

Supplementary table S9. Background of study cases in the analysis of BAL

	Control	IPF
Number	4	25
Male sex (%)	2 (50.0)	21 (84.0)
Age, years	54.00 [18.00, 62.00]	71.00 [46.00, 83.00]
Pirfenidone use, n	NA	12 (48.0)
Corticosteroid use, n	NA	5 (20.0)
Nintedanib use, n	NA	8 (32.0)
Regnase-1 expression in BAL ILC2s	694.00 [437.00, 1279.00]	730.00 [378.00, 2264.00]
BAL ILC2 ratio, %	0.16 [0.03, 0.39]	0.02 [0.00, 0.63]
BAL cell_number, cells/ μ l	140.00 [70.00, 320.00]	260.00 [130.00, 630.00]
BAL Eosinophils, %	0.00 [0.00, 0.00]	2.00 [0.00, 11.00]
BAL Lymphocytes, %	16.50 [10.00, 19.00]	11.00 [0.00, 67.00]
BAL Monocytes, %	82.00 [78.00, 88.00]	82.00 [30.00, 99.00]
BAL Neutrophils, %	1.50 [0.00, 5.00]	3.00 [0.00, 16.00]
Never smoker, n	NA	3 (12.0)
Former smoker, n	NA	21 (84.0)
Current smoker, n	NA	1 (4.0)
Brinkman index	NA	550.00 [0.00, 1800.00]
PaO ₂ , mmHg	NA	86.70 [62.80, 108.00]
PaCO ₂ , mmHg	NA	39.20 [33.10, 49.80]
%DLco, %	NA	56.94 [32.85, 93.75]
%FEV ₁ , %	NA	85.70 [48.50, 131.00]
%FVC, %	NA	83.80 [50.30, 134.50]
Composite Physiologic Index	NA	39.45 [13.17, 59.70]
KL-6, U/ml	NA	720.00 [288.00, 3138.00]
SP-D, ng/ml	NA	230.50 [17.20, 1000.00]
Progression in one year, n	NA	12 (48.0)
Death, n	NA	9 (36.0)

FVC: forced vital capacity, DLco: diffusion lung capacity of carbon monoxide,

FEV₁: forced expiratory volume in one second

6MWT: 6-minute walk test, SpO₂: saturation of peripheral O₂

PaO₂: partial pressure of O₂ PaCO₂: partial pressure of CO₂

Data are shown as number (%) or median [range].

Fisher's exact test and Mann-Whitney U-test were used for analyses.

Supplementary table S10. Causes of deaths

	ILC2 \leq 1500 (n = 12)	ILC2 > 1500 (n = 6)	<i>P</i> -value
Respiratory death			
Chronic respiratory failure	0 (0.0)	3 (50.0)	0.025
Pneumonia	3 (25.0)	0 (0.0)	0.515
Lung Cancer	1 (8.3)	2 (33.3)	0.245
Acute exacerbation of IPF	5 (41.6)	1 (16.7)	0.600
Non-Respiratory death			
Sudden death/ Heart attack	1 (8.3)	0 (0.0)	> 0.99
Urinary tract infection	1 (8.3)	0 (0.0)	> 0.99
Not clear	1 (8.3)	0 (0.0)	> 0.99

Data are shown as number (%). Fisher's exact test was used for the analyses.

Supplementary table S11. Antibodies used in this study

Antibody	Clone	Distributor
FITC-conjugated anti-mouse CD4	GK1.5	Biologend
FITC-conjugated anti-mouse CD5	53-7.3	Biologend
FITC-conjugated anti-mouse CD8a	53-6.7	Biologend
FITC-conjugated anti-mouse CD3e	145-2C11	BD Pharmingen
FITC-conjugated anti-mouse CD19	6D5	Biologend
FITC-conjugated anti-mouse CD49b	DX5	Biologend
FITC-conjugated anti-mouse Gr-1	RB6-8C5	Biologend
FITC-conjugated anti-mouse Ter119	Ter119	Biologend
FITC-conjugated anti-mouse CD11b	M1/70	Biologend
FITC-conjugated anti-mouse CD11c	N418	Biologend
FITC-conjugated anti-mouse IgE	RME-1	Biologend
PE-conjugated anti-mouse T1/ST2	U29-93	BD Pharmingen
APC-conjugated anti-mouse CD45	30-F11,	Tonbo biosciences
APC-conjugated anti-mouse phospho-STAT5	SRBCZX	eBioscience
APC-Cy7-conjugated anti-mouse/human KLRG1	2F1	Biologend
PE-Cy7-conjugated anti-mouse Sca-1	D7	Biologend
PerCP-Cy5.5-conjugated anti-mouse CD45.2	clone 104	Biologend
Biotin-conjugated anti-mouse CD45.1	A20	Biologend
FITC-conjugated anti-human lineage cocktail 1 (CD3, CD16, CD19, CD14, CD56, CD20)	SK7, 3G8, SJ25C1, MφP9, NCAM16.2, L27	BD Pharmingen
PE-conjugate anti-human CRTH2	BM16	Biologend
APC-conjugated anti-human CD127	A019D5	Biologend
APC-Cy7-conjugated anti-human CD45	2D1	Biologend
BV421-anti-human CD161	HP-3G10	Biologend
BV421-conjugated Streptavidin		Biologend