**SFigure Legends**

**SFigure 1. Relationship between MMPs and clinical features.** A. The heatmap illustrates the computationally derived meta lung function variable combining multiple lung function parameters. B. The boxplots show the expression of MMP3 and MMP2 among different MUC5B genotypes in IPF. C. LASSO and Ridge regression applied in the radiomics feature screening process. D. The Venn plot shows the overlap of positively correlated pathways in IPF in the four data sets. E. The bubble plot shows the pathways positively associated with MMPs in IPF in the four datasets.

**STable Legends**

**STable1 Clinical information sheets for the primary data sets**

**STable2 Correlation between MMPs and biological pathways**

**STable3 Analysis of normal and IPF gene regulatory network**