

Table S1 Comprehensive details regarding the age, gender, plasma S1P levels, AHI, ODI, FVC, FEV1, FEV1%, and FEV1/FVC% of all study participants

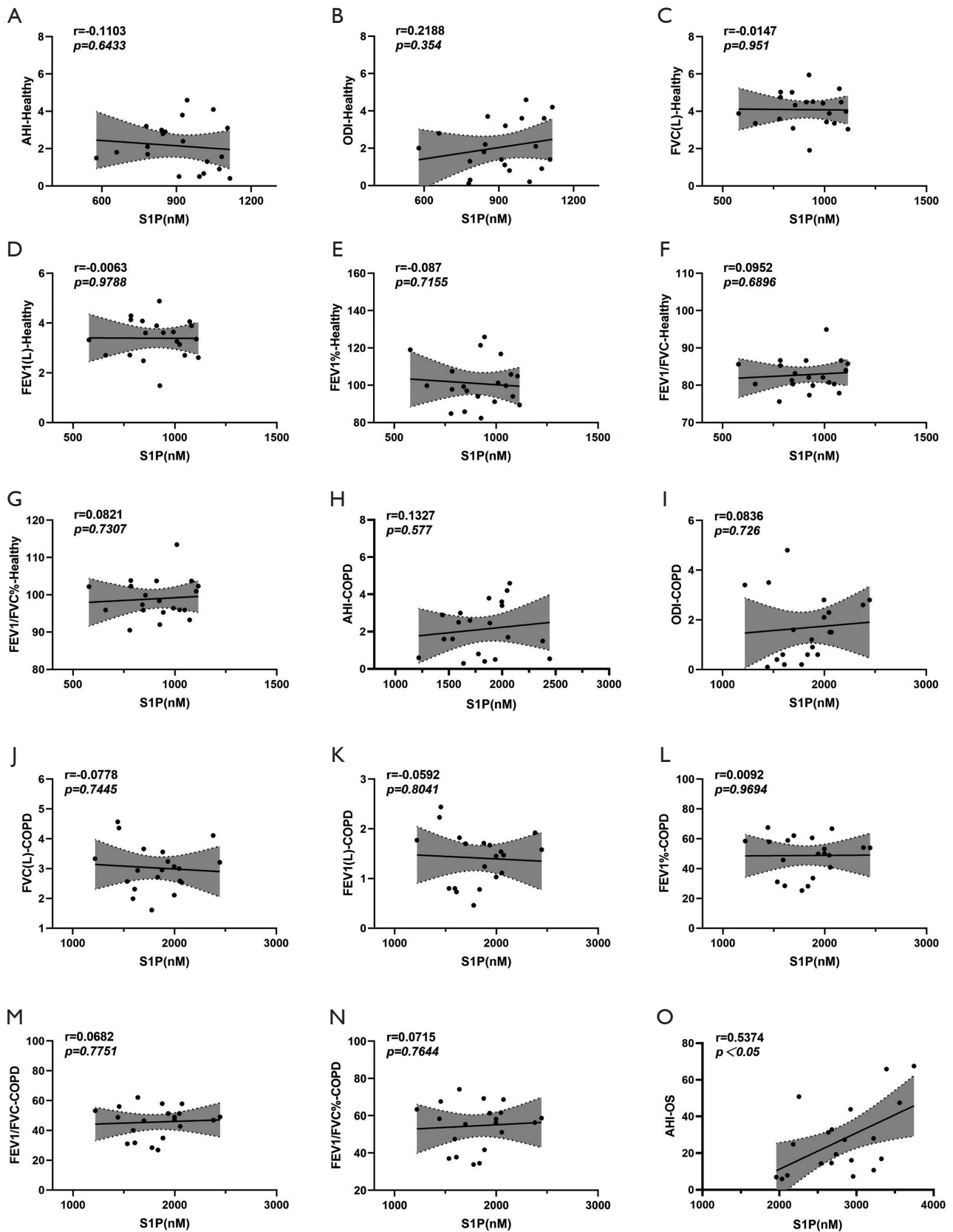
Group	Number	Gender	Age (years)	BMI (kg/m ²)	AHI	ODI	FVC (L)	FEV1 (L)	FEV1%	FEV1/FVC	FEV1/FVC%	S1P (nM/L)
HC	1	Male	26	25.34	3.00	1.80	5.02	4.08	99.33	81.31	97.35	840.32
	2	Female	45	23.14	1.50	2.00	3.88	3.32	119.04	85.61	102.19	578.24
	3	Female	54	37.05	2.40	3.20	1.91	1.48	82.39	77.34	92.00	926.02
	4	Male	22	24.62	0.50	1.40	4.49	3.89	94.00	86.63	103.72	910.21
	5	Male	56	20.42	3.20	0.10	3.59	2.71	84.83	75.63	90.50	778.75
	6	Male	47	22.14	4.10	2.10	3.36	2.70	99.76	80.31	95.92	1,048.32
	7	Female	37	26.03	0.90	0.90	5.21	4.06	105.85	77.87	93.28	1,072.45
	8	Female	18	21.72	2.10	1.30	4.76	4.13	97.74	86.64	103.83	783.74
	9	Male	67	22.14	1.80	2.80	3.36	2.70	99.76	80.31	95.92	659.78
	10	Female	22	24.62	1.56	3.60	4.49	3.89	94.00	86.63	103.72	1,081.60
	11	Female	37	21.83	0.40	4.20	3.04	2.61	89.46	85.80	102.32	1,114.50
	12	Male	33	28.07	0.50	3.60	4.43	3.64	91.19	82.12	96.41	992.20
	13	Male	57	26.72	4.60	0.80	4.52	3.61	125.93	79.92	95.30	942.76
	14	Female	35	22.19	1.30	0.20	3.89	3.14	116.79	80.74	95.95	1,023.00
