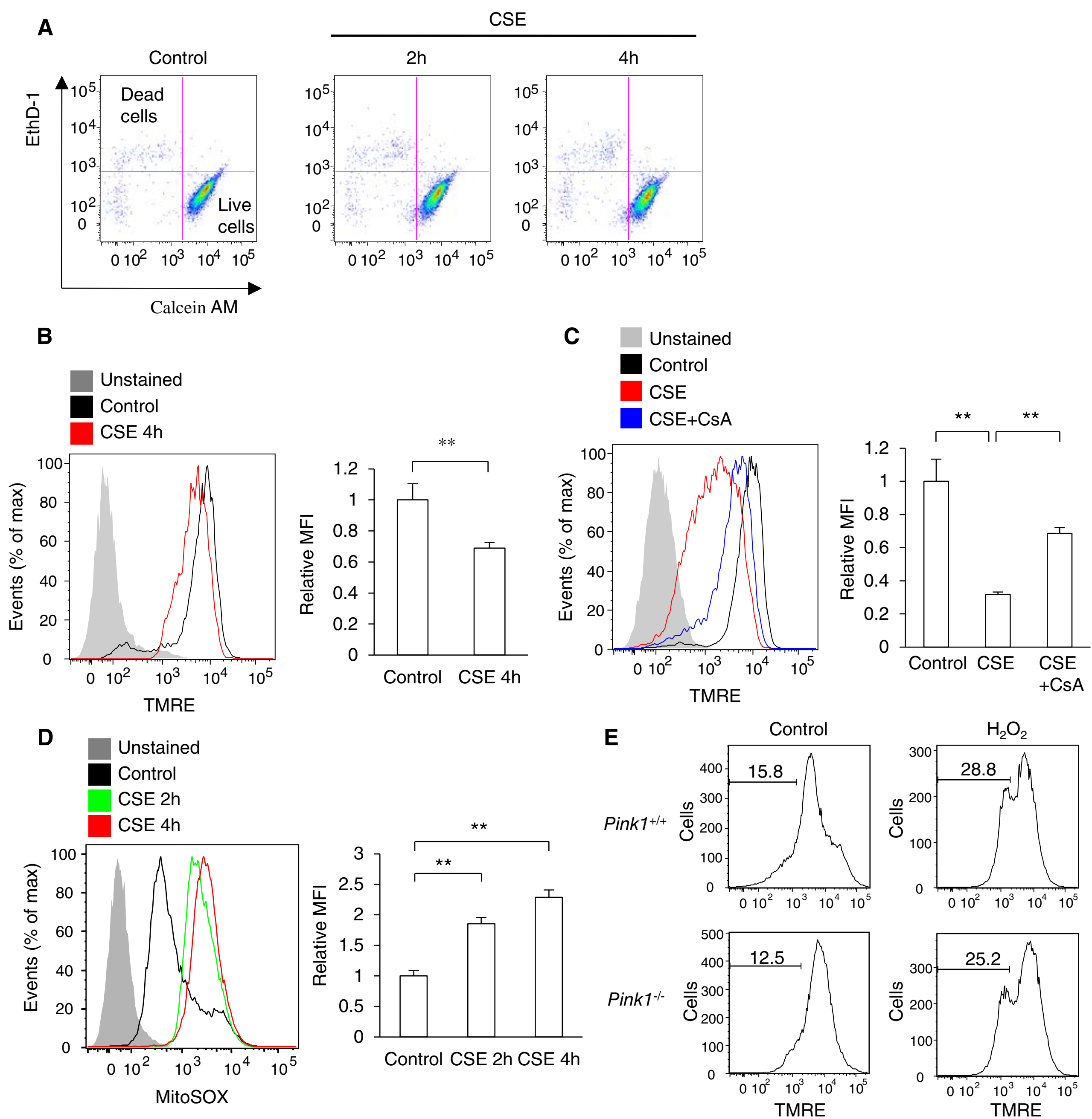
Supplementary Table 1. Clinical information of human lung specimens.

