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Title: Expression of immunoproteasome subunits LMP2 and LMP7 by alveolar macrophages is reduced in patients with idiopathic pulmonary fibrosis

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Body: Rationale: Proteasomes are involved in the degradation of ubiquitinated proteins and the MHC I-restricted antigen presentation. Low molecule weight protein (LMP) 2 and LMP7 are interferon γ-inducible and catalytic subunits of 20S proteasome, and turn it to immunoproteasome. This study was aimed to compare the expression of LMP2 and LMP7 in alveolar macrophages (AMs) from patients with idiopathic pulmonary fibrosis (IPF) and cryptogenic organized pneumonia (COP). Methods: BAL cells were collected from 31 patients: 12 IPF, 11 COP and 8 control subjects. Immunocytochemistry was used to stain the cells with monoclonal antibodies against LMP2 and LMP7. Proportions of LMP2 and LMP7 positive AMs were calculated and the strength of LMP2 and LMP7 expression was estimated semi-quantitatively by a staining-intensity score system. Results: The expression of LMP2 and LMP7 by AMs from IPF patients was significantly decreased in comparison to controls (Table 1): for COP only a tendency was seen. The expression of LMP7 but not LMP2 in IPF patients treated with steroids was significantly higher compared with those without steroids (positive rates, p=0.026; scores, p=0.003). Conclusions: The expression of the immunoproteasome subunits seems to be reduced in IPF. The influence of steroid therapy on the expression of LMP7 cannot be excluded.

Table1. Expression of immunoproteasome subunits by AMs in the studied groups

Immunoproteasome subunits		Controls (N=8)	IPF (N=12)	COP (N=11)
LMP2	Positive Rate (%)	47±24	20±22*	40±33
	Score	49±25	20±22*	47±45

LMP7	Positive Rate (%)	84±8	58±39*	57±39*
	Score	97±19	77±61	76±63

*: $p<0.05$ vs. controls.