	15	Male	58	27.14	3.10	1.40	3.99	3.35	104.91	84.03	100.95	1,105.00
	16	Female	41	37.83	2.80	2.20	3.09	2.48	85.85	80.33	95.89	845.30
	17	Female	47	20.66	2.90	3.70	4.33	3.60	97.03	83.23	99.89	855.36
	18	Female	31	16.49	0.66	4.60	3.43	3.26	101.20	94.94	113.44	1,009.35
	19	Male	36	20.24	1.70	0.30	5.03	4.29	107.49	85.29	102.31	784.25
	20	Male	32	22.39	3.80	1.10	5.95	4.88	121.42	82.08	98.37	923.53
COPD	1	Male	64	21.99	3.00	0.20	2.31	0.73	28.46	31.72	37.79	1,607.76
	2	Male	54	19.49	2.90	0.10	4.57	2.23	67.58	48.75	58.37	1,440.49
	3	Male	60	24.01	2.60	1.60	3.66	1.70	62.12	46.50	55.43	1,697.08
	4	Male	66	18.78	3.80	1.20	2.95	1.71	60.66	57.93	69.25	1,875.72
	5	Female	50	16.62	4.60	1.50	2.53	1.47	66.81	57.87	68.68	2,070.60
	6	Male	67	21.55	0.54	2.80	3.21	1.58	53.95	49.02	58.68	2,444.12
	7	Male	50	25.15	0.60	3.40	3.33	1.77	58.46	53.17	63.38	1,218.00
	8	Female	65	24.56	2.50	0.60	1.99	0.80	45.79	40.02	47.45	1,591.52
	9	Male	39	23.88	2.46	0.90	3.56	1.24	33.66	34.88	41.73	1,883.84
	10	Male	57	25.90	1.50	2.60	4.11	1.92	54.12	46.84	56.31	2,379.16
	11	Male	43	15.49	1.60	3.50	4.36	2.44	57.92	56.08	67.61	1,453.54
	12	Male	52	17.67	0.30	4.80	2.94	1.82	58.90	62.11	74.14	1,636.48
	13	Male	57	28.65	0.50	0.60	3.24	1.67	49.87	51.40	61.36	1,934.30

