molecule Synthetic Peptide Leptin Mimetic, Improves Episodic Memory, and Reduces Serum Levels of Tumor Necrosis Factor-Alpha and Neurodegeneration in Mouse Models of Type 1 and Type 2 Diabetes Mellitus. *Biochimica Et Biophysica Acta (BBA) - General Subjects*. doi:10.1016/j.bbagen.2020.129697
- 2) **Hirschstein Z.**, Novakovic Z.M., Grasso P. (2019). MA-[D-Leu-4]-OB3, a Small Molecule Synthetic Peptide Leptin Mimetic, Normalizes Glucose Tolerance and Episodic Memory in a Mouse Model of Type 2 Diabetes Mellitus and Alzheimer's Disease-Like Cognitive Impairment. *International Journal of Peptide Research and Therapeutics*. doi:10.1007/s10989-019-09995-0
- 3) Anderson B.M., **Hirschstein Z.**, Novakovic Z.M., Grasso P. (2019). MA-[d-Leu-4]-OB3, a Small Molecule Synthetic Peptide Leptin Mimetic, Mirrors the Cognitive Enhancing Action of Leptin in a Mouse Model of Type 1 Diabetes Mellitus and Alzheimer's Disease-Like Cognitive Impairment. *International Journal of Peptide Research and Therapeutics*. doi:10.1007/s10989-019-09929-w
- 4) Hulbert J.C., **Hirschstein Z.**, Brontè C.A.L., & Broughton E. (2017). Unintended side effects of a spotless mind: Theory and practice. *Memory*. doi:10.1080/09658211.2017.1354999

ORIGINAL RESEARCH PUBLICATIONS IN-PROGRESS

- 1) Akhtar K.*, **Hirschstein Z.***, Iannilli E., Ravi M., Mikkilineni S., Chua F.Y., Watkins H., Ashe J., Puleo C., Kao T.J., Shin D.S. (Forthcoming: Submitted to *Experimental Physiology*). Non-invasive Focused Ultrasound Neuromodulation Ameliorates Symptoms in Rat Model of Inflammatory Bowel Disease. [*co-first authors]
- 2) **Hirschstein Z.***, Akhtar K.*, Madhavan R., Kao T.J., Damaraju M., Barenboim L., Maietta T., Ashe J., Puleo C., Cotero V., Shin D.S. (Forthcoming: data analyzed; manuscript in progress). Coincident Changes in Blood Glucose Level and Paraventricular Nucleus Neuronal Spiking Activity in Response to Non-invasive Focused Ultrasound Application on Liver In Vivo. [*co-first authors]
- 3) Sahai S., Effendi E., Mahoney E., Tucker H., Moolick B., Mamone G., Mikkilineni S., Gupta M., Nicholson A., **Hirschstein Z.**, Akhtar K., Molho E., Pilitsis J., Shin D.S., (Forthcoming: Submitted to *Neuroscience Letters*). Effects of Subthalamic Nucleus Deep Brain Stimulation on Neuronal Activity in the Substantia Nigra Pars Compacta in a Rat Model of Parkinson's Disease.
- 4) **Hirschstein Z.**, Wang A., Anderson B.M., Novakovic Z.M., Grasso P. (Forthcoming: Submitted to *Peptides*). MA-[D-Leu-4]-OB3, a Small Molecule Synthetic Peptide Leptin Mimetic, Improves Serum Lipid Profiles in Mouse Models of Type 1 and Type 2 Diabetes Mellitus.

SKILLS

Non-Computational Research Skills:

- **Electrophysiology:** EEG recording and signal processing, single- and multi-channel *in vivo* signal recording and processing (MAPs, Omniplex); event-related potentials (ERPs) and electrocardiography (ECG)
- **Histology:** Sectioning, staining, imaging; quantification (NeuroLucida, ImageJ/Fiji) and analysis
- **Behavior:** Human behavioral paradigm (Think/No-Think, Stop-Signal, n-Back, Stroop Test, Visual Search; survey design) and rodent behavioral paradigm (Open Field, Sucrose Preference, Y-maze, Morris Water Maze, Novel Object Recognition, Limb-Use Asymmetry Test) design, execution, and analysis
- **Animal:** Rat/mice experience: dosing (intraperitoneal, subcutaneous, intracerebroventricular, oral gavage), craniotomy/stereotactic surgery, tissue collection (brain, colon, nerve, liver), suturing, trans-cardiac perfusion, exsanguination via cardiac puncture, euthanasia (thoracotomy, cervical dislocation)
- **Analytics:** General statistical proficiency, cell sorting/quantification, machine learning and signal processing
- **Writing:** IACUC (animal) and IRB (human) applications, grants (including 3 R01s), manuscripts, websites

