

**Table S1a.** Discovery cohort: Output of the cross-sectional association between proteins and FEV<sub>1</sub> % pred. Significantly associated at FDR 5 %. Sorted by p-value. Marked in grey are proteins replicated in MOS

Variable	$\beta$ -coeff.	(95% CI)	Adjusted p-value
LEP	-4.80	(-5.87; -3.74)	4.9 10 <sup>-16</sup>
FABP4	-2.61	(-3.51, -1.72)	1.4 10 <sup>-06</sup>
RARRES2	-1.96	(-2.68, -1.24)	5.8 10 <sup>-06</sup>
IL6	-1.86	(-2.54, -1.18)	5.8 10 <sup>-06</sup>
PON3	1.87	(1.12, 2.61)	4.5 10 <sup>-05</sup>
ADM	-1.92	(-2.69, -1.15)	4.5 10 <sup>-05</sup>
ADGRG2	1.64	(0.95, 2.32)	9.7 10 <sup>-05</sup>
tPA	-1.56	(-2.28, -0.85)	0.0006
IL1ra	-1.54	(-2.32, -0.77)	0.003
TIM	-1.30	(-2.00, -0.60)	0.007
CCL16	-1.23	(-1.91, -0.54)	0.010
TIMP4	-1.20	(-1.89, -0.50)	0.014
GDF15	-1.36	(-2.15, -0.57)	0.014
MMP7	-1.15	(-1.85, -0.45)	0.024
TFF3	-1.08	(-1.77, -0.39)	0.04
RAGE	1.02	(0.36 1.68),	0.04
AGRP	1.01	(0.35, 1.67)	0.04
PAI	-1.00	(-1.66, -0.34)	0.04
GH	1.15	(0.39, 1.92)	0.04
TNFR2	-1.01	(-1.71, -0.31)	0.06
THBS2	-0.93	(-1.57, -0.28)	0.06
IGFBP2	1.04	(0.30, 1.77)	0.06
NTproBNP	-0.98	(-1.69, -0.27)	0.07
CCL3	-0.90	(-1.58, -0.22)	0.09
SPON2	-0.87	(-1.54, -0.21)	0.10
SCGB3A2	0.89	(0.20, 1.59)	0.11
FGF23	-0.88	(-1.56, -0.19)	0.11
CCL17	-0.83	(-1.49, -0.18)	0.11
IGFBP1	0.94	(0.19, 1.70)	0.12
ROR1	0.81	(0.14, 1.47)	0.14
FGF21	-0.81	(-1.49, -0.12)	0.16
REN	-0.81	(-1.49, -0.12)	0.16
TIE2	0.74	(0.10, 1.38)	0.17
FAS	0.76	(0.10, 1.43)	0.17
BAG6	0.75	(0.09, 1.42)	0.18
Gal4	-0.74	(-1.40, -0.09)	0.18
TNFR1	-0.77	(-1.46, -0.08)	0.19
CTSD	-0.78	(-1.48, -0.07)	0.19
CD84	0.71	(0.06, 1.36))	0.19
XCL1	-0.71	(-1.36, -0.06)	0.19
LDL receptor	-0.73	(-1.41, -0.06)	0.19

