Peer Review Report

Review Report on The role of TGF-β in the electrotactic reaction of mouse 3T3 fibroblasts in vitro

Original Research, Acta Biochim. Pol.

Reviewer: Iga Hołyńska-Iwan
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EVALUATION

Q 1 Please summarize the main findings of the study.

The age of analyzing cells and tissues for the production of a single protein and explaining the operation of a single biochemical pathway is over. Therefore, in my opinion, the manuscript submitted for evaluation is valuable from a scientific but also methodical point of view. The combination of protein activity assessment, ion transport with measurement of electric field and cell movement is innovative and meets the needs of modern science. However, I noticed some minor deficiencies.

Q 2 Please highlight the limitations and strengths.

The introduction and discussion lack information about the transport of sodium ions and the involvement of sodium channels in generating and maintaining the electric field of cells (as reported for example by J. Biol. Chem. 1990, 265(13): 7260–7267,199O Printed in IJ. S.A. Activation of Na+ and K+ Pumping Modes of (Na,K)-ATPase by an Oscillating Electric Field or BMC Cell Biol 2011,12:4). Persistent directional cell migration requires ion transport proteins as direction sensors and membrane potential differences in order to maintain directedness). If, according to the authors, the transport of sodium ions is not important, but only potassium ions, such information should be included, along with the literature sources.

Q 3 Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

The material and methodology chapter is very extensive and difficult to understand. Therefore, I suggest preparing a figure/scheme showing the course of the experiment, or at least the main activities that were performed successively.
Subchapter 2.8 Statistical analysis lacks information about the test that was used to assess the normality of data distribution.
In the abstract and contribution to the field there are unexplained abbreviations. Similarly, there is no explanation of the abbreviations used under the tables.

Check List

Q 4 Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List)

To editor
I recommend the manuscript " The role of TGF-β in the electrotactic reaction of mouse 3T3 fibroblasts" to be accepted after minor revision done.
The age of analyzing cells and tissues for the production of a single protein and explaining the operation of a single biochemical pathway is over. Therefore, in my opinion, the manuscript submitted for evaluation is valuable from a scientific but also methodical point of view. The combination of protein activity assessment, ion transport with measurement of electric field and cell movement is innovative and meets the needs of modern science. However, I noticed some minor deficiencies. In my opinion, the most important thing is the lack of analysis of the contribution of sodium ion transport and channels related to it in generating and maintaining the electric field. I included other comments in the comment for the authors.

The Authors have followed the instructions for preparing the article for Acta Biochimica Polonica.
As a reviewer I declare to have no conflict of interest.

To Authors
I recommend the manuscript " The role of TGF-β in the electrotactic reaction of mouse 3T3 fibroblasts" to be accepted after minor revision done. Therefore I propose:
1) The introduction and discussion lack information about the transport of sodium ions and the involvement of sodium channels in generating and maintaining the electric field of cells (as reported for example by J. Biol. Chem. 1990, 265(13): 7260–7267,199O Printed in IJ. S.A. Activation of Na+ and K+ Pumping Modes of (Na,K)-ATPase by an Oscillating Electric Field or BMC Cell Biol 2011,12:4). Persistent directional cell migration requires ion transport proteins as direction sensors and membrane potential differences in order to maintain directedness). If, according to the authors, the transport of sodium ions is not important, but only potassium ions, such information should be included, along with the literature sources.
2) The material and methodology chapter is very extensive and difficult to understand. Therefore, I suggest preparing a figure/scheme showing the course of the experiment, or at least the main activities that were performed successively.
3) Subchapter 2.8 Statistical analysis lacks information about the test that was used to assess the normality of data distribution.
4) In the abstract and contribution to the field there are unexplained abbreviations. Similarly, there is no explanation of the abbreviations used under the tables.

Q 5 **Is the English language of sufficient quality?**

Yes.

Q 6 **Is the quality of the figures and tables satisfactory?**

Yes.

Q 7 **Does the reference list cover the relevant literature adequately and in an unbiased manner?**

Yes.

Q 8 **Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)**

Yes.

Q 9 **Are the methods sufficiently documented to allow replication studies?**

Yes.

Q 10 Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)

Not Applicable.

Q 11 Does the study adhere to ethical standards including ethics committee approval and consent procedure?

Not Applicable.

Q 12 Have standard biosecurity and institutional safety procedures been adhered to?

Not Applicable.

QUALITY ASSESSMENT