

Table S3. Details on genes associated with lung diseases showing circadian oscillations in expression

Probe set ID	Symbol	Gene name	Species	Type	Cluster	Effects
<i>Asthma</i>						
1370941_at	<i>Pdgfra</i>	Platelet-derived growth factor receptor, α	M	Up	1	Increase in murine asthma; affects SM development
1398799_at	<i>Eif4e</i>	Eukaryotic translation initiation factor 4E	H	Down	1	Involved in proliferation of Bronchial SM
1372459_at	<i>Vasp</i>	Vasodilator-stimulated phosphoprotein	H	Down	2	Decreased VASP phosphorylation in asthmatics
1391946_at	<i>Selp</i>	Selectin P	Many	PA	2	Involved in eosinophil recruitment
1370634_x_at	<i>Cxcl3</i>	Chemokine ligand 3	H	Up	2	Higher mRNA expression in asthmatics
1368073_at	<i>Irf1</i>	Interferon regulatory factor 1	H	PO	2	Linked to Th1/Th2 cytokine balance
1369943_at	<i>Tgm2</i>	Transglutaminase 2	H	Up	2	Involved in eicosanoid formation in asthmatic airway
1387219_at	<i>Adm</i>	Adrenomedullin	Many	Up, PA, KO	2	Increased during acute asthma attacks; bronchodilatory action
1399027_at	<i>Rhoa</i>	Ras homolog gene family, A	Many	Up, PA	2	Increased in BLF of murine and human asthmatic
1370642_s_at	<i>Pdgfrb</i>	Platelet-derived growth factor receptor, β	M	Up	2	Increase in murine asthma; affects SM development
1368488_at	<i>Nfil3</i>	Nuclear factor, interleukin 3 regulated	M	KO	2	Involved in IgE production
1369625_at	<i>Aqp1</i>	Aquaporin 1	M	Down	2	Lower expression in murine asthma linked to fluid dynamics
1379688_at	<i>Iga4</i>	Integrin, α 4	M	KO	3	KO failed to develop asthma pheno
1383189_at	<i>Tnfrsf10</i>	Tumor necrosis factor superfamily, 10	Many	Up	3	Inhibition reduces inflammation
1381311_at	<i>Emr1</i>	Egf-like module containing receptor 1	H	Up	3	Linked to eosinophil adhesion & activation
1388583_at	<i>Cxcl12</i>	Chemokine ligand 12	Many	Up	3	Linked to leukocyte recruitment
1368300_at	<i>Adora2a</i>	Adenosine A2a receptor	H	PO	3	Involved in bronchoconstriction
1394919_at	<i>Hgf</i>	Hepatocyte growth factor	Many	Up, PA	3	Suppression of antigen induced immune response
1379375_at	<i>Pdgfa</i>	Platelet-derived growth factor α	H	Up	3	Higher in chronic rhinosinusitis with asthma
1373401_at	<i>Tnc</i>	Tenascin C	H	Up	4	Abnormal deposition on basal membrane
1376619_at	<i>Piprd</i>	Protein tyrosine phosphatase, receptor, D	H	PO	4	Polymorphism associated with asthma
1373683_at	<i>Fyn</i>	FYN oncogene related to SRC, FGR, YES	H	PO	4	Linked to IgE-dependent mast cell degranulation
1391428_at	<i>Angpt1</i>	Angiotensin 1	Many	Up	4	Levels higher in asthmatics; linked to airway remodeling
1377113_at	<i>Fhl1</i>	Fms-related tyrosine kinase 1	H	Up	4	Involved in angiogenesis & airway remodeling
1375523_at	<i>Marcks</i>	Myristoylated alanine-rich PKC substrate	M	PA	4	Blocks mucus hypersecretion in a murine asthma
1382481_a_at	<i>Adam33</i>	ADAM metallopeptidase domain 33	H	PO	5	Airway remodeling & decreasing lung function
1369115_at	<i>Adrb2</i>	Adrenergic, β -2-, receptor, surface	H	PO	6	Gly16 polymorphism is common in nocturnal asthma
1385393_at	<i>Ppargc1a</i>	PPAR γ , coactivator 1 α	H	Up	6	Increased in bronchial SM
1393917_at	<i>Cd163</i>	CD163 molecule	H	Up	7	Anti-inflammatory molecule increased in severe asthmatics
1367631_at	<i>Ctgf</i>	Connective tissue growth factor	H	Up	7	CTGF response after TGF β treatment is greater in asthmatics
1392648_at	<i>Mrc1</i>	Mannose receptor, C 1	H	PO	7	Linked to host immune response
1367577_at	<i>Hspb1</i>	Heat shock 27kda protein 1	H	Up	8	Protection against the oxidative stress

Abbreviations: H-human, M-mouse, R-rats, PA-pathogenesis, PO-polymorphism, KO-knock out, DT-drug treatment, BLF- bronchoalveolar lavage fluid, SM-smooth muscle, ALI-acute lung injury, CAP-community acquired pneumonia, GC- glucocorticoid, NSCLC- non-small cell lung carcinoma

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COPD						
1370941_at	<i>Pdgfra</i>	Platelet-derived growth factor receptor, α		Up	1	Increased expression in COPD
1387219_at	<i>Adm</i>	Adrenomedullin	H	Up	2	Plasma concentrations increased in COPD
1368200_at	<i>Cx3cl1</i>	Chemokine ligand 1	M	Up	2	Increