SUMMARY STATEMENT

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(Privileged Communication)

Release Date: **07/06/2023**
Revised Date:

Application Number: **1F99NS134208-01A1**
Formerly: **1F99NS134208-01**

MITCHELL,WILLIAM
Temple University - Of The Commonwealth System of
Line 1 address
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Philadelphia, PA 191226085

Review Group:	**NST-3** **Neurological Sciences Training 3 Study Section** **NST-3 Study Section**
Meeting Date:	**06/05/2023**
Council:	**AUG 2023** ***PCC:*** **JONESMWD**
Requested Start:	**09/01/2023**
	Dual IC(s): **NB**
Project Title:	**Intersubject Synchrony in Neural and Behavioral Representations of Social Uncertainty Among Adults and Adolescents**
	***Requested*:**
Sponsor:	
Department:	**CLA:PSYCHOLOGY (18110)**
Organization:	**TEMPLE UNIV OF THE COMMONWEALTH**
City, State:	**PHILADELPHIA PENNSYLVANIA**
SRG Action:	**Impact Score:30**
Next Steps:	**Visit https://grants.nih.gov/grants/next_steps.htm**
Human Subjects:	**30-Human subjects involved - Certified, no SRG concerns**
Animal Subjects:	**10-No live vertebrate animals involved for competing appl.**
Gender:	**1A-Both genders, scientifically acceptable**
Minority:	**1A-Minorities and non-minorities, scientifically acceptable**
Age:	**3A-No children included, scientifically acceptable**

RESUME AND SUMMARY OF DISCUSSION: This is a resubmitted F99 application from William Mitchell, a graduate research assistant in the psychology department at Temple University. The candidate has an extensive research and academic background. Thus far, the applicant has published multiple manuscripts before and during the graduate training. The application adequately conveys the applicant's passion.

The project is interesting and novel. The proposed research focuses on the neural circuitry commonly implicated in uncertainty judgment formation. The applicant will test this by having adult participants continuously rate their certainty of a given social and non-social outcome while observing a video stimulus during fMRI. The research design and mentor team are favorable. The mentor team consists of experts in the methods detailed in the research proposal. The reviewers are certain that the proposed training will be adequate for the applicant to achieve the research and career goals.

Altogether, this application is responsive to previous critiques. Unfortunately, the reviewers identified multiple minor and moderate concerns that are new. The application details the methods in the research design so much that it makes other parts of the application look under-detailed. Nevertheless, the methodology presents issues within the research design. The research design lacks the proper controls. Some reviewers felt that there was a lack of conceptual framework in the research plan. The reviewers realized that this was the result of this application's responsiveness to the previous critiques. The career and K00 phase goals are underdeveloped. The application does not provide a framework for how the applicant will seek the postdoctoral mentor and environment. All the elements in the training plan are detailed but not integrated well.

TRAINING IN THE RESPONSIBLE CONDUCT OF RESEARCH: ACCEPTABLE

DESCRIPTION (provided by applicant): Uncertainty is an often pervasive, stressful experience that arises when making judgments about others' beliefs, intentions, or emotions (i.e., ambiguous social situations). Excessive uncertainty can have pernicious effects upon memory, mood, and physical and mental outcomes. Yet, we understand little of how judgments of social certainty form over time, the neural circuitry underlying these judgments, and how these judgments meaningfully differ from non-social uncertainty sources (e.g., calculations, perceptions). Uncertainty is featured in every developmental stage but adolescents and adults differ in their appraisals of and responses to ambiguity; both social and non-social. Traditional univariate neuroimaging analyses, which compare average magnitudes of activation across broad neural regions, are unresponsive to the subtle pattern differences that characterize complex social cognition. Novel multivariate techniques, such as intersubject correlations (ISC), applied to dynamic, feature-rich, and ecologically valid sources of social ambiguity are crucial for understanding fundamental aspects of social cognition but have not yet been applied to answer these important questions. F99 Phase: My proposed pre-doctoral project uses a novel study design in which adult participants continuously rate their certainty of a given social (e.g., a character's innocence or guilt) and non-social (e.g., frame luminance) outcome while observing long-form narrative video stimuli (i.e., 45 min crime drama) during fMRI. This yields a continuous time course of concurrently recorded neural and behavioral data which can be analyzed via ISC to determine the neural circuitry commonly implicated in uncertainty

