Fibrosis Models in Mice And Rats

Oncology & Immunology Unit, WuXi Biology

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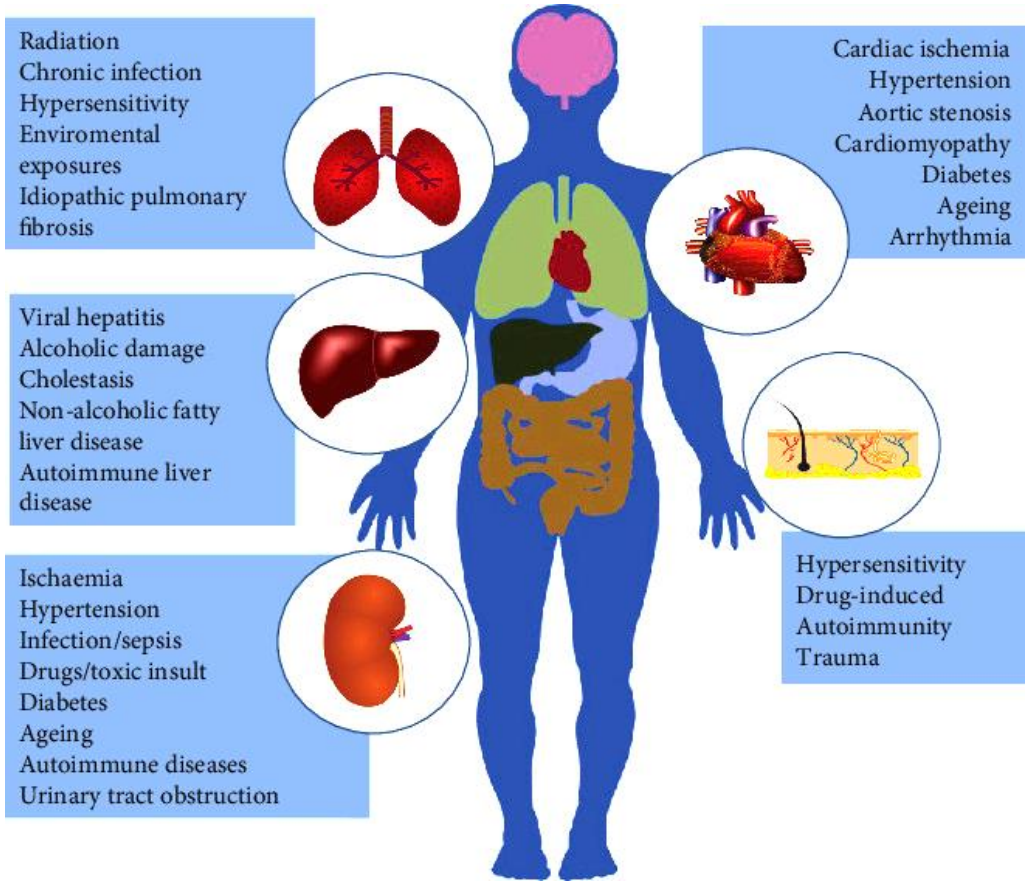
Background

Fibrotic diseases



Fibrosis is defined as an excessive deposition of connective tissue components and can affect virtually every organ system, including the skin, lungs, liver and kidney. In the different organs, a broad range of triggers and etiologies can result in occurrence and development of fibrosis.

Disease-specific responses to injury at early stages culminate in accumulation of myofibroblasts and activation of shared fibrotic signalling responses that drive disease progression in later stages of fibrotic diseases.

The animal models related to fibrotic diseases have attracted more and more of the industry's attention and has become an indispensable part in pathogenesis research and therapeutic drug discovery. To this end, we have established a series of fibrosis models in mice and rats.

