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Gene expression profiles reveal molecular mechanisms involved in the progression and resolution of bleomycin-induced lung fibrosis

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Gene expression profiles reveal molecular mechanisms involved in the progression and resolution of bleomycin-induced lung fibrosis

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Cabrera S, Selman M, Lonzano-Bolaños A, Konishi K, Richards TJ, Kaminski N, Pardo A. Gene expression profiles reveal molecular mechanisms involved in the progression and resolution of bleomycin-induced lung fibrosis. *Am J Physiol Lung Cell Mol Physiol* 304: L593–L601, 2013. First published March 1, 2013; doi:10.1152/ajplung.00320.2012.—Lung fibrosis is the final result of a large number of disorders and is usually considered an irreversible process. However, some evidence suggests that fibrosis could eventually be reversible. In this study we aimed to document the time-related reversibility of bleomycin-induced lung fibrosis and to examine the gene expression profile associated with its initial progression and subsequent resolution. C57BL/6 mice were instilled with a single dose of bleomycin and euthanized at 1, 4, 8, 12, and 16 wk. Control animals received an equal volume of saline. Lung fibrosis was examined by morphology and hydroxyproline content

well as in the achievement of novel therapeutic approaches. In other tissues, evidence for regression has been observed usually after the causative agent is removed or if animals are treated effectively. For example, resolution of experimental kidney fibrosis has been obtained by blocking or antagonizing the action of the renin-angiotensin system, and fibrosis following steatohepatitis may regress when diet is controlled (2, 16). Furthermore, antiviral treatment for infection with either hepatitis B or C virus supports that viral eradication is associated with at least partial regression of liver fibrosis in humans (11). Spontaneous resolution of liver fibrosis has been also demonstrated in a model of CCl_4-induced liver injury that has been associated with the presence of macrophage-derived MMP13 (4, 6).