judgment formation among normative adult populations. Interdomain neural-behavioral synchrony can underscore how social and non-social certainty judgment formation mechanisms differ. Defining normative adult neural uncertainty responses provides a crucial comparison to vulnerable populations with pronounced uncertainty responses, including autism spectrum, anxiety, and mood disorders. Training during this phase includes instruction in computational methods relevant to the neuroscience of social decision-making and neurodevelopmental theory to prepare for the K00 Phase. K00 Phase: This phase extends my pre-doctoral research by applying the F99 Phase study design to adolescent populations. This approach could identify whether adults and adolescents are generally relying on distinct or similar neural circuitry to assess the same stimuli and inform subjective indicators of uncertainty (i.e., behavioral ratings). Adolescence is a period marked by intense attention towards social others. The presence of ambiguous social stressors during this period predicts susceptibility to and severity of anxiety and depression into adulthood. Thus, how social uncertainty is processed has notable implications for researchers working at any later developmental stage. The training plan in this phase of the proposal will focus on developing expertise in the developmental social neuroscience literature, computational methods that can be applied to developmental social neuroscience research, and mentorship skills to establish a diverse, inclusive independent research lab.

PUBLIC HEALTH RELEVANCE
This project will apply intersubject correlational methods to neural and behavioral representations of social uncertainty as participants observe and respond to a complex narrative stimulus that incorporates important characteristics of a dynamic social world. The F99 phase will identify how neural synchrony between adults in key regions involved in social and non-social uncertainty judgments predicts synchrony in subjective behavioral indicators of uncertainty. The K00 phase extends this paradigm to examine these same associations during adolescence which represents a vulnerable period of development with distinct cognitive and social-emotional processing in response to ambiguity.

CRITIQUES: *Please note that the evaluations and criterion scores from individual reviewers are provided below in an essentially unedited form. These were prepared prior to the review meeting and may not have been updated or revised after the discussion at the meeting. Therefore, they may not fully reflect the final opinions of the individual reviewers at the close of group discussion or the final majority opinion of the group. The Resume and Summary of Discussion above summarizes the outcome of the group discussion.*

CRITIQUE 1
Fellowship Applicant: 1
Sponsors, Collaborators, and Consultants: 2
Research Training Plan: 3
Training Potential: 4
Institutional Environment & Commitment to Training: 1

Overall Impact: This application is a revision from a very strong candidate, who is a 4th year graduate student. His letters and bio-sketch consistently paint a picture of a highly

enthusiastic, productive, determined, thoughtful graduate student whose research promises to be highly impactful. Prior to joining his graduate program, he had gained substantial research experience that results in two co-authored publications (including one in NEJM). He has also been productive in his current lab. He is generally interested in how the brain represents social phenomena during development, particularly adolescence. He has assembled a mentoring team that will provide him with a) the necessary training on sophisticated and time- consuming multivariate analyses he plans to use in this research using complex naturalistic stimuli, b) a stronger background on adolescent socio-cognitive development. Enthusiasm is somewhat dampened by the fact the application does not sufficiently situate the work in the broader context of social neuroscience. As such, it is not completely clear how the results will provide a new understanding of social uncertainty (e.g., several brain regions are mentioned but it is not clear what is the purported role of each and what aspect of results would be more or less consistent with the candidate's hypothesis). It is possible that in an attempt to respond as fully as possible to the critiques received on his first submission, he sacrificed other content. Nevertheless, this is a strong and responsive application.