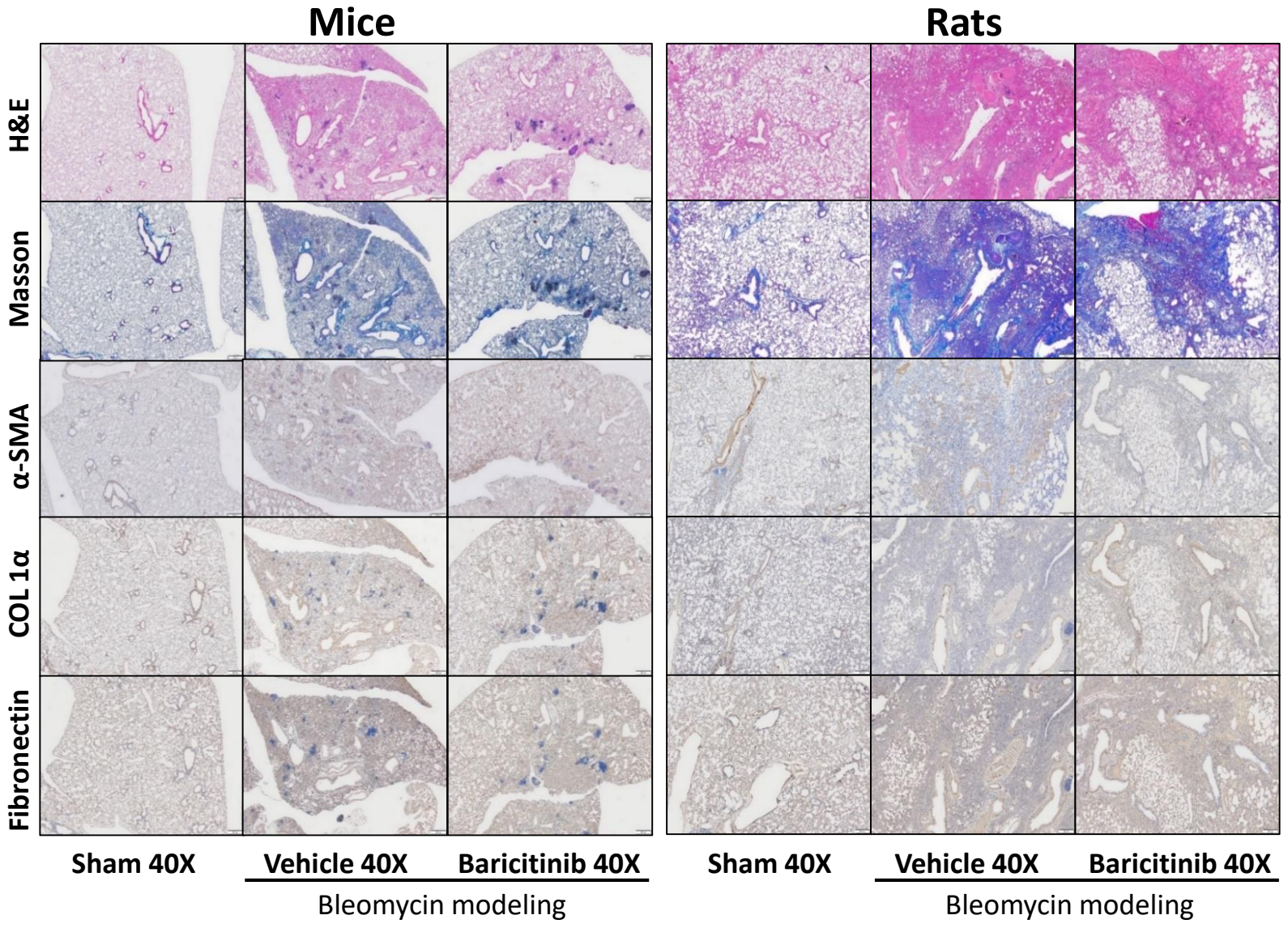
--Oxid Med Cell Longev . 2021 Nov 11:2021:1210675.
--Nat Rev Rheumatol . 2019 Dec;15(12):705-730.

Summary of different fibrosis models at WuXi AppTec

Type	Modeling method/reagent	Species	Duration
Pulmonary fibrosis	Bleomycin	Mice	4 weeks
		Rats	2 weeks
	Silica	Mice	8 weeks
Renal fibrosis	Unilateral ureteral obstruction (UUO)	Mice	2 weeks
	Aristolochic acid (AA)	Mice	4 weeks
Liver fibrosis	Bile duct ligation (BDL)	Mice	2 weeks
	Carbon tetrachloride (CCl_4)	Mice	6 weeks
Systemic sclerosis	Bleomycin	Mice	4 weeks

Contact us by OIU-BD-Translation@wuxiapptec.com for more information and sharable case studies of these models!

Showcase: Antifibrotic efficacy of Baricitinib in Bleomycin-induced pulmonary fibrosis model in mice or rats



After final administration of vehicle and Baricitinib, pulmonary tissue samples were collected for following assessment.

- H&E staining: pulmonary inflammatory cell infiltration and tissue injury.
- Masson staining: pulmonary ECM deposition.
- IHC (Fibronectin, α-SMA , COL 1α): fibronectin/type 1 collagen deposition, fibroblast activation.

The above results were significantly observed in vehicle group suggesting Bleomycin aggravated pulmonary fibrosis, and Baricitinib effectively ameliorated fibrosis induced by Bleomycin.

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