Table S1 (continued)

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Group	Number	Gender	Age (years)	BMI (kg/m ²)	AHI	ODI	FVC (L)	FEV1 (L)	FEV1%	FEV1/FVC	FEV1/FVC%	S1P (nM/L)
COPD-OSA	14	Male	65	26.45	4.20	2.30	3.00	1.54	48.93	51.36	61.61	2,045.30
	15	Male	68	19.36	3.60	2.80	3.07	1.45	53.17	47.08	56.25	1,995.35
	16	Male	79	26.11	3.40	2.10	2.11	1.03	50.12	48.93	58.23	1,997.35
	17	Male	70	20.90	1.70	1.50	2.59	1.11	40.91	42.73	51.08	2,053.50
	18	Male	69	22.31	1.60	0.40	2.57	0.80	31.14	31.06	37.06	1,534.50
	19	Female	70	16.44	0.80	0.20	1.61	0.46	25.27	28.45	33.81	1,775.99
	20	Female	63	18.00	0.40	0.60	2.71	0.78	28.19	26.88	34.47	1,834.30
	1	Male	68	23.07	6.9	3.2	1.85	0.66	31.4	35.99	42.71	1,959.98
	2	Male	72	22.68	32.9	15.5	2.47	0.78	31.46	31.57	37.67	2,680.322
	3	Male	58	24.91	47.5	33.6	2.5	0.78	27.05	31.11	37.11	3,560.832
	4	Male	52	26.67	24.8	38.7	2.8	0.83	24.75	29.64	35.48	2,179.479
	5	Male	62	27.08	65.8	37.5	4.02	2.16	67.47	53.77	64.47	3,388.86
	6	Male	54	27.94	14.66	41.3	3.77	2.07	65.35	54.88	65.54	2,675.79
	7	Male	57	23.39	14.3	19.2	3.9	2.08	62.96	53.21	63.76	2,541.22
	8	Female	61	23.61	43.9	72.3	1.78	1.25	63.68	60.26	63.54	2,923.308
	9	Female	56	23.34	27.3	3	2.69	1.6	65.62	59.48	70.93	2,846.17
	10	Male	61	25.28	10.7	22	3.19	1.89	67.74	59.25	70.69	3,224.36
	11	Male	59	20.18	28	21.6	4.3	1.97	62.5	45.83	54.88	3,223
	12	Female	41	25.95	67.5	6.2	3.6	1.99	64.52	55.38	66.27	3,746.3
	13	Male	73	23.45	7.3	10	2.91	1.88	65.35	64.59	67.89	2,957.45
	14	Male	52	25.83	16.9	23.8	5.18	2.69	59.37	51.89	62.4	3,323.604
	15	Male	79	23.18	7.9	4	2.49	0.78	30.9	31.38	37.55	2,103.55
	16	Male	72	23.51	19.3	21.2	1.51	0.94	31.86	62.11	74.5	2,734.5
	17	Female	80	17.78	50.8	2	1.15	0.37	27.62	31.82	37.7	2,253.43
	18	Male	64	19.29	16.1	21.1	2.88	0.69	26.71	23.9	28.47	2,934.55
	19	Male	77	21.36	5.9	37	1.38	0.51	27.55	37.05	43.97	2,032.44
	20	Male	49	23.88	31.3	51.8	3.56	1.24	33.66	34.88	41.73	2,634.34

AHI, apnea hypopnea index; BMI, body mass index; COPD, chronic obstructive pulmonary disease; FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity; HC, healthy control; ODI, oxygen desaturation index; OSA, obstructive sleep apnea; S1P, sphingosine-1-phosphate.



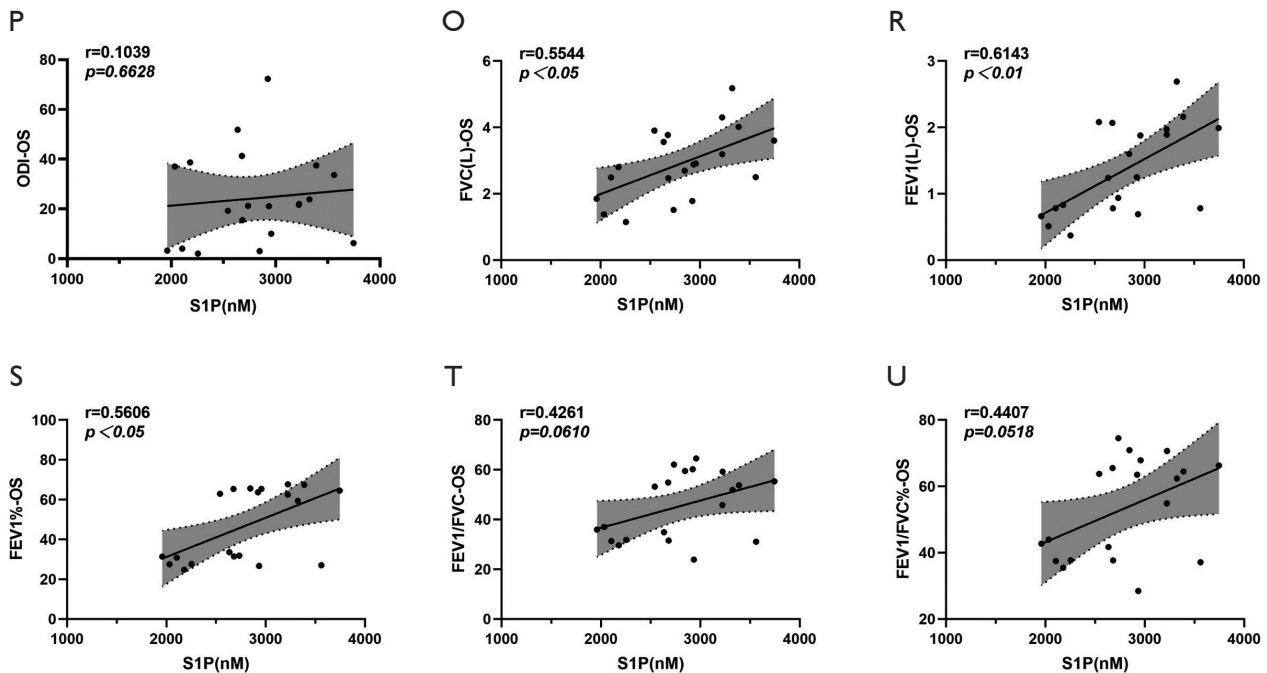


Figure S1 The correlations between the plasma S1P levels and AHI, ODI, FVC, FEV1, FEV1%, and FEV1/FVC% among HC (A-G), patients with COPD (H-N), and patients with COPD-OSA (O-U). No sample or data point from the analysis is excluded. Pearson correlation analysis is used to analyze the correlation between different indicators. AHI, apnea hypopnea index; BMI, body mass index; COPD, chronic obstructive pulmonary disease; FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity; HC, healthy control; ODI, oxygen desaturation index; OSA, obstructive sleep apnea.

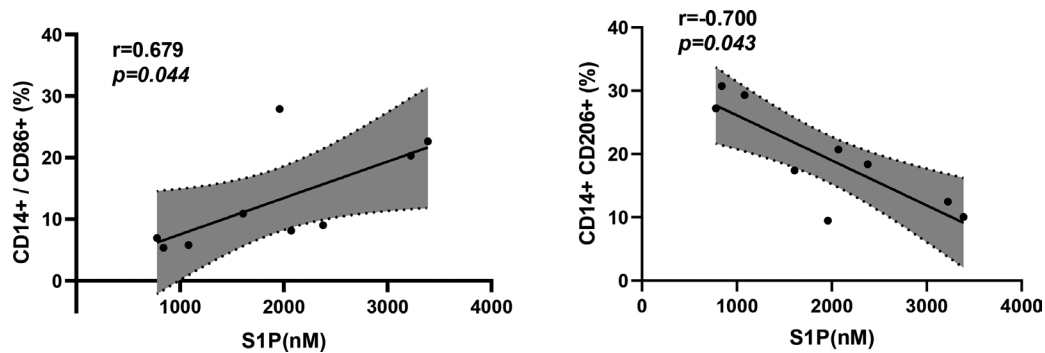


Figure S2 The correlation between plasma S1P levels and M1 (left)/M2 (right) cell percentage of MDM (COPD and COPD-OSA patients) response to polarization stimulus. Pearson correlation analysis is used to analyze the correlation. COPD, chronic obstructive pulmonary disease; MDM, monocyte-derived macrophage; OSA, obstructive sleep apnea; S1P, sphingosine-1-phosphate.