Answer to 'COPD and IPF: it's all about regulation and balance'

We thank Tzouvelekis and Bouros¹ for their interest in our recent article in *Thorax*.² The theory of Hippocrates reminds us of the balance theory informing traditional Chinese medicine. Ancient Chinese scholars believed there were two natural, complementary yet contradictory forces in our universe: yin and yang, with the former being feminine or negative and the latter masculine or positive. Both of them are always in a state of dynamic balance. A balanced state of yin and yang means health whereas an excess or deficiency of one or the other usually indicates disease. Ancient scholars in China therefore treated this phenomenon as the universal law. The delicate balance of anti-inflammatory (yang) or proinflammatory (yin) power plays a pivotal role in maintaining lung homeostasis.³ Based on our findings and previous studies, we believe that this imbalance exists in COPD and idiopathic pulmonary fibrosis (IPF) and in other immune-mediated disorders.

According to the theory of yin and yang, the main goal of medical therapy was to restore the delicate balance. Glucocorticoids are the most effective anti-inflammatory treatments available for many inflammatory and immune diseases, including asthma, rheumatoid arthritis, inflammatory bowel disease and autoimmune diseases. Glucocorticoids inhibit the activation and proliferation of inflammatory cells by chromatin remodelling and gene expression. On the other hand, glucocorticoid treatment promotes or initiates differentiation of CD4 T cells to regulatory T (Treg) cells by a FOXP3-dependent mechanism.⁴ It seems that glucocorticoids are trying to restore the homeostasis between inflammatory and regulatory cells. However, no effect of glucocorticoids on the number of Tregs in patients with IPF⁵ and COPD² was reported, probably due to the glucocorticoid resistance characterising these two diseases. Anyway, further studies are still needed to clarify whether glucocorticoids or other immunomodulating agents have any effects on the different subpopulations of Treg cells in COPD or IPF. Finally, we agree with Tzouvelekis and Bouros that an exploration of the Treg profiles in combined pulmonary fibrosis and emphysema is of great importance, as it could contribute to our understanding of adaptive immunity in the pathogenesis of both diseases.

Jia Hou,^{1,2} Yongchang Sun,¹ Hui Zeng³

¹Department of Respiratory Medicine, Beijing Tongren Hospital, Capital Medical University, Beijing, China

²Department of Respiratory and Critical Care Medicine, General Hospital of Ningxia Medical University, Yinchuan, China

³Institute of Infectious Diseases, Beijing Ditan Hospital, Capital Medical University, Beijing, China

Correspondence to Professor Yongchang Sun, Department of Respiratory Medicine, Beijing Tongren Hospital, Capital Medical University, No. 1 Dongjiaominxiang, Dongcheng District, Beijing 100730, China; suny@ccmu.edu.cn and Professor Hui Zeng, Institute of Infectious Diseases, Beijing Ditan Hospital, Capital Medical University, Jingshundongjie 8, Beijing 100015, China; zenghui@ccmu.edu.cn

Contributors JH, YS and HZ drafted the manuscript which was amended and finally approved by YS and HZ.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; internally peer reviewed.

CrossMark

To cite Hou J, Sun Y, Zeng H. *Thorax* 2014;**69**:490–491.

Received 10 December 2013

Accepted 12 December 2013

Published Online First 16 January 2014

► <http://dx.doi.org/10.1136/thoraxjnl-2013-204860>

Thorax 2014;**69**:490–491.

doi:10.1136/thoraxjnl-2013-204987

REFERENCES

- 1 Tzouveleakis A, Bouros D. COPD and IPF: It's all about regulation and balance. *Thorax* 2014;**69**:489.
- 2 Hou J, Sun Y, Hao Y, *et al*. Imbalance between subpopulations of regulatory T cells in COPD. *Thorax* 2013;**68**:1131–9.
- 3 Soriano JB, Agustí A. The yin and yang of COPD: or balancing repair (yang) and inflammation (yin). *Eur Respir J* 2008;**32**:1426–7.
- 4 Karagiannidis C, Akdis M, Holopainen P, *et al*. Glucocorticoids upregulate FOXP3 expression and regulatory T cells in asthma. *J Allergy Clin Immunol* 2004;**114**:1425–33.
- 5 Kotsianidis I, Nakou E, Bouchliou I, *et al*. Global impairment of CD4⁺CD25⁺FOXP3⁺ regulatory T cells in idiopathic pulmonary fibrosis. *Am J Respir Crit Care Med* 2009;**179**:1121–30.