Benefits of the active agents from Yupingfeng for pulmonary fibrosis

Liu-Cheng Li¹, and Lian-Di Kan*¹

¹Department of Pharmacy, Sir Run Run Shaw Hospital, School of Medicine, Zhejiang University, Hangzhou, China

Pulmonary fibrosis (PF) is a chronic inflammatory, debilitating and often lethal lung disease with unclear aetiology. The imbalance of extracellular matrix (ECM) secretion and metabolism in the lung tissue is considered to be a key reason for the loss of lung function and respiratory failure [1,2]. Till now, limited effective therapies have been developed to reverse PF or halt it to lung failure.

Yupingfeng, a classical complex prescription of traditional Chinese medicines (TCM), composes of Astragali Radix, Atractylodis Macrocephalae Rhizoma and Saposhnikoviae Radix in a dry weight ratio of 3:1:1. It has been early reported to improve respiratory tract diseases such as viral infections and chronic bronchitis [3,4]. Impressively, recent studies have shown that total glucosides of Yupingfeng (YPF-G) could effectively attenuate bleomycin-induced alveolitis and PF with decreased levels of ECM protein including laminin, hyaluronic acid and type I collagen, as well as reduced the over-expression of TGF-β1 and high-mobility group box 1 [5,6]. Moreover, Cui et al. also demonstrated that YPF-G reversed the process of epithelial–mesenchymal transition, which is critical origin of ECM-producing cells [6]. Meanwhile, total polysaccharides of Yupingfeng was reported to attenuate TGF-β1 mediated synthesis of Col-I on bleomycin-induced rats [7].

These data suggest the benefits of the active agents from Yupingfeng for PF. However, further efforts are still needed to clearly illuminate the mechanisms and effective components of Yupingfeng extracts on PF before the potential application in clinical. Moreover, other compositions other than glucosides and polysaccharides may also contribute to the anti-fibrotic role. Meaningfully, it would provide new perspectives for PF therapy if further investigations were conducted to clarify whether the effects of Yupingfeng extracts are superior to the single composition (such as astragaloside IV) or Yupingfeng San.

References