Variable	$\beta$ -coeff.	(95% CI)	Adjusted p-value
CLMP	-0.78	(-1.50, -0.05)	0.20
UPAR	-0.77	(-1.49, -0.05)	0.20
DECR1	-0.68	(-1.33, -0.04)	0.20
MCP1	-0.71	(-1.38, -0.04)	0.20
PLC	-0.74	(-1.44, -0.04)	0.20
AMBP	-0.69	(-1.36, -0.02)	0.21
IGFBP7	-0.68	(-1.33, -0.02)	0.21
LPL	0.74	(0.01, 1.47)	0.23
TRAILR2	-0.74	(-1.48, 0.00)	0.24
SOD2	0.66	(0.00, 1.32)	0.24
KLK6	-0.65	(-1.31, 0.01)	0.24
TNFRSF11A	-0.69	(-1.39, 0.01)	0.24
ProteinBOC	0.65	(-0.02, 1.31)	0.24
HAOX1	-0.64	(-1.30, 0.02)	0.24
ADGRE2	0.65	(-0.02, 1.32)	0.24
GHRL	0.67	(-0.02, 1.37)	0.25
CXCL16	-0.62	(-1.28, 0.03)	0.25
HSP27	-0.61	(-1.25, 0.04)	0.26
PCSK9	-0.61	(-1.27, 0.04)	0.26
PSPD	-0.61	(-1.26, 0.04)	0.26
CCL22	0.59	(-0.05, 1.22)	0.28
PI3	-0.61	(-1.28, 0.06)	0.28
GDF2	0.66	(-0.07, 1.38)	0.28
PIGF	-0.66	(-1.38, 0.07)	0.28
THPO	-0.59	(-1.24, 0.07)	0.29
vWF	-0.56	(-1.21, 0.08)	0.31
THOP1	0.58	(-0.09, 1.25)	0.31
PRELP	-0.62	(-1.36, 0.11)	0.33
ACP6	0.55	(-0.10, 1.20)	0.33
CTSL1	-0.56	(-1.21, 0.10)	0.33
IDTA	-0.53	(-1.18, 0.13)	0.38
TR	-0.52	(-1.17, 0.13)	0.38
GAL	0.54	(-0.14, 1.22)	0.38
MMP12	-0.58	(-1.31, 0.15)	0.38
CTSZ	-0.54	(-1.21, 0.14)	0.38
CDHR5	-0.53	(-1.21, 0.15)	0.38
CCL24	0.49	(-0.14, 1.13)	0.38
CCL15	-0.50	(-1.14, 0.15)	0.38
NEMO	-0.50	(-1.16, 0.15)	0.38
MPO	-0.50	(-1.14, 0.15)	0.38
OPN	-0.51	(-1.17, 0.15)	0.38
DDC	0.50	(-0.15, 1.14)	0.38
TM	0.50	(-0.16, 1.16)	0.38
CHIT1	0.50	(-0.16, 1.17)	0.38

Variable	$\beta$ -coeff.	(95% CI)	Adjusted p-value
CD163	-0.50	(-1.16, 0.16)	0.38
VCAN	0.49	(-0.16, 1.15)	0.39
TNFRSF10A	-0.51	(-1.18, 0.17)	0.39
CDH5	0.47	(-0.18, 1.12)	0.42
LILRA5	-0.48	(-1.16, 0.19)	0.43
CD1C	0.46	(-0.19, 1.11)	0.44
COL1A1	0.46	(-0.20, 1.11)	0.45
MMP9	-0.46	(-1.13, 0.20)	0.45
IGFBPL1	-0.48	(-1.17, 0.21)	0.45
Notch3	-0.48	(-1.17, 0.22)	0.45
SRC	-0.44	(-1.09, 0.21)	0.46
ANGPTL1	0.43	(-0.22, 1.09)	0.48
FABP2	-0.43	(-1.08, 0.22)	0.49
TNFRSF13B	-0.43	(-1.09, 0.23)	0.50
AXL	0.41	(-0.23, 1.05)	0.50
IL2RA	-0.42	(-1.07, 0.24)	0.51
CD93	0.40	(-0.24; 1.05)	0.52
LTBR	-0.41	(-1.06, 0.25)	0.52
CHI3L1	-0.43	(-1.12, 0.26)	0.52
TYRO3	0.41	(-0.26, 1.07)	0.53
EpCAM	-0.39	(-1.03, 0.25)	0.54
SCF	0.40	(-0.27, 1.08)	0.54
SIGLEC7	0.40	(-0.27, 1.07)	0.54
CTSO	-0.40	(-1.07, 0.27)	0.54
SELE	-0.39	(-1.05, 0.27)	0.54
TINAGL1	0.39	(-0.27, 1.05)	0.54
LOX1	-0.39	(-1.06, 0.28)	0.56
LRP11	0.37	(-0.29, 1.04)	0.57
CLUL1	0.38	(-0.29, 1.05)	0.57
TNFRSF14	-0.37	(-1.04, 0.30)	0.58
Dkk1	-0.36	(-1.02, 0.29)	0.58
STK4	-0.35	(-1.00, 0.30)	0.59
SERPINB6	0.35	(-0.30, 1.00)	0.59
AZU1	0.35	(-0.31, 1.01)	0.60
HO1	0.35	(-0.31, 1.02)	0.60
ANGPT2	-0.35	(-1.04, 0.33)	0.62
MB	-0.36	(-1.08, 0.36)	0.64
PDGFsubunitA	-0.32	(-0.95, 0.32)	0.65
ACE2	-0.35	(-1.05, 0.36)	0.65
BMP6	0.31	(-0.34, 0.95)	0.68
FAM3C	-0.32	(-0.98, 0.35)	0.68
SDC4	0.30	(-0.34, 0.95)	0.68
IL17D	0.32	(-0.37, 1.01)	0.68
DCN	-0.32	(-1.01, 0.37)	0.68

