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Pulmonary arterial hypertension and pulmonary fibrosis: Treatments, unmet needs, and future directions

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Pulmonary arterial hypertension (PAH) and idiopathic pulmonary fibrosis (IPF) are two progressive, debilitating, and fatal lung diseases. Both conditions are limited in their treatment options and have no cure. They share some common underlying pathophysiologic features with varying degrees of severity. The major ones include pulmonary hypertension, inflammation, and structural remodeling. Developing pharmacological treatments for these lung diseases is a challenging task as the pathogenesis is not clearly understood. There are three classes of drugs widely used often in combinations for the treatment of PAH: (1) phosphodiesterase 5 (PDE-5) inhibitors; (2) endothelin receptor antagonists; and (3) prostanoids. These drugs are pulmonary vasodilators and do not reverse the structural changes in the pulmonary vascular bed. Therefore, the current treatments are not effective in preventing or delaying the progression of PAH. Similarly, there are two drugs (nintedanib and pirfenidone) approved for the treatment of IPF. They are not effective in significantly delaying the progression of this condition. Also, the majority of these lung disease patients suffer from chronic mental and metabolic comorbidities. The average lifespan of patients after diagnosis for PAH is 5-7 years and for IPF 3 years. Thus, there is a significant unmet medical need and growing demand to develop novel treatments that can significantly delay the disease progression, if not to provide a cure, and to improve patient quality of life. This presentation will briefly review current understanding of the pathobiology of PAH and IPF, approved therapies, unmet medical needs, and novel treatments in development in the industry. This discussion will examine some of the translational challenges involved in the development of new therapeutic options and the lessons learned. Finally, it will close by (1) delineating the concerns related to intellectual properties and commercialization and (2) by providing insight into future directions in the management of these conditions.

Biography

Laxminarayan Bhat, Ph.D., is the Founder, President, and Chief Executive Officer of Reviva Pharmaceuticals, Inc. Dr. Bhat founded Reviva in 2006, and since its inception, the company has advanced rapidly under his leadership with a portfolio of propriety compounds at different stages in a pipeline encompassing central nervous system (CNS), cardiovascular, and inflammatory diseases. Dr. Bhat has over 20 years of experience in drug discovery and development. Prior to founding Reviva, he held research positions at XenoPort, ARYx Therapeutics, and Higuchi Biosciences Center in the United States. Dr. Bhat conducted extensive graduate and post-graduate training in medicinal chemistry in India, France, Germany, and the USA. Dr. Bhat has published over 25 research papers in peer-reviewed international journals. He has given several invited lectures/presentations at national and international conferences. Dr. Bhat is an inventor with over 60 granted patents and contributed to one approved drug currently in the market worldwide.

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