**Correlated Genes between DNA Methylation and Gene Expression Associated with Idiopathic Pulmonary Fibrosis**

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**Background:** Idiopathic pulmonary fibrosis (IPF) is a chronic, progressive form of lung disease characterized by fibrosis. Epigenetic mechanisms are likely to be associated with pathogenesis in IPF. We compared microarray data of DNA methylation and RNA expression.

**Methods and Findings:** We performed genome-wide DNA methylation and gene expression profiling in a total of 12 samples including 4 IPF-rapid, 4 IPF-slow and 4 adjacent normal lung tissues using the Illumina HumanMethylation450 BeadChip and Illumina HumanHT-12 BeadChip. Genome-wide differences in DNA methylation status and RNA expression were demonstrated by array hybridization. Among 485,577 loci examined, 10,937 site were significantly different between NC and IPF with \( p < 0.01 \). When the subjects were divided into two groups (rapid vs. slow IPF), the IPF-rapid and normal controls clustered distinctly, and IPF-slow samples were not classified clearly. Among the expression level of the 47,231 curated and putative genes and ESTs, which represent 30,494 unique genes gene, 683 gene showed different expression between NC and IPF with \( p < 0.05 \). When the subjects were divided into two groups (rapid vs. slow IPF), the IPF-rapid and normal controls clustered distinctly, and IPF-slow samples were not classified clearly. Among the genes whose DNA methylation status and RNA expression were both significantly altered between IPF-rapid and normal controls, 84 genes of the 118 genes were hypermethylated in DNA associated with decreased mRNA expression or vice versa.

**Conclusion:** The combined analysis of DNA methylation and gene expression identified genes to be involved in IPF, suggesting that DNA methylation is important in the pathogenesis of IPF.

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**Occupational Dust Exposure and Idiopathic Pulmonary Fibrosis Prognosis: A Korean National Survey**

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**Rationale:** Previous studies have identified the occupational and environmental agents causing IPF. There have been few studies regarding the prognosis of IPF patients, according to patient occupation.

**Objective:** We investigated whether occupational dust exposure was associated with clinically decreased lung function and poor prognoses.

**Design:** The Korean ILD Research Group conducted a national survey to evaluate the clinical, physiological, radiological, and survival characteristics of IPF patients. A total of 1,311 IPF patients were stratified into 5 groups, according to their occupation: (1) unemployed or housewives (n=628); (2) farmers, fishers, or ranchers (n=230); (3) sales or service personnel (n=131); (4) clerical or professional personnel (n=151); (5) specific dust-exposed (wood, metal, sand, stone, diesel, chemical) workers (n=171).

**Results:** The mean age of subjects, at diagnosis, was 67.5±9.7 years. With regard to smoking status, 456 patients had never smoked, 435 were ex-smokers, and 336 were current smokers. Dust-exposed workers showed early onset of IPF (61.3±8.6 years, \( p < 0.001 \)) and a longer duration of symptoms at diagnosis (17.0±28.2 months, \( p = 0.004 \)). Aging (\( p < 0.001 \); hazard ratio [HR], 1.055; 95% confidence interval [CI], 1.028-1.082), forced vital capacity (% of predicted) at diagnosis (\( p = 0.011 \); HR, 0.984; 95% CI, 0.971-0.996), and occupation (\( p = 0.010 \)) were associated with mortality.

**Conclusion:** These findings indicate that occupational dust may be an aggravating factor associated with a poor IPF prognosis.