1. Applicant:

Strengths

- Enthusiastic letters praising the candidate for his ability to integrate theoretical frameworks with complex analytical approaches, his industriousness and tenacity, excellent devotion to science.
- Strong productivity in his current laboratory with one first author publication, one first author paper under review, and a co-authored publication.
- Long-standing interest in maximining ecological validity of his research.
- Meaningful outreach contributions (e.g., Coding outreach group).

Weaknesses

- None noted

2. Sponsors, Collaborators and Consultants:

Strengths

- The primary sponsor, Chelsea Helion, is an Assistant Professor with relevant expertise in social-affective neuroscience, quantitative methods and experimental approaches that integrate naturalistic stimuli. She has the funds to support the applicant's research. The co-sponsor, Jason Chein, is a Professor and Director of the Imaging Center at Temple and his is an expert on neuroimaging and adolescent reward neurodevelopment. Thus, they will provide complementary expertise topically and perspectives from different points in career.
- The addition of Drs. Smith and Steinberg adds to the strength of the team to support the primary training goal of obtaining training in computational approaches and adolescent development.

Weaknesses

- None.

3. Research Training Plan:

Strengths

- The proposed studies will generate a massive amount of data. The studies will have adults (F99 phase) and adolescents (K00 phase) view a 45-minute video of a crime drama TV show during which participants repeatedly rate their uncertainty about whether a character is guilty or innocent while fMRI data are collected. With these data, the candidate will be able to gain training on Inter-Subject-correlation, the multivariate technique he elected to focus to examine the degree of synchronicity in brain activity among participants when they process certain levels of certainty. It takes a long time to train on these techniques, and the candidate seems to have realistic expectations when he chooses this as the amin focus on the F99 phase.
- The use of a naturalistic stimulus is a strength.
- The examination of non-social context along with the social context is another strength.

Weaknesses

- It would have been helpful to include about typical variability in certainty/uncertainty in the video to have a sense of the degree of change in perceptions of uncertainty over the course of the video and to constrain the hypotheses potentially better.
- It is not clear how the data from main task with and without the provision of subjective statements will be differentiated and how the data from the much shorter control condition focusing on perceptual features will be used.

4. Training Potential:

Strengths

- The candidate is clearly very passionate about obtaining training in multivariate approaches (i.e., ISC) for fMRI data and learning about adolescent socio-cognitive development. He outlined strong, but realistic steps to achieve training goals.

Weaknesses

- There was relatively little in both the Research Strategy and Training Plan about the neural substrates of uncertainty and decision making. Although several target brain regions were mentioned along with some predictions (e.g., IFG, AI, reward regions will be more or less synchronous in adults versus adolescents), the different target regions were not differentiated, and it was not clear what the theory of their contribution was and what new understanding these ISC results will provide. The training plan would have benefitted from more focus on neuroscience accounts of uncertainty and decision making.

5. Environment:

Strengths

- Strong institution support.

Weaknesses

- None noted.

Protections for Human Subjects: Acceptable Risks and Adequate Protections

Data and Safety Monitoring Plan (Applicable for Clinical Trials Only): Not Applicable (No Clinical Trials)

Inclusion of Women, Minorities, and Ages Across the Lifespan:

- **Sex/Gender**: Distribution justified scientifically.
- **Race/Ethnicity**: Distribution justified scientifically.
- **For NIH-Defined Phase III trials, plans for valid design and analysis:** Not Applicable
- **Inclusion/Exclusion Based on Age:** Distribution justified scientifically.

Vertebrate Animals: Not Applicable (No Vertebrate Animals).

Training in the Responsible Conduct of Research: Acceptable

Comments on Format (Required):

- CITI, ethical neuroimaging seminar or SFN Responsible research course.

Comments on Subject Matter (Required):

- Professional development seminar on ethics and Future Ethics and Ethical Principles in Psychological Science.

Comments on Faculty Participation (Required):

- During regular meetings.

Comments on Duration (Required):

- 33 hours plus regular meetings.