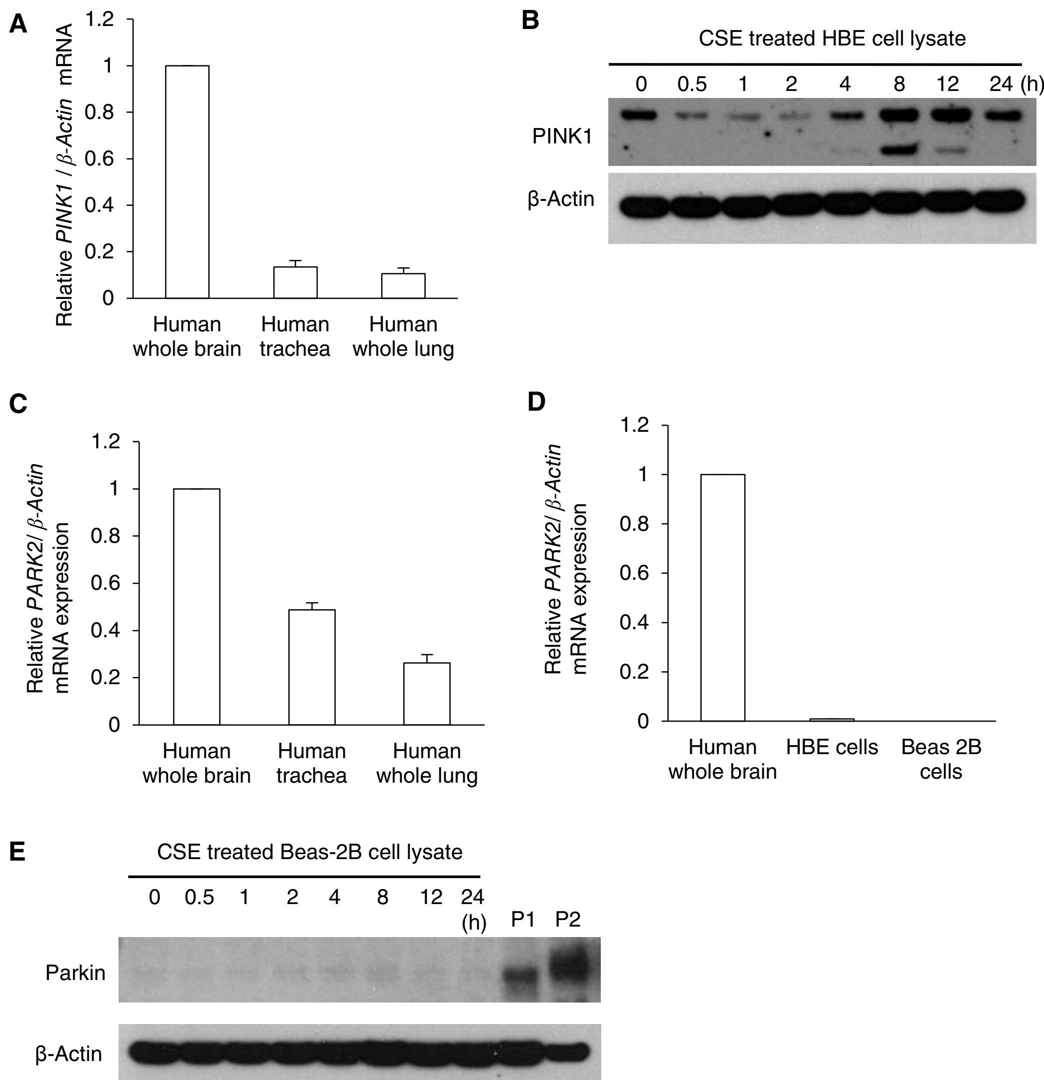
	Control subjects (N=9)		COPD GOLD2 (N=9)
	Transplant donors without pulmonary diseases (N=4)	Never-Smokers without COPD (N=5)	
Age, yr	46± 6	79 ± 3	70 ± 2
Smoking index at entry, pack-years	N/A	0 ± 0	52 ± 4
Lung function			
FVC, % predicted	N/A	99.8 ± 5.2	86.1 ± 1.4
FEV_1, % predicted	N/A	102.4 ± 5.7	63.1 ± 1.6
FEV_1/FVC	N/A	0.76 ± 0.02	0.56 ± 0.03

