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ROLE OF MATRIX METALLOPROTEINASES IN THE PATHOGENESIS OF INTERSTITIAL LUNG INJURY

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Background
Matrix metalloproteinases (MMPs) play an important role in extracellular matrix degradation, inflammatory response, and tissue remodeling in interstitial lung diseases. Dysregulation of MMP activity contributes to fibrosis progression and structural damage of lung tissue.

Keywords: Matrix metalloproteinases, interstitial pneumonia, pulmonary fibrosis, extracellular matrix, inflammation, biomarkers, tissue remodeling.

Objective. To evaluate the role of matrix metalloproteinases in the development of experimental interstitial lung injury.

Materials and methods
Experimental interstitial pneumonia was induced in laboratory rats. The activity and expression of matrix metalloproteinases were assessed in blood serum and lung tissue using biochemical and immunological methods.

Results
Experimental interstitial pneumonia was associated with a significant increase in matrix metalloproteinase activity compared with intact animals. Enhanced expression of MMPs was accompanied by inflammatory infiltration, extracellular

matrix destruction, and activation of fibrotic remodeling processes in lung tissue. Elevated MMP activity correlated with the severity of interstitial inflammation and connective tissue damage.

Conclusion

Matrix metalloproteinases are actively involved in the pathogenesis of interstitial lung injury and fibrosis development. Increased MMP activity reflects extracellular matrix remodeling and may serve as a valuable biomarker for assessing disease progression and therapeutic effectiveness in interstitial lung diseases.