Comments on Frequency (Required):

- One course per year.

Biohazards: Not Applicable (No Biohazards)

Resubmission: Acceptable

Select Agents: Not Applicable (No Select Agents)

Resource Sharing Plans: Acceptable

Authentication of Key Biological and/or Chemical Resources: Not Applicable (No Key Biological and/or Chemical Resources)

Budget and Period of Support: Recommend as Requested

CRITIQUE 2

Fellowship Applicant: 2
Sponsors, Collaborators, and Consultants: 2
Research Training Plan: 3
Training Potential: 3
Institutional Environment & Commitment to Training: 3

Overall Impact: This is a resubmission of an application aimed at better understanding of neural underpinnings of uncertainty in social contexts, with added developmental components to examine differences between adolescence and adults and the used of ecologically enriched contexts such as watching a commercially produced mystery show. The applicant has a strong interest in adolescent social cognition but due to constraints of working in a brand-new lab that was getting up and going during the pandemic, he has until now worked with adults. The aim of this DSPAN is to complete an adult model project in the F99 phase then transition into an adolescent model for the K00. The topic of study is highly relevant for modern neuroscience with strong translational value for elucidating and intervening in the development of mental health concerns from teens to adulthood especially regarding risk, reward, and abuse; and possible relevance for some neurodevelopmental conditions such as schizophrenia and autism.

Critiques of the original submission referred to unclear links from one phase/project that tried to do too much across childhood, adolescence and adulthood; too many statistical techniques that weren't adequately explained; unclear fit for the mentoring team and their contributions; and importantly, a diffuse focus for the training plan on research but also on developing mentoring programs, which are highly valued by the applicant (and by reviewers) but may be a distraction to the research development needed to acquire a future faculty position. For the most part, the applicant has met these critiques head on by refining the project to be appropriately simpler and more straightforward, separating the adult (first) then teen (second) projects, focusing the statistical approach to an appropriate look at intersubject correlational analysis (ISC) while accounting for the statistical issues that arise when analyzing time series (in this case, responses over the course of 45 minutes), and organization of a stronger mentoring team that covers the various skill sets that will be needed for a successful training.

The splitting of the adult and adolescent phases (with elimination of the child project) and use of the same task across both projects, is very helpful for chances to obtain adequate power

and to apply lessons from one project to the next. The applicant does a good job highlighting some expected changes in the adolescent group.

There was a lot of detail about expected work in the F99 phase but much less about what is expected, and what skills are to be learned and a good training plan for the K00 phase. What growth is going to be seen during that post-doc? What are the target skills? This needs to be more fully articulated.

Further questions to consider is how much of the expected brain activation is related to ambiguity or uncertainty? The identified brain regions seem to be what would be expected from any highly social task and more detail on why these are related to social *ambiguity* per se would be helpful. The control task (luminescence judgements) lacks the motivational strength of the social task, meaning much less task-related brain activity would be expected, and it's much shorter besides. The proposed analyses aren't clear about the role of the control task, and while neurocohesion/synchrony does not require the control task to achieve a sense of correlated activity while doing the social task, specificity for what that task means – what is related specifically to ambiguity? – would benefit from a better matched control task. Another useful analysis could be relationships to some of the behavioral markers for example, measures of anxiety and intolerance of uncertainty. Do these predict changes in neural synchrony? That would add some specificity. The preliminary data reported reflect only one limited avenue of what the project hopes to accomplish, so questions remain about how well the task captures what is intended.

Overall, this is a much-improved application with a promising future. The specificity question needs to be addressed as the project moves forward.

1. Applicant:

Strengths

- Pioneer grad student in the lab has been able to persist with goals even during the pandemic.
- 1st author publication in SCAN.
- Strong programming skills.
- History of organizing experimental projects.

Weaknesses

- Limited other publications.

2. Sponsors, Collaborators and Consultants:

Strengths

- Good mix of young mentors and established track records.
- Scientific expertise is world-class and relevant to the project.