- Biochemistry: ELISAs, immunostaining, BCA

Computational Skills:

- Cross-platform proficiency (Mac OSX, Windows, Linux; Android, iOS)
- Proficient with:
 - Matlab (and add-ons, e.g., PsychToolbox, FieldTrip, EEGLab, dmt, wave_clus)
 - Python, Prism, NeuroExplorer, Any-Maze, Microsoft Office/OpenOffice, Origin Pro, Sigmaplot
 - Adobe Creative Cloud (Photoshop, Illustrator, InDesign, Lightroom, Premiere, etc.)
- Experience with E-Prime, SPSS, R, JavaScript, and SurveyGizmo
- Hardware and software troubleshooting experience, including electrophysiological/eye-tracking equipment (e.g., OpenVibe, Emotiv, BioPac, AcqKnowledge, Neuroexplorer, Tobii) and basic computer repair

PRESENTATIONS

- 1) Hirschstein Z. (February, 2019). Introduction to EEG: Neurophysiological to methodological (and a thesis). Invited lecture to Bard College cognitive psychology course introducing the neurophysiological basis of EEG methods, culminated in presentation of undergraduate thesis. Annandale-On-Hudson, New York.
- 2) Hulbert J.C., Libby N.W., Greenberg M.B., Zhang Z., Agosto M., Prusky S., Parum H., Hirschstein Z. (February, 2019). Sleep's repercussions: Reactivating deprioritized memories during naps. Poster Presented at the Eastern Psychological Association Annual Meeting. New York City, New York.
- 3) Zhang Z., Depietro B., Agosto M., Machen J., Libby N.W., Hirschstein Z., Thuyein M., Sandbank L., Hulbert J.C. (March, 2018). Reminders of the forgotten: Targeted reactivation of deprioritized memories during sleep. Poster presented at Fenway Psychology Research Conference. Boston, Massachusetts.
- 4) Libby N.W., Hirschstein Z., Hulbert J.C. (September, 2017). An unnoticed note to forget: Targeted reactivation of deprioritized memories during naps. Poster presented at the 3rd Annual Society for Neuroscience (Hudson-Berkshire Chapter) Meeting. Scotia, New York.
- 5) Hirschstein Z., Baker-Blake B. Murphy S., Hodge Z., Hulbert J.C. (March, 2017). When forgetting the past induces amnesia for the present: Temporal dynamics of the amnesic shadow. Poster presented at the International Conference of Psychological Science. Vienna, Austria.
- 6) Baker-Blake B., Hirschstein Z., Hodge Z., Murphy S., Hulbert J.C. (September, 2016). Forgetting the past induces amnesia for the present: Temporal dynamics of the amnesic shadow. Poster presented for the Bard Summer Research Institute. Annandale-On-Hudson, New York.

NON-RESEARCH INTERESTS AND LEADERSHIP

Graphic Arts and Photography	2007 – Present
<ul style="list-style-type: none"> • Freelance graphic design work: logos, pamphlets, splash screens, etc. • Featured in IBPA Benjamin Franklin Gold Award Winner Book <i>Silk Weavers of Hill Tribe Laos</i> (2018) 	
Bard College	Annandale-On-Hudson, NY
Captain of Bard Ultimate (Frisbee) Team	2017 – 2018
Mines Advisory Group	Laos / Vietnam / Oregon
Outreach Assistant	2008 – 2015
<ul style="list-style-type: none"> • Educated and fundraised for MAG's mission to remove unexploded ordnance in Southeast Asia 	
Audiophobia	Eugene, OR
Vocalist and guitarist	2009 – 2014
<ul style="list-style-type: none"> • Recorded 4 studio albums; performed on West Coast; managed image, merchandise, profits 	