Definition of abbreviations; GOLD = The Global Initiative for Obstructive Lung Disease; FVC = forced vital capacity; FEV_1 = forced expiratory volume in one second. Data expressed as mean ± standard error of the mean (SEM).



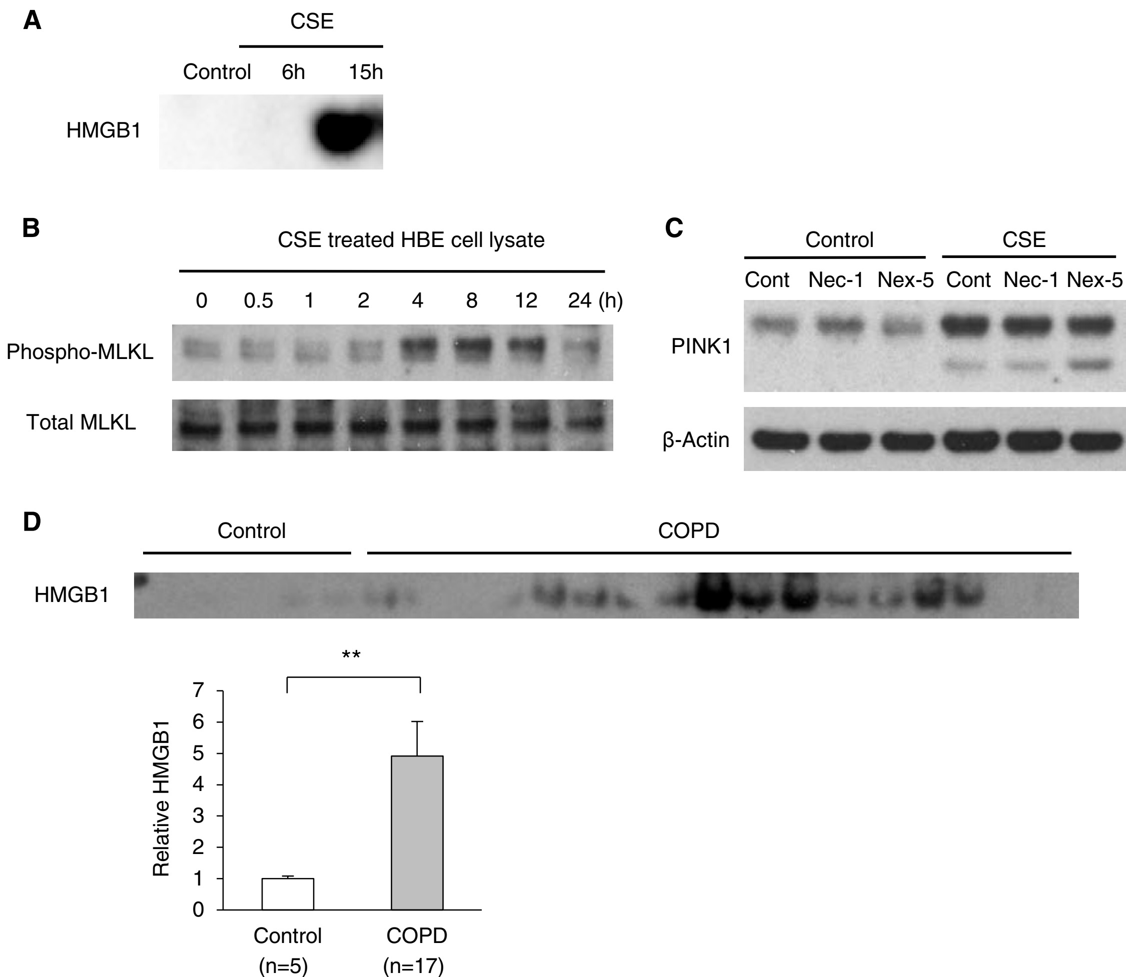
Supplementary Figure 1

(**A**) Cell death of Beas-2B cells was determined by Calcein AM/EthD-1 staining for flow cytometry, following treatment with 20% CSE at the indicated times. The x axes show Calcein AM staining, and y axes show EthD-1 staining. (**B**) Flow cytometry of HBE cells left unstained or labeled with TMRE, followed by treatment with 20% CSE for 4h. Data are representative of three independent experiments. The x axis shows the fluorescent signal intensity, and the y axis represents cell number normalized as a percentage of the maximum (% of Max) (**B-D**). (**C**) Flow cytometry of Beas-2B cells left unstained or labeled with TMRE. Beas-2B cells incubated for 1h with cyclosporin A (CsA; 10 μM) or vehicle (DMSO); and left untreated or treated with 20% CSE for 4 h. Data are representative of three experiments. (**D**) Flow cytometry of CSE treated HBE cells left unstained or labeled with MitoSOX, following treatment with 20% CSE at the indicated time. (**E**) Flow cytometry of alveolar epithelial cells obtained from *Pink1*$^{-/-}$ and *Pink*$^{+/+}$ mice. Alveolar epithelial cells were treated with 500 μM H_2O_2 for 2 h and labeled with TMRE. The x axis shows the fluorescent signal intensity of TMRE, and the y axis shows cell number with corresponding fluorescence intensity. Numbers above bracketed lines indicate percent cells with loss of mitochondrial membrane potential. Data are representative of two experiments. All data are mean ± SEM (**B, C** and **D**), $^{**}P<0.01$, unpaired two-tailed Student's t test (**B, C** and **D**).