Weaknesses

- None noted.

3. Research Training Plan:

Strengths

- The sequence of studies is well thought out and they are linked well.
- The topic is highly relevant and translational value including potential for evaluating existing and potential mechanisms for mental health is a highlight.

Weaknesses

- Concerns about specificity of findings to ambiguity/uncertainty suggest some pitfalls on the way to publication and career development. There is a real need for a control task even, perhaps, a social-but-not-ambiguous task could be useful contrast.

4. Training Potential:

Strengths

- This plan seems like a good segue into the interests of the applicant.
- Getting extra mentoring especially related to much different expectations and methodological differences in adolescents is a big help.

Weaknesses

- None noted.

5. Environment:

Strengths

- Good letters of support from institution.
- All needed facilities are available for sharing and training.

Weaknesses

- None noted.

Protections for Human Subjects: Acceptable Risks and Adequate Protections

- Project with adults is underway.

Data and Safety Monitoring Plan (Applicable for Clinical Trials Only): Not Applicable (No Clinical Trials).

Inclusion of Women, Minorities, and Ages Across the Lifespan:

- **Sex/Gender**: Distribution justified scientifically.
- **Race/Ethnicity**: Distribution justified scientifically.
- **For NIH-Defined Phase III trials, plans for valid design and analysis:** Not applicable.
- **Inclusion/Exclusion Based on Age:** Distribution justified scientifically.
    - Expected balanced sample.

Vertebrate Animals: Not Applicable (No Vertebrate Animals).

Training in the Responsible Conduct of Research: Acceptable

- The information is there but the applicant's description of a formal course is still ambiguous might take one here or there or there but not specified. Comments on format and faculty participation reflect lack of understanding of what formal RCR training requires most of it refers to informal training.

Comments on Format (Required):

- See above

Comments on Subject Matter (Required):

- See above.

Comments on Faculty Participation (Required):

- See above.

Comments on Duration (Required):

- See above.

Comments on Frequency (Required):

- See above.

Biohazards: Not Applicable (No Biohazards)

Resubmission: Acceptable

- All key points addressed explicitly; most are adequately addressed with lingering concerns noted above.

Select Agents: Not Applicable (No Select Agents)

Resource Sharing Plans: Not Applicable (No Relevant Resources)

Authentication of Key Biological and/or Chemical Resources: Not Applicable (No Key Biological and/or Chemical Resources)

Budget and Period of Support: Recommend as Requested.

Additional Comments to Applicant (Optional)

- I really appreciate how responsive you were to the first review. I understand that the long-term goal seems to be to work with children and circumstances led to start with adults. Our review clearly asked for simplification, and you were responsive. A concern is whether it went too far the other way. I agree with keeping the same task for adults and adolescents, then re-thinking when time to move to children. But so much detail was added for the F99 phase that there was too little detail on the training plan and skills to be gained for the K00 phase, and the career development plan which was lacking in detail. I appreciate the conceptual background also, but it needs to be tied more closely to the experimental design; the control task is too limited to answer the questions at hand. Well done with the first response and all reviewers like the direction this is heading.
- There remains some confusion about how the RCR requirement will be met – possibly taking one course or another but it's not clearly specified; and there seems to remain confusion about the aspects of faculty involvement and format that contribute to the RCR.

CRITIQUE 3

Fellowship Applicant: 2
Sponsors, Collaborators, and Consultants: 2
Research Training Plan: 3
Training Potential: 2
Institutional Environment & Commitment to Training: 1

Overall Impact: This is an application from a promising graduate student at Temple University. The applicant's work focuses on understanding the neural mechanisms/representations underlying how social uncertainty resolves or augments over time in ambiguous situations. The applicant has experience with the techniques listed and seems set to increase their training to more sophisticated tools of analysis. The research question and training will provide opportunities for the applicant's path to eventual research independence. The applicant's main sponsor, Dr. Helion, is a new Assistant Professor lacking mentoring experience as an independent investigator. The addition of Dr. Chein to the mentoring team mitigates this concern. Together, they have combined training/mentoring background to mentor and guide the applicant. The letters of recommendation are strong and reflect the commitment to the field demonstrated by the applicant. In general, the research goals align with the overall academic/professional goals of the applicant. However, the training plan does not come across as proper individualized.

