

Reply



Dear Editor,

I am grateful to Dr Burns¹ for showing interest in my paper “Amniotic fluid may act as a transporting pathway for signaling molecules and stem cells during the embryonic development of amniotes” published in the *Journal of the Chinese Medical Association*.²

Actually, the hypothesis that amniotic fluid (AF) may act as a transporting pathway for signaling molecules during embryonic development came to my mind about 20 years ago. Since then I have been trying to perform practical research experiments and looking for relevant information to support this assumption. I believe that the biological function of AF is by no means simple, as it is generally believed to provide both nutrients and physical cushioning to the fetus. As you know, the key issue for the development of tissues and organs is embryonic induction, which controls cellular proliferation and differentiation. Numerous signaling molecules or inducing factors have been identified to be involved in the development of tissues and organs.³ However, there has been no verifiable answer to the following question: Through which “channel” are these molecules transported to the responding cells over long distances? As I have stated in the paper, AF appears in the early stage in amniote embryos and is associated with the subsequent process of fetal development. The constituents of AF come from almost all fetal tissues or organs, and show a dynamic pattern along with fetal development. Changes in volume and constituents of AF can lead to abnormal fetal development and even fetal death. Thus, based on its biological properties, I speculated that AF may act as a transporting pathway for signaling molecules. I admit that the hypothesis is deduced from a body of indirect evidence, and further experimental data are required to answer the questions

you posed. In the meantime, I also believe that at present, there is insufficient evidence to totally repudiate my hypothesis. Instead, I hope that my paper will arouse interest in further research on AF, spurring investigators to explore the possibility that AF may play a potentially important role in embryogenesis. This will be significant for a more comprehensive understanding of embryonic development and regenerative medicine, preventing genetic diseases and developing therapeutics for human malignancies.

I thank you very much for your comments, and your suggestions are greatly appreciated.

Conflicts of interest

The author declares that there are no conflicts of interest related to the subject matter or materials discussed in this article.

References

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Professor Xinglong Tong
Hebei Xinglong Institute of Pharmacological and Medical
Science, 31, Southwest Second Loop Road,
Shijiazhuang 050000, China
E-mail address: xinglongtong@hotmail.com