Supplementary Figure 2

Quantitative RT-PCR was used to measure relative *PINK1* (**A**) and *PARK2* (**C**) mRNA expression in human brain, trachea and whole lung. Data are representative of two experiments. (**B**) Immunoblot analysis of PINK1 in lysates obtained from HBE cells treated with 20% CSE at the indicated time. (**D**) Quantitative RT-PCR was used to measure relative *PARK2* mRNA expression in human brain, HBE cells and Beas-2B cells. Data are representative of three experiments. (**E**) Immunoblot analysis of Parkin in lysates obtained from Beas-2B cells treated with 20% CSE at the indicated time. β-Actin served as the standard. P1 = SH-SY5Y cell lysate, P2 = mouse brain lysate. All data are mean ± SEM (**A**, **C** and **D**). $^{**}P<0.01$, unpaired two-tailed Student's t test (**A**, **C** and **D**).



Supplementary Figure 3

(**A**) Immunoblot analysis of HMGB1 in supernatants of Beas-2B cells left untreated or treated with 20% CSE at the indicated time. (**B**) Immunoblot analysis of phospho-MLKL (Thr357) and total MLKL in lysates obtained from HBE cells treated with 20% CSE at the indicated time. (**C**) Immunoblot analysis of PINK1 in lysates obtained from Beas-2B cells. Beas-2B cells incubated for 1 h with necrostatin-1 (Nec-1; 50 μM), necrox-5 (Nex-5; 30 μM) or vehicle (DMSO); and left untreated or treated with 20% CSE for 8 h. β-Actin served as the standard. (**D**) Immunoblot analysis of HMGB1 in human plasma from healthy controls (n = 5) and COPD patients (n = 17). HMGB1 expression was assessed by densitometry of immunoblots. All data are mean ± SEM (**D**). ***P*<0.01, unpaired two-tailed Student's t test (**D**).