

SFTA2 - A NOVEL PULMONARY SURFACTANT PROTEIN SECRETED BY TYPE II CELLS - IS DOWNREGULATED IN LPS-INDUCED LUNG INFLAMMATION

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Tissue-specific transcripts are likely to play a significant role in the function of the corresponding organ. In an in silico approach to define the specific transcriptome of the human lung, we identified the transcript of a yet uncharacterized protein, SFTA2. The human *SFTA2* gene is located on Chr 6p21.33, a disease-susceptibility locus for diffuse panbronchiolitis also encoding mucin21 and mucin-like genes. Specific transcription of the *SFTA2* gene in the human lung was verified by RT-PCR. *SFTA2* encodes a small hydrophilic precursor peptide (78 amino acids) releasing a 59 amino acid mature peptide after cleavage of an amino-terminal secretory signal. Human SFTA2 has no recognizable homology to other human proteins while orthologues are present in all mammals. Specific antibodies raised against the human peptide recognized a 13 kDa Peptide in human respiratory epithelial cells with a shift to the expected 6 kDa after deglycosylation. In immunofluorescence staining of human lung sections, signals corresponding to SFTA2 were specifically detected in Type II pneumocytes of the alveolar epithelium. While SFTA2 showed no colocalization with lamellar bodies, it was detected in human broncho-alveolar lavage fluid thus establishing this peptide as a novel hydrophilic surfactant protein. In the mouse, *Sfta2* was significantly downregulated after induction of a pulmonary inflammatory reaction by intratracheal administration of lipopolysaccharides indicating regulated secretion. We speculate about a possible role of SFTA2 in innate immune defence and inflammation.