

## Supplementary data

### Supplementary Methods

The sensitivities for the MMP Luminex assays were MMP-1 1.1pg/ml, MMP-2 12.6pg/ml, MMP-3 7.3pg/ml, MMP-7 6.6pg/ml, MMP-8 16.6pg/ml, MMP-9 13.7pg/ml, MMP-10 3.2pg/ml, MMP-12 0.7pg/ml, MMP-13 63.5pg/ml, EMPRIN 5.6pg/ml.

The sensitivities for the TIMP Luminex assays were TIMP-1 3.43 pg/ml, TIMP-2 40.1pg/ml, TIMP-3, 20.0pg/ml, TIMP-4 0.28pg/ml.

The sensitivities for the cytokine Luminex assays were IL1 $\beta$  0.18pg/ml, IL-2 0.28pg/ml, IL-6 0.31pg/ml, IL-8 0.07pg/ml, IL-10 0.24, IFN-g 0.08pg/ml and TNF- $\alpha$  0.54pg/ml.

**Supplementary Table 1** Partial Spearman correlation coefficients between CT markers and the MMP with the strongest bivariate correlation, controlling for the effect of each other MMP in turn

	Controlling for:								
	MMP1	MMP2	MMP3	MMP7	MMP8	MMP9	MMP10	MMP12	MMP13
FEV1%	-0.54 ( <i>p</i> =.008)	-0.56 ( <i>p</i> =.005)	-0.58 ( <i>p</i> =.004)	-0.53 ( <i>p</i> =.01)		-0.20 ( <i>p</i> =.370)	-0.58 ( <i>p</i> =.003)	-0.42 ( <i>p</i> =.048)	-0.60 ( <i>p</i> =.002)
FEF25/75	-0.53 ( <i>p</i> =.010)	-0.56 ( <i>p</i> =.006)	-0.62 ( <i>p</i> =.002)	-0.65 ( <i>p</i> =.001)		-0.25 ( <i>p</i> =.247)	-0.61 ( <i>p</i> =.002)	-0.48 ( <i>p</i> =.021)	-0.61 ( <i>p</i> =.002)
LAA%	0.53 ( <i>p</i> =.009)	0.57 ( <i>p</i> =.005)	0.32 ( <i>p</i> =.139)	0.33 ( <i>p</i> =.124)	0.46 ( <i>p</i> =.026)	0.46 ( <i>p</i> =.027)		0.51 ( <i>p</i> =.013)	0.56 ( <i>p</i> =.006)
EI/MLD	0.66 ( <i>p</i> =.007)	0.60 ( <i>p</i> =.019)	0.46 ( <i>p</i> =.083)	0.37 ( <i>p</i> =.172)		0.28 ( <i>p</i> =.318)	0.46 ( <i>p</i> =.084)	0.38 ( <i>p</i> =.161)	0.60 ( <i>p</i> =.019)

N=24 except for EI/MLD (N=16).

MMP8 had the strongest bivariate correlation with all CT markers apart from LAA%, which had the strongest bivariate correlation with MMP10.

**Supplementary Table 2** Spearman's correlation analysis between cytokines, neutrophils and lung function and CT measures of disease in COPD subjects

	IL-1 $\beta$	IL-6	IL-8	GM-CSF	Neutrophils
FEV1%	-0.16	-0.39	<b>-0.41*</b>	-0.05	-0.40
FEF75-25%	<b>-0.44*</b>	-0.37	<b>-0.57**</b>	-0.18	-0.18
Emphysema % (LAA%)	-0.30	0.28	0.22	-0.13	0.36
Small airways Disease (E/I MLD)	0.12	0.29	<b>0.53*</b>	-0.19	0.43
Bronchial wall area (Pi10)	0.05	-0.10	0.10	0.09	0.10

Spearman's rho values given.

N=24, apart from associations with E/I MLD (n=16)

\* *p*<0.05 \*\**p*<0.01 \*\*\**p*<0.001