1. Applicant:

Strengths

- Solid track record of research involvement.
- Several awards/honors at both undergraduate and graduate levels.
- 2 peer-reviewed publications and one first-author manuscript under review.
- Advanced to candidacy

Weaknesses

- *Reviewer did not provide any comments regarding weaknesses.*

2. Sponsors, Collaborators and Consultants:

Strengths

- Dr. Helion, main sponsor, is an expert in affective neuroscience.
- Dr. Chein, co-sponsor, has a strong record of mentoring.
- Research interest match that of applicant.
- Mentors have combined expertise necessary to guide the application through the various to achieve the stated goals.
- Role of mentoring team/consultants better delineated.
- Strong record of funding.
- There are consultants that bring expertise to complement the applicant's training.

Weaknesses

- Dr. Helion has no established history of mentoring.
- Although better delineated, there is still some specifics missing with the regards to the mentoring role Dr. Chein will play.

3. Research Training Plan:

Strengths

- Better delineated training plan outlining milestones.
- Training listed matches the project and the science and professional training needs of the applicant.
- Training plan provided by mentor incorporates areas of needed improvement.

Weaknesses

- Training plan provided still somewhat too broad/generic. All the elements are there but to this reviewer they did not come across as well integrated.
- No plan presented as to how the transition to the R00 phase will be facilitated.
- Superficial discussion of attributes of the postdoctoral training environment; no examples of potential mentors provided.

4. Training Potential:

Strengths

- The applicant has good research experience and will acquire additional training to answer the questions posed in the interdisciplinary research plan.
- Addressing the research questions proposed should provide excellent training, which aligns well with the applicant's goals.
- The sponsors' laboratories have the expertise necessary to provide training experience.
- Timeline provided.

Weaknesses

- *Reviewer did not provide any comments regarding weaknesses.*

5. Environment:

Strengths

- The mentors' laboratories have the necessary expertise, equipment/resources to guide the applicant in completing the proposed studies and guide the applicant in achieving goals.
- The environment at Temple is good and provide many opportunities for interactions with like-minded colleagues focused on related research on whom the applicant can rely for productive consultation, and guidance.

Weaknesses

- *Reviewer did not provide any comments regarding weaknesses.*

Protections for Human Subjects: Acceptable Risks and Adequate Protections

Data and Safety Monitoring Plan (Applicable for Clinical Trials Only): Not Applicable (No Clinical Trials).

Inclusion of Women, Minorities, and Ages Across the Lifespan:

- **Sex/Gender**: Distribution justified scientifically.
- **Race/Ethnicity**: Distribution justified scientifically.
- **For NIH-Defined Phase III trials, plans for valid design and analysis:** Not Applicable.
- **Inclusion/Exclusion Based on Age:** Distribution justified scientifically.

Vertebrate Animals: Not Applicable (No Vertebrate Animals).

Training in the Responsible Conduct of Research:

Comments on Format (Required):

- Appropriate.

Comments on Subject Matter (Required):

- Appropriate.

Comments on Faculty Participation (Required):

- Appears to be ongoing.

Comments on Duration (Required):

- Appropriate.

Comments on Frequency (Required):

- Appropriate.

Biohazards: Not Applicable (No Biohazards)

Resubmission: Acceptable

Select Agents: Not Applicable (No Select Agents)

Resource Sharing Plans: Not Applicable (No Relevant Resources)

Authentication of Key Biological and/or Chemical Resources: Not Applicable (No Key Biological and/or Chemical Resources)

Budget and Period of Support: Recommend as Requested

Additional Comments to Applicant (Optional)

- It would have been much, much better if the applicant had highlighted the changes made within the application as well, to make it easier to reviewers (or at least to this one) to assess their level of responsiveness to previous comments.

CRITIQUE 4

Fellowship Applicant: 2
Sponsors, Collaborators, and Consultants: 1
Research Training Plan: 3
Training Potential: 2
Institutional Environment & Commitment to Training: 1

Overall Impact: This proposal is a resubmission from a strong candidate with a focus on the neural basis of the perception of uncertainty in social contexts. Experiments make use of a naturalistic fMRI paradigm (watching a crime drama while making a continuous judgement). The applicant is developing methodological skills he will be able to carry forward into postdoctoral and faculty work. Mentorship team is ideal for the proposed work. There are some remaining minor concerns about the analytic approach.

1. Applicant:

Strengths

- Strong academic record.
- Successful shift from research coordinator experiences in other areas to focus on social cognitive neuroscience.

Weaknesses

- 4th-year students somewhat limited publication record, but evidence of work in progress.

2. Sponsors, Collaborators and Consultants:

Strengths

- Primary mentor Dr. Helion, while relatively junior, has a good track record of research in the candidate's area of focus, as well as funding for this work. Inclusion of Dr. Chein as an additional mentor and other senior scientists as consultants strengthens the proposal.

Weaknesses

- *Reviewer did not provide any comments regarding weaknesses.*

3. Research Training Plan:

Strengths

- Topic has potential impact, particularly for the applicant's interest in the development of social cognition in adolescence.
- Intra-subject correlation approach is novel.
- Description for K00 mentor and lab is clearly laid out.

Weaknesses

- Transition to K00 phase is somewhat incremental, though this is a minor weakness.
- Analyses of fMRI data for both aims are highly dependent on the intra-subject correlation approach. The applicant mentions an alternative option to choose smaller parcellation, but this is not a fundamentally different approach. The project might be strengthened if there was a more conventional approach to the fMRI data analysis for comparison.

4. Training Potential:

Strengths

- Training plan focused on computational methods and additional background in developmental cognitive neuroscience addresses gaps in the candidate's background.
- Activities are clearly outlined.

Weaknesses

- *Reviewer did not provide any comments regarding weaknesses.*

5. Environment:

Strengths

- Excellent environment for the proposed research.

Weaknesses

- *Reviewer did not provide any comments regarding weaknesses.*

Protections for Human Subjects: Acceptable Risks and Adequate Protections

Data and Safety Monitoring Plan (Applicable for Clinical Trials Only): Not Applicable (No Clinical Trials).

Inclusion of Women, Minorities, and Ages Across the Lifespan:

- **Sex/Gender**: Distribution justified scientifically.
- **Race/Ethnicity**: Distribution justified scientifically.
- **For NIH-Defined Phase III trials, plans for valid design and analysis:** Not Applicable
- **Inclusion/Exclusion Based on Age:** Distribution justified scientifically.
    - Adults for predoctoral study, adolescents for postdoctoral study, no exclusions based on sex/gender or race/ethnicity.

Vertebrate Animals: Not Applicable (No Vertebrate Animals).

Training in the Responsible Conduct of Research:

Comments on Format (Required):

- Appropriate.

Comments on Subject Matter (Required):

- Appropriate.

Comments on Faculty Participation (Required):

- Appropriate, includes input from primary mentors.

Comments on Duration (Required):

- Appropriate.

Comments on Frequency (Required):

- Appropriate.

Biohazards: Not Applicable (No Biohazards)

Resubmission: Acceptable

- Generally responsive to prior critiques.

Select Agents: Not Applicable (No Select Agents)

Resource Sharing Plans: Not Applicable (No Relevant Resources)

Authentication of Key Biological and/or Chemical Resources: Not Applicable (No Key Biological and/or Chemical Resources)

Budget and Period of Support: Recommend as Requested

THE FOLLOWING SECTIONS WERE PREPARED BY THE SCIENTIFIC REVIEW OFFICER TO SUMMARIZE THE OUTCOME OF DISCUSSIONS OF THE REVIEW COMMITTEE, OR REVIEWERS' WRITTEN CRITIQUES, ON THE FOLLOWING ISSUES:

PROTECTIONS FOR HUMAN SUBJECTS: ACCEPTABLE RISKS AND ADEQUATE PROTECTIONS

DATA AND SAFETY MONITORING PLAN (APPLICABLE FOR CLINICAL TRIALS ONLY): NOT APPLICABLE (NO CLINICAL TRIALS).

INCLUSION OF WOMEN, MINORITIES, AND AGES ACROSS THE LIFESPAN:

- **SEX/GENDER**: DISTRIBUTION JUSTIFIED SCIENTIFICALLY.
- **RACE/ETHNICITY**: DISTRIBUTION JUSTIFIED SCIENTIFICALLY.
- **FOR NIH-DEFINED PHASE III TRIALS, PLANS FOR VALID DESIGN AND ANALYSIS:** NOT APPLICABLE

- **INCLUSION/EXCLUSION BASED ON AGE:** DISTRIBUTION JUSTIFIED SCIENTIFICALLY.

INCLUSION OF WOMEN PLAN (RESUME): ACCEPTABLE. G1A- BOTH GENDERS, SCIENTIFICALLY ACCEPTABLE

INCLUSION OF MINORITIES PLAN (RESUME): ACCEPTABLE. M1A- MINORITIES AND NON-MINORITIES, SCIENTIFICALLY ACCEPTABLE

INCLUSION OF ACROSS THE LIFESPAN (RESUME): ACCEPTABLE. C3A- NO CHILDREN INCLUDED, SCIENTIFICALLY ACCEPTABLE

VERTEBRATE ANIMALS: NOT APPLICABLE (NO VERTEBRATE ANIMALS).

BIOHAZARDS: NOT APPLICABLE (NO BIOHAZARDS)

RESUBMISSION: ACCEPTABLE

SELECT AGENTS: NOT APPLICABLE (NO SELECT AGENTS)

RESOURCE SHARING PLANS: NOT APPLICABLE (NO RELEVANT RESOURCES)

AUTHENTICATION OF KEY BIOLOGICAL AND/OR CHEMICAL RESOURCES: NOT APPLICABLE (NO KEY BIOLOGICAL AND/OR CHEMICAL RESOURCES)

BUDGET AND PERIOD OF SUPPORT: RECOMMEND AS REQUESTED

Footnotes for 1F99NS134208-01A1; PI Name: Mitchell, William John

NIH has modified its policy regarding the receipt of resubmissions (amended applications).See Guide Notice NOT-OD-18-197 at https://grants.nih.gov/grants/guide/notice-files/NOT-OD-18-197.html. The impact/priority score is calculated after discussion of an application by averaging the overall scores (1-9) given by all voting reviewers on the committee and multiplying by 10. The criterion scores are submitted prior to the meeting by the individual reviewers assigned to an application, and are not discussed specifically at the review meeting or calculated into the overall impact score. Some applications also receive a percentile ranking. For details on the review process, see http://grants.nih.gov/grants/peer_review_process.htm#scoring.

MEETING ROSTER

Neurological Sciences Training 3 Study Section
Neurological Sciences Training Initial Review Group
NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE
NST-3 Study Section
NST-3
06/05/2023 - 06/06/2023

Notice of NIH Policy to All Applicants: Meeting rosters are provided for information purposes only. Applicant investigators and institutional officials must not communicate directly with study section members about an application before or after the review. Failure to observe this policy will create a serious breach of integrity in the peer review process, and may lead to actions outlined in NOT-OD-22-044 at https://grants.nih.gov/grants/guide/notice-files/NOT-OD-22-044.html, including removal of the application from immediate review.

CHAIRPERSON(S)

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