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ESPS Peer-review Report
Name of Journal: World Journal of Biological Chemistry
ESPS Manuscript NO: 7545
Title: "Stop Ne(c)king around": How systems biology can help to characterize the functions of Nek family kinases from cell cycle regulation to DNA damage response
Reviewer code: 00289614
Science editor: Qi, Yuan
Date sent for review: 2013-11-24 14:42
Date reviewed: 2013-12-06 05:42

CLASSIFICATION	LANGUAGE EVALUATION	RECOMMENDATION	CONCLUSION
[ ] Grade A (Excellent)	[ ] Grade A: Priority Publishing	Google Search:	[Y] Accept
[Y] Grade B (Very good)	[Y] Grade B: minor language polishing	[ ] Existed	[ ] High priority for publication
[ ] Grade C (Good)	[ ] Grade C: a great deal of language polishing	[ ] No records	
[ ] Grade D (Fair)		BPG Search:	[ ]Rejection
[ ] Grade E (Poor)	[ ] Grade D: rejected	[ ] Existed	[ ] Minor revision
		[ ] No records	[ ] Major revision

COMMENTS TO AUTHORS

The review article by Meirelles et al., "Stop Ne(c)king around": How systems biology can help to characterize the functions of Nek family kinases from cell cycle regulation to DNA damage response, summarize the functions of Nek family members (Nek1-11), particularly their roles in Centrioles/mitosis, Primary ciliary function/ciliopathies, and the DNA damage response. Authors also discuss potential roles of Nek proteins based on accumulated data obtained from various experiments and data analysis. Overall, it is a very well written paper. However, a number of minor issues and spelling corrections need to be made: 1. iRNA should be replace with siRNA. 2. For abbreviations: What is abbreviation for IR (IR radiation)? DDR is explained in page 1, and does not need to be explained again on page 17. For VAV1 and VAV2, one is called "Proto-oncogene vav", another one is called "Guanine nucleotide exchange factor". It would cause less confusion if they were given similar names. 3. Several Nek members have isoforms and alternated names. It would be helpful if these data can be summarized in a table. 4. Page 16, paragraph 3 and 4, references are needed for these claims. 5. As stated in Page 16, "Nek6 is probably involved in actin cytoskeleton organization through its interaction with Cell division control protein 42 homolog (CDC42) and Sorting nexin-26 (SNX26)". According to Figure 3, SNX26 inhibits CDC42's function. Since Nek6 can interact both SNX26 and CDC26 directly, authors need to explain their conclusion in more detail. 6. Page 17, number 3 (first paragraph) appears to state the data, not potential new function of Nek6. Or does authors suggest that different forms of DNA damages (IR vs. UV) trigger different Nek response? 7. Figure 4. What is role of Nek11 in this figure? As mention is page 17: "The IR-induced DNA damage response is mediated by Nek1, 6 and 11…." Such statement is not consistent with

Figure 4.

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Name of Journal: World Journal of Biological Chemistry
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CLASSIFICATION	LANGUAGE EVALUATION	RECOMMENDATION	CONCLUSION
[ ] Grade A (Excellent)	[ ] Grade A: Priority Publishing	Google Search:	[ ] Accept
[ ] Grade B (Very good)	[Y] Grade B: minor language polishing	[ ] Existed	[ ] High priority for publication
[Y] Grade C (Good)	[ ] Grade C: a great deal of language polishing	[ ] No records	[ ]Rejection
[ ] Grade D (Fair)	[ ] Grade D: rejected	BPG Search:	[Y] Minor revision
[ ] Grade E (Poor)		[ ] Existed	[ ] Major revision
		[ ] No records	

COMMENTS TO AUTHORS
This is a comprehensive and useful review compiling the main information available on all 11 members of the NEK kinase family. The authors put a main emphasis on interactome data that revealed numerous novel potential functions of NEK kinases. This resulted valuable new information and starting points for future experiments for those working in the field and is the strength of this review. The carefully drawn figures summarize and extend very well the data discussed in the text. In view of the wealth of information on the kinases provided in the text it would be desirable if the authors could include in Figure 1 relevant information on distribution and function of the kinases. Alternatively, this information may be given in a separate table. This would help the reader a lot to maintain an overview. Finally, the manuscript should be carefully checked for language flaws.

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CLASSIFICATION	LANGUAGE EVALUATION	RECOMMENDATION	CONCLUSION
[ ] Grade A (Excellent)	[ ] Grade A: Priority Publishing	Google Search:	[ ] Accept
[ ] Grade B (Very good)	[ ] Grade B: minor language polishing	[ ] Existed	[ ] High priority for publication
[ ] Grade C (Good)	[Y] Grade C: a great deal of language polishing	[ ] No records	[ ]Rejection
[Y] Grade D (Fair)	[ ] Grade D: rejected	BPG Search:	[ ] Minor revision
[ ] Grade E (Poor)		[ ] Existed	[Y] Major revision
		[ ] No records	

COMMENTS TO AUTHORS
The manuscript by Meirelles et al reviewed the recent advances in studies of Nek, a family of kinases involved in the regulation of mitosis. The 11 Nek kinases (1-11) were believed to perform at least one of the following functions: centrioles/mitosis, primary ciliary function/ciliopathies and the DNA damage response (DDR). The authors summarized the recent findings for each kinase family member mainly based on the proteomic and interactom analysis, and pointed out that most Nek kinases are involved in at least two of the above mentioned functions. The idea to review this kinase family comprehensively is interesting, because most previous reviews either focused only on several members, or discussed only one of their biological functions. The authors claim that they were trying to discuss "all of the 11 human Neks in some depth and to include all the most recent novelty". However, the manuscript is poorly written and organized. The detailed discussion of each Nek is too long and sounds boring. Many biological functions and binding partners were discussed in this section several times, because they are shared by several members of this kinase family. Since the authors claim that one of the recent advances was the multiple functions of Neks, I would suggest classifying these 11 Neks into several groups according to their functions in this section, and avoiding unnecessary repetitions in the text. Furthermore, this reviewer feels that the grammatical errors in the manuscript often hinder the understanding of the message. This manuscript needs to be professionally edited before further consideration. Additional comments: 1. The title is too informal and not quite to the point. 2. Avoid repetition. For example, Nek6 was extensively discussed in the first section, while many of the same functions and pathways were discussed again in the "Discussion section". 3. The strategies of systems biology employed in Nek-related studies should be

briefly introduced. 4. Pay attention to language: for example, the first sentence of Abstract should be "Aside from Polo and Aurora…"