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CORRESPONDENCE

Reply to a letter to the Editor regarding the article "Testosterone attenuates hypoxia-induced hypertension by affecting NRF1-mediated transcriptional regulation of ET-1 and ACE"

Shan Jiang[1,2] · Guijuan Chen[1] · Zhihui Yang[1] · Dan Wang[1] · Yapeng Lu[1] · Li Zhu[1,3] · Xueting Wang[1]

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Dear Editor-in-Chief,

We would like to thank Dr. Martin, Gregoire and Johannes for their pertinent concern about the effects of testosterone in mice and humans under hypoxic conditions. Hypoxia causes an increase in blood pressure in males. Our research also suggested that the blood pressure of male rats increased markedly after hypoxia exposure [1]. We agree that blood pressure in men is more sensitive to hypoxia. As Martin et al. described, the regulation of blood pressure is influenced by age, the sympathetic nervous system, the respiratory system, the cardiovascular system, sex, and other factors [2]. Sex hormones are only one aspect. It is widely known that female sex hormones, such as estradiol, play a protective role in blood pressure regulation [3]. Here, we aim to explain the mechanism underlying the sex differences in blood pressure changes after hypoxia exposure. We found that testosterone protects male mice from systemic blood pressure elevation. However, our early research found that hypoxia significantly reduced testosterone levels, leading to reduced blood pressure protection [4, 5]. This finding indicates that blood pressure changes more obviously in men than in women after hypoxia exposure. Of course, as Martin and colleagues suggested, the multiple effects of testosterone and the sex differences in blood pressure regulation deserve more in-depth study.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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✉ Li Zhu
zhulizhou@ntu.edu.cn

✉ Xueting Wang
wangxueting@ntu.edu.cn

[1] Institute of Special Environmental Medicine, Nantong University, Nantong, China

[2] School of Life Science and Technology, China Pharmaceutical University, Nanjing, China

[3] Co-Innovation Center of Neuroregeneration, Jiangsu Key Laboratory of Neuroregeneration, Nantong University, Nantong, China