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In accordance with the University of Tennessee Health Science Center [Honor Code](#) and the requirements for integrity and honesty laid out in the College of Graduate Health Sciences' [Electronic Thesis & Dissertation \(ET/D\) Learning Portal](#), I, Sarah M. Neuner, declare that this dissertation titled "Using Genetic Diversity to Understand Susceptibility to Cognitive Decline in Aging and Alzheimer's Disease" and the work presented therein are my own. I confirm that:

- This work was done wholly or mainly while being a candidate for a terminal degree at the University of Tennessee Health Science Center.
- There is clear and full disclosure in the thesis/dissertation for any part that was previously submitted for a degree or any other qualification at this University or any other institution or that has been accepted for publication.
- Where I used the published or unpublished work of others, this is clearly attributed.
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- I have acknowledged all other main sources of help (e.g., lab assistance, joint work on projects, consultations/discussions with colleagues/experts, funding).
- Where the dissertation is based on work done jointly with others, I have made clear what I contributed (see next page).

Student Name: Sarah M. Neuner

See digital reply with confirmation.

Advisor Name: Robert W. Williams, PhD

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**Declaration of Personal Contributions to Previously Published Articles
with Several Authors Incorporated into the ET/D
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Please provide below the Chapter number of the incorporated article(s), the List of References citation, and your significant contributions as first or second author, or indicate Not Applicable. If part of your accepted submission to the journal was a statement of author contributions, you may quote that and at the end indicate [As submitted and accepted by *Journal title*.]

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Articles with several authors incorporated into my ET/D and my contributions to them:

- **Chapter 2**
- **Citation:** Neuner, S.M., Garfinkel, B.P., Wilmott, L.A., Ignatowska-Jankowska, B.M., Citri, A., Orly, J., Lu, L., Overall, R.W., Mulligan, M.K., Kempermann, G., et al. (2016). Systems genetics identifies *Hplbp3* as a novel modulator of cognitive aging. *Neurobiol Aging* 46, 58-67. 10.1016/j.neurobiolaging.2016.06.008: 10.1016/j.neurobiolaging.2016.06.008
- **My significant contributions:** SMN and CCK conceived of the experiments. SMN, LAW, BPG, BMIJ, AC, JO, LL, GK, KMSO, RWW and CCK designed and performed the experiments. SMN, LAW, BPG, BMIJ, LL, RWO, MKM and CCK analyzed the data. SMN, AC, JO, LL, GK, RWW, and CCK contributed reagents/materials/analysis tools. SMN, KMSO, and CCK wrote the manuscript. All authors reviewed and contributed intellectually to the manuscript. [As submitted and accepted by *Neurobiology of Aging*.]

- **Chapter 2**
- **Citation:** Neuner, S.M., Ding, S., and Kaczorowski, C.C. (2018). Knockdown of heterochromatin protein 1 binding protein 3 recapitulates phenotypic, cellular, and molecular features of aging. *Aging Cell*, e12886. 10.1111/ace1.12886: 10.1111/ace1.12886
- **My significant contributions:** SMN, SD, and CCK conceived of, and designed, the experiments. SMN conducted the surgical and behavioral experiments as well as the mRNA and miRNA analyses, while SD conducted the electrophysiological experiments. SMN, SD, and CCK analyzed data and interpreted results. SMN and CCK wrote the manuscript, and all authors reviewed and approved the final manuscript. [As submitted and accepted by *Aging Cell*.]

- **Chapter 3**
- **Citation:** Neuner, S.M., Heuer, S.E., Huentelman, M.J., O'Connell, K.M.S., and Kaczorowski, C.C. (2019a). Harnessing genetic complexity to enhance translatability of Alzheimer's disease mouse models: A path toward precision medicine. *Neuron*. 101, 399-411 e395. 10.1016/j.neuron.2018.11.040: 10.1016/j.neuron.2018.11.040
- **My significant contributions:** SMN and CCK conceived of the experiments. SMN, SEH, KMSO, and CCK designed the experiments and analyses. SMN and CCK wrote the manuscript. SMN conducted the behavioral experiments, while MJH conducted the RNA sequencing experiments and assisted SMN, SEH, and CCK in analyzing the data and interpretation of results. All authors reviewed and approved of the final manuscript. [As submitted and accepted by *Neuron*.]

- **Chapter 4**
- **Citation:** Neuner, S.M., Heuer, S.E., Zhang, J., Philip, V.M., Kaczorowski, C.C. Identification of pre-symptomatic gene signatures that predict resilience to cognitive decline in the genetically diverse AD-BXD model. (2019b). *Front Genet* 10, 35. 10.3389/fgene.2019.00035.
- **My significant contributions:** SMN and CCK conceived of and designed the experiments. JZ and SN conducted bioinformatics experiments. SN, SH, VMP, and CCK assisted in data analysis and interpretation. SMN and CCK wrote the manuscript. All authors read and approved of the final manuscript. [As submitted and accepted by *Frontiers in Genetics*.]

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