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ESPS PEER-REVIEW REPORT

Name of journal: World Journal of Biological Chemistry
ESPS manuscript NO: 17542
Title: Techniques to elucidate the conformation of prions
Reviewer's code: 00289666
Reviewer's country: United States
Science editor: Yue-Li Tian
Date sent for review: 2015-03-16 20:15
Date reviewed: 2015-04-21 00:12

CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	Google Search:	[ ] Accept
[ ] Grade B: Very good	[Y] Grade B: Minor language polishing	[ ] The same title	[ ] High priority for publication
[Y] Grade C: Good	[ ] Grade C: A great deal of language polishing	[ ] Duplicate publication	[ ] Rejection
[ ] Grade D: Fair	[ ] Grade D: Rejected	[ ] Plagiarism	[ ] Minor revision
[ ] Grade E: Poor		[ ] No	[Y] Major revision
		BPG Search:	
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[ ] No	

COMMENTS TO AUTHORS

The authors present a minireview detailing the use of FT-IR and other techniques in the study of prion structure. The review is appropriately brief and covers enough ground to get a sense of the field. However, there are a couple of issues that need to be addressed before the minireview is suitable for publication in the World Journal of Biological Chemistry. First, the author mentions therapeutic potential, but gives no hints as to how FT-IR might be applied to the development of anti-prion therapeutics. It is easy to imagine how a technique that is sensitive to changes in protein secondary structure could track development of a pathology that is sparked by changes in protein secondary structure and subsequently how therapeutics might prevent this change. This needs to be briefly addressed in the minireview. Second, the author doesn't address how far FT-IR can go in terms of making a structural model. There is mention that FT-IR is primarily useful in determining secondary structure changes, but doesn't mention at all if this is the limit of the technology or if there are methods for advancing structure determination further using FT-IR. Of course, a detailed discussion of any such efforts is beyond the scope of a minireview, but it is important to define parameters of what can and cannot be learned by a featured technique. Finally, I am surprised that none of David Eisenberg's work on prions is referenced.

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ESPS PEER-REVIEW REPORT

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CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	Google Search:	[Y] Accept
[Y] Grade B: Very good	[Y] Grade B: Minor language polishing	[ ] The same title	[ ] High priority for publication
[ ] Grade C: Good	[ ] Grade C: A great deal of language polishing	[ ] Duplicate publication	[ ] Rejection
[ ] Grade D: Fair	[ ] Grade D: Rejected	[ ] Plagiarism	[ ] Minor revision
[ ] Grade E: Poor		[ ] No	[ ] Major revision
		BPG Search:	
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[ ] No	

COMMENTS TO AUTHORS

This mini-review is concisely written regarding several techniques to assess the conformation of prions. Some minor points are described below. Page 5, line 5 up 1) The end of the sentence "Limited proteolysis….while the less structured N-terminus is cleaved of[38-43]." The "of " is correct? Is it "off"? 2) Page 6, line 8 up The sentence "Prions lack a coding nucleic acid…." is unclear. This means that infectious prions lack any nucleic acids? or that because prions have the same DNA sequence, the detection of misfolded isoforms cannot be done by genetics?

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ESPS PEER-REVIEW REPORT

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CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
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[ ] Grade B: Very good	[ ] Grade B: Minor language polishing	[ ] The same title	[ ] High priority for publication
[Y] Grade C: Good	[Y] Grade C: A great deal of language polishing	[ ] Duplicate publication	[ ] Rejection
[ ] Grade D: Fair	[ ] Grade D: Rejected	[ ] Plagiarism	[ ] Minor revision
[ ] Grade E: Poor		[ ] No	[Y] Major revision
		BPG Search:	
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[ ] No	

COMMENTS TO AUTHORS

The author discusses approaches that can be used for structural studies of prions, which cannot be studied by X-ray crystallography. The subject is important and the discussion is timely, but the mini-review can be improved by adding specifics and by careful editing. 1. It would be helpful to directly compare different techniques, such as FTIR, fluorescent spectroscopy, EPR, NMR, H/D exchange, and limited proteolysis, emphasizing the advantages and disadvantages of each. 2. I figure or two illustrating the points the authot is making would help readers. 3. Grammar needs to be corrected in many places, e.g., "compared with" should be "compared to", "FTIR on proteins" should be "FTIR of proteins", "cleaved of" should be "cleaved off", etc. Extensive editing, preferably by a native speaker, is needed.

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ESPS PEER-REVIEW REPORT

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CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	Google Search:	[ ] Accept
[Y] Grade B: Very good	[Y] Grade B: Minor language polishing	[ ] The same title	[Y] High priority for publication
[ ] Grade C: Good	[ ] Grade C: A great deal of language polishing	[ ] Duplicate publication	[ ] Rejection
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[ ] Grade E: Poor		[ ] No	[ ] Major revision
		BPG Search:	
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[ ] No	

COMMENTS TO AUTHORS

This is a nice and highly focusing mini-review which has well described and evaluated the importance of current techniques to reveal the structures of prions. It is timely critical and will help readers to understand prions in addition to obtaining valuable information for investigators who are studying or plan to study prions. To improve the readability, a number of questions or comments should be considered. 1. Background of classification of different strains of prions should be provided in the first paragraph since it will help to understand different tech. 2. Most recent solid review(s) should be used to support the first sentence in the introduction. 3. The rationale of applying micro-FTIR in screening and differentiating prion strains are missed, i.e., why small or micro sample can help or improve identification of prion strains is missed. 4. Weakness or limitation of presented techniques should be discussed. 5. Carefully editing is needed. For examples, the 2nd sentence in the 1st paragraph of introduction is unclear. It might have missed a "which". The 4th sentence in this paragraph does not make since. What are these models if there is no 3D structure? The word of "following" in the 1st sentence of the 2nd paragraph in the introduction may be replaced with "current" or "present". "CD spectroscopy" should have full spelling of CD. The 3rd sentence on page

5 is confusing. Both "occurring" and "that" define diseases and thus should be in the same grammar form, i.e., either -ing or that, and connected by "and". “Further techniques …” on page 5 should be “Other techniques …”.

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ESPS PEER-REVIEW REPORT

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[Y] Grade A: Excellent	[Y] Grade A: Priority publishing	Google Search:	[Y] Accept
[ ] Grade B: Very good	[ ] Grade B: Minor language polishing	[ ] The same title	[ ] High priority for publication
[ ] Grade C: Good	[ ] Grade C: A great deal of language polishing	[ ] Duplicate publication	[ ] Rejection
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[ ] Grade E: Poor		[ ] No	[ ] Major revision
		BPG Search:	
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[ ] No	

COMMENTS TO AUTHORS

This is a very well-written review on the techniques studying the structure of prions.