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New avenues for Epac in inflammation and tissue remodeling in COPD

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List of abbreviations

AC:	Adenylyl cyclase
AKAP:	A-kinase anchoring protein
ANOVA:	Analysis of variance
α SMA:	α -smooth muscle actin
ASM:	Airway smooth muscle
BALF:	Bronchoalveolar lavage fluid
cAMP:	Cyclic AMP
cDNA:	Complementary Deoxyribonucleic acid
COPD:	Chronic obstructive pulmonary disease
CS:	Cigarette smoke
CSE:	Cigarette smoke extract
DMEM:	Dulbecco's modified Eagle's medium
DNA:	Deoxyribonucleic acid
ECIS:	Electric cell substrate impedance sensing
ECM:	Extracellular matrix
Epac:	Exchange protein directly activated by cAMP
ERK1/2:	Extracellular signal-regulated kinase 1 and 2
FBS:	Fetal bovine serum
FEV ₁ :	Forced expiratory volume in 1 second
FVC:	Forced vital capacity
GAP:	GTPase activating protein
GAPDH:	Glyceraldehyde 3-phosphate dehydrogenase
GDP:	Guanosine diphosphate
GEF:	Guanine nucleotide exchange factor
GOLD:	Global Initiative for Chronic Obstructive Lung Disease
GTP:	Guanosine-5'-triphosphate
HBE:	Human bronchial epithelial cells
hTERT:	Human telomerase reverse transcriptase
HUVEC:	Human umbilical vein endothelial cells
IKK:	I κ -B α kinase
IL:	Interleukin
IL-1 β :	Interleukin-1beta

IL-6:	Interleukin-6
IL-8:	Interleukin-8
I κ -B α :	NF- κ B inhibitory protein I kappa-B alpha
KC:	Keratinocyte-derived chemokine
LPS:	Lipopolysaccharide
IQGAP:	IQ motif containing GTPase activating protein
MAPK:	Mitogen activated protein kinase
MIP:	Macrophage inflammatory protein
miRNA:	MicroRNA
MMP:	Matrix metalloproteinase
(m)RNA:	(messenger) Ribonucleic acid
NF- κ B:	Nuclear factor kappa B
PAS:	Periodic acid Schiff
PBS:	Phosphate-buffered saline
PDE:	Phosphodiesterase
PGE ₂ :	Prostaglandin E ₂
PKA:	Protein kinase A
PLC:	Phospholipase C
RIPA:	Radio-immunoprecipitation
RT-PCR:	Real time polymerase chain reaction
SDS PAGE:	Sodium dodecyl sulfate polyacrylamide gel electrophoresis
siRNA:	Small interference ribonucleic acid
SPDEF:	SAM pointed domain ETS fraction
TBST:	Tris-buffered saline tween
TER:	Transelectrical resistance
TGF- β :	Transforming growth factor-beta
TIMP:	Tissue inhibitor of metalloproteinase
TNF:	Tumor necrosis factor
VASP:	Vasodilator-stimulated phosphoprotein
VEGF:	Vascular endothelium-derived growth factor
WT:	Wild type
ZO:	Zona occludens