Variable	$\beta$ -coeff.	(95% CI)	Adjusted p-value
ANGPTL7	0.31	(-0.37, 0.99)	0.69
TNFSF13B	-0.30	(-0.98, 0.37)	0.69
ADAMTS13	0.29	(-0.36, 0.95)	0.69
uPA	0.29	(-0.36, 0.93)	0.69
SORT1	-0.30	(-0.97, 0.37)	0.69
ST2	0.30	(-0.38, 0.98)	0.69
CLEC5A	-0.30	(-0.97, 0.38)	0.69
ENO2	0.28	(-0.36, 0.92)	0.69
SERPINA12	-0.29	(-0.96, 0.38)	0.70
APN	-0.27	(-0.91, 0.36)	0.70
FCRL1	0.28	(-0.38, 0.93)	0.70
EPHB4	0.27	(-0.37, 0.91)	0.71
TRAP	-0.27	(-0.93, 0.39)	0.72
PDL2	-0.27	(-0.93, 0.39)	0.72
PARP1	-0.27	(-0.93, 0.39)	0.72
hOSCAR	0.26	(-0.39, 0.92)	0.72
TF	0.27	(-0.40, 0.94)	0.72
CANT1	0.26	(-0.39, 0.91)	0.73
ICAM2	-0.25	(-0.88, 0.39)	0.73
IL6RA	-0.24	(-0.88, 0.39)	0.73
TNFRSF10C	-0.25	(-0.89, 0.40)	0.73
GRN	-0.25	(-0.89, 0.40)	0.73
PAPPA	-0.26	(-0.95, 0.43)	0.73
MEPE	0.25	(-0.42, 0.92)	0.73
IL17RA	0.24	(-0.39, 0.87)	0.73
MARCO	-0.25	(-0.91, 0.42)	0.73
PRTN3	0.24	(-0.41, 0.88)	0.73
VSIG2	-0.25	(-0.93, 0.43)	0.73
IL27	-0.24	(-0.90, 0.42)	0.73
CA13	0.23	(-0.41, 0.87)	0.74
TLT2	0.22	(-0.41, 0.86)	0.74
PDGFsTbTnitB	-0.23	(-0.88, 0.42)	0.74
NPDC1	-0.24	(-0.91, 0.44)	0.74
PTX3	0.22	(-0.42, 0.87)	0.74
APLP1	-0.23	(-0.90, 0.45)	0.74
VEGFD	0.23	(-0.45, 0.91)	0.74
KLK10	0.21	(-0.43, 0.85)	0.74
GT	0.22	(-0.44, 0.87)	0.74
CLSTN2	-0.21	(-0.86, 0.43)	0.74
IL18	-0.22	(-0.90, 0.45)	0.74
BLMhydrolase	-0.22	(-0.89, 0.46)	0.74
IL1RT1	-0.20	(-0.85, 0.44)	0.74
CEACAM8	-0.21	(-0.89, 0.46)	0.74
FS	-0.21	(-0.87, 0.45)	0.74

