

PEER-REVIEW REPORT

Name of journal: *World Journal of Stem Cells*

Manuscript NO: 89034

Title: Effects of different concentrations of nicotinamide on hematopoietic stem cells cultured in vitro

Provenance and peer review: Unsolicited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 06139840

Position: Peer Reviewer

Academic degree: PhD

Professional title: Professor

Reviewer's Country/Territory: Iraq

Author's Country/Territory: China

Manuscript submission date: 2023-10-18

Reviewer chosen by: AI Technique

Reviewer accepted review: 2023-10-18 16:18

Reviewer performed review: 2023-10-18 21:04

Review time: 4 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Novelty of this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No novelty
Creativity or innovation of this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No creativity or innovation

Scientific significance of the conclusion in this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No scientific significance
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Peer-reviewer statements	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

Thank you for asking my opinion about the manuscript entitled "Nicotinamide Concentration Determines the Fate of Hematopoietic Stem Cells". I believe that this manuscript should be major revision: Q1. It is very important to change and modify the title. the title is not appropriate. Q2. Are the objectives and the rationale of the study clearly stated? Q3. In the abstract, the research gap was not clearly stated. In addition, the authors need to rewrite the study objectives to be more academic writing Q4. In the introduction, include the study's significance and novelty. What makes the study different from the rest and what does it add to the current knowledge?. Q5. In the introduction, the authors should have explained the purpose of this study and the existing gaps in this field and explained why this study was conducted. Q6. Are the methods clear and replicable? Do all the results presented to match the methods described? Q7. If relevant are the results novel? Does the study provide an advance in the field? Is the data plausible? Q8. References are relevant, correct, and not recent. The number of references should be increased. please add some references. since this is a scientific review, all the sentences need to be supported with references. This study is

very beautiful. I liked the sequence and enjoyed reading. Please add more references on similar studies. Q9. There are a lot of grammatical errors. This must be taken care of and addressed. Q10. What are the limitations of the study? A description of limitations is missing at the end of the discussion section. • If your manuscript is related to mine, you can cite it (ORCID: <https://orcid.org/0000-0002-5107-5550>).

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Manuscript NO: 89034

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Provenance and peer review: Unsolicited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 02446514

Position: Peer Reviewer

Academic degree: PhD

Professional title: Academic Research, Professor

Reviewer's Country/Territory: Mexico

Author's Country/Territory: China

Manuscript submission date: 2023-10-18

Reviewer chosen by: Yu-Lu Chen

Reviewer accepted review: 2023-11-15 18:09

Reviewer performed review: 2023-11-24 00:25

Review time: 8 Days and 6 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Novelty of this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No novelty
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Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Peer-reviewer statements	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

The aim of the study is the evaluation of different concentrations of NAM on the proliferation, differentiation, apoptosis and gene transcription of hematopoietic stem cells (HSCs). In general the experiments are well planned and results are interesting; however, I consider that a better clarity is needed for their understanding. 1. Cord blood, should be changed by umbilical cord. 2. The end of introduction is somehow confuse. 3. Materials and Methods. a. Cord blood mononuclear cells (MNCs) were isolated with hydroxyethyl starch (HES) and Ficoll (Tianjin Haoyang. TBD), and then wash and resuspend them in column buffer. The procedure should be described and /or give a reference. b. Cell culture. Cells are seeded 5×10^4 /mL, indicate the type of plates used. c. For Phenotypic analysis, indicate the cells isolation procedure. d. Apoptosis. 1) Wash cells twice with precooled PBS and then resuspend cells in 1×Binding Buffer; which is the binding buffer? e. Cell cycle. 70% ethanol at 4°C for 2 hours or more, especify f. 1.0 ml propidium staining solution. Indicate concentration. g. A minimum of 40,000 gated events was collected for each sample. What does it mean? h. Reactive oxygen detection. Resuspension cells with diluted DCFH-DA at a concentration of 1-20 million/ml and

incubate for 20 minutes. Is that correct? i. What is Rosup? j. RT-PCR . Primer used should be presented. 4. Results. a. The effect of different concentrations of NAM on the quality of HSCs. The viability should be presented. Figure 1 should indicate the ratio of the cells, not percentage. b. The effect of different concentrations of NAM on the quantity of HSCs. Does expansion folds mean proliferation? Figure 2: After 12 days of amplification. That means growing? c. How can you explained that NAM increase the number of cells (fig 1 and2) and also increase the number of apoptotic cells (fig 3), that is not mentioned in the discussion. d. Section 4. In addition, compared with the uncultured group, ; which it is? e. Fig 4B, explain the graphic; which is shown in the ordered and abscissa 5. Discussion. The number of cells in the 10mM group..... is even insufficient to complete the detection. It can not be possible, explain b. In summary, NAM has a negative impact on cell activity to some extent. What does cell activity means? c. In summary, different concentrations of NAM have different effects on self-renewal, proliferation, differentiation and metabolism of HSCs,. Should change you did not analyzed metabolism. d. The effect of different concentrations of Nicotinamide on the phenotype of cells LT-HSCs, ST-HSCs should be discussed, as well as the possible mechanisms

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Peer-review model: Single blind

Reviewer's code: 05089997

Position: Peer Reviewer

Academic degree: Doctor, MD, PhD

Professional title: Consultant Physician-Scientist, Professor

Reviewer's Country/Territory: Romania

Author's Country/Territory: China

Manuscript submission date: 2023-10-18

Reviewer chosen by: Yu-Lu Chen

Reviewer accepted review: 2023-11-19 19:00

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Review time: 7 Days and 15 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
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Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Peer-reviewer statements	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

The article presents the possible role of nicotinamide on hematopoietic stem cells. The study needs improvement and requires grammar revision. I also recommend taking into consideration the following: - Abstract: „RT-PCR detection of gene expression levels, and Reactive Oxygen Detection assessment of intracellular ROS levels. ” rephrase - Abstract: „Low concentration of NAM is beneficial to the expansion of short-term repopulating HSCs (ST-HSCs,CD34+CD38-CD45RA-CD49f+), which can inhibit the differentiation of HSCs by reducing the production of ROS, increase the proportion of cells in S and G2 phase to significantly promote the proliferation of HSCs, and SIRT1 may be one of the related factors” rephrase - Rephrase: „Many studies by Horwitz have shown that nicotinamide-based methods are beneficial for rapid recovery of neutrophils in patients after transplantation” - use the same verbal tense throughout the hole material and methods chapter - I recommend using a short acronym for the sequences of cells “CD34+CD38-CD45RA-CD49f+” and “CD34+CD38-CD45RA-CD49f+CD90+” to make the text easier to read - Rephrase “In addition, the proportion of CD34+CD38-CD45RA-CD49f+cells in the 5mM NAM group was significantly higher



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than that in the control group and the 10mM NAM group (both P