



# 2018-2019 Mid-Term Credibility Plan Review

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#	Ten Simple Rules	REVIEWER #1		REVIEWER #2	
		Considered in the Credibility Plan?	Comments	Considered in the Credibility Plan?	Comments
1	Define context clearly	insufficient	The document does not clearly describe end-point use of the models and target user base.	insufficient	
2	Use appropriate data	sufficient	Use of third-party datasets is a strength. Validation approaches describe data requirements well.	sufficient	
3	Evaluate within context	sufficient	This is the primary strength of the credibility plan and related progress. Efforts for staged evaluation of performance of models at multiple scales are commendable. Outcome metrics are well defined. Planned and ongoing uncertainty quantification and sensitivity analysis will likely support validation efforts well.	insufficient	shows excellent progress in validating the model at multiple scales
4	List limitations explicitly	insufficient	It is not clear what the investigators will do to convey the limitations of the models, modeling and simulation workflow, and simulation results explicitly.	insufficient	
5	Use version control	insufficient	It is not clear if any version control systems are adopted.	sufficient	
6	Document adequately	insufficient	It is not clear any documentation of the models and modeling & simulation workflow will be beyond scientific publications.	insufficient	
7	Disseminate broadly	insufficient	No activities related to sharing of models, data, etc. are mentioned.	insufficient	
8	Get independent reviews	insufficient	The project will use datasets not developed by the investigators and software will be designed to apply data from third-party investigators. However, it is not known that a third-party reviewer will assess the models and modeling & simulation workflow.	insufficient	
9	Test competing implementations	sufficient	While testing of competing modeling and simulation strategies are not explicitly noted, staged validation of models representative of behavior at different scales will likely be relevant in this regard.	sufficient	
10	Conform to standards	insufficient	It is not clear from the document if there are generally acceptable guidelines in neural modeling and the investigators will be using this.	sufficient	



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## General Comments

### Reviewer 1:

The awardees are encouraged to view credibility in a more wholesome fashion rather than solely focusing on validation. While the validation efforts are well planned and undoubtedly enhance perceived credibility, awareness and implementation of other aspects of credible practice (noted in Ten Simple Rules) may strengthen the project.

### Reviewer 2:

Strong points of the report include: 1. Use of 'construction' contrasted with 'test' datasets. 2. Use of outside datasets for validation -- particularly local dataset that can be obtained in full detail. 3. Plans for sensitivity and uncertainty quantification.

It wasn't entirely clear to me (having not read the grant proposal itself) whether SDO is being used for the primary modeling or if it's an adjunct to ODE/PDE dynamical modeling. It would be interesting to hear more about how the SDO approach can complement 'traditional' more-detailed ODE dynamical modeling.

There is an excellent description of the use of validation but nothing explicit about verification. It would also be useful to hear more about dissemination (sharing) plans insofar as credibility is in the long-run in the eye of the beholder -- ie models need to eventually be confirmed by outside use. In this respect it would be valuable to hear more (in subsequent reports, not so much at this 1st stage) what the clinical applicability will be and how validation will be performed in a clinical context.

Minor points;

It would be consider how to validate that the scale appropriately work together to give valid overall output.

Please distinguish between macroconnectomics (what I assume you are getting from human dataset) and microconnectomics (what you will get from Rybak et al) and discuss how these complement each other.

Please define terms: stochastic dynamic operator (SDO), electromyography (EMG), etc

It would be helpful to understand more about documentation, versioning, commenting -- all the basic software stuff needed for credibility.