Variable	$\beta$ -coeff.	(95% CI)	Adjusted p-value
ITGB2	-0.21	(-0.86, 0.45)	0.74
SPON1	-0.21	(-0.88, 0.46)	0.74
TFPI	-0.20	(-0.84, 0.45)	0.74
LRIG1	-0.20	(-0.85, 0.45)	0.74
PlgR	0.21	(-0.47, 0.88)	0.74
PSGL1	-0.20	(-0.86, 0.46)	0.74
ALCAM	-0.20	(-0.87, 0.47)	0.74
CDH2	-0.21	(-0.90, 0.48)	0.74
CXCL1	0.19	(-0.46, 0.84)	0.76
Gal3	0.20	(-0.49, 0.88)	0.76
TFF2	-0.20	(-0.89, 0.49)	0.76
REG4	-0.17	(-0.83, 0.50)	0.82
SUMF2	-0.16	(-0.83, 0.50)	0.82
HBEGF	-0.15	(-0.80, 0.49)	0.83
PGLYRP1	-0.15	(-0.80, 0.49)	0.83
Gal9	-0.17	(-0.89, 0.55)	0.83
PAR1	-0.15	(-0.82, 0.51)	0.83
IL18BP	0.15	(-0.52, 0.82)	0.83
SEMA3F	-0.14	(-0.80, 0.53)	0.86
METRNL	0.14	(-0.54, 0.81)	0.87
PRSS8	-0.15	(-0.89, 0.60)	0.87
NPTXR	0.13	(-0.52, 0.78)	0.87
QDPR	-0.13	(-0.79, 0.54)	0.87
PECAM1	0.12	(-0.52, 0.76)	0.87
CASP3	-0.11	(-0.75, 0.52)	0.88
NOMO1	0.12	(-0.56, 0.79)	0.89
GLO1	-0.11	(-0.76, 0.55)	0.90
MCFD2	-0.11	(-0.78, 0.56)	0.90
MMP3	0.13	(-0.68, 0.93)	0.90
TSHB	0.10	(-0.55, 0.75)	0.90
SNAP23	-0.10	(-0.75, 0.55)	0.91
MMP2	0.10	(-0.56, 0.75)	0.91
IL1RT2	0.09	(-0.55, 0.73)	0.92
TGM2	-0.08	(-0.73, 0.57)	0.93
IL16	0.08	(-0.58, 0.75)	0.93
NADK	0.08	(-0.59, 0.76)	0.93
MERTK	-0.08	(-0.76, 0.60)	0.94
EGFR	0.07	(-0.57, 0.72)	0.94
ENPP7	-0.07	(-0.73, 0.58)	0.94
RETN	-0.07	(-0.72, 0.58)	0.94
JAMA	-0.07	(-0.70, 0.57)	0.94
CPB1	-0.07	(-0.71, 0.58)	0.94
TYMP	-0.07	(-0.73, 0.60)	0.94
CCDC80	-0.07	(-0.77, 0.64)	0.94

<b>Variable</b>	<b><math>\beta</math>-coeff.</b>	<b>(95% CI)</b>	<b>Adjusted p-value</b>
CSTB	-0.07	(-0.79, 0.65)	0.94
CD2AP	-0.06	(-0.71, 0.59)	0.94
ITGB1BP2	-0.06	(-0.70, 0.59)	0.94
DLK1	0.06	(-0.60, 0.71)	0.94
OPG	-0.06	(-0.76, 0.64)	0.94
SOST	-0.06	(-0.74, 0.62)	0.94
CD4	-0.06	(-0.74, 0.63)	0.94
GIF	0.05	(-0.60, 0.71)	0.94
NECTIN2	0.04	(-0.62, 0.70)	0.97
PILRB	0.03	(-0.63, 0.68)	0.98
PRSS27	0.03	(-0.63, 0.68)	0.98
CHRD2	-0.03	(-0.68, 0.63)	0.98
CNTN1	0.02	(-0.67, 0.72)	0.98
CD79B	0.02	(-0.64, 0.68)	0.98
CPA1	0.02	(-0.63, 0.66)	0.98
SELP	-0.02	(-0.66, 0.62)	0.98
IL1RL2	0.02	(-0.64, 0.68)	0.98
IL4RA	-0.02	(-0.67, 0.64)	0.98
ANG1	-0.01	(-0.66, 0.64)	1.00
SHPS1	0.005	(-0.64, 0.65)	1.00
CTRC	0.004	(-0.65, 0.66)	1.00
CD40L	0.004	(-0.65, 0.65)	1.00
CD164	0.003	(-0.65, 0.65)	1.00
KYAT1	0.001	(-0.65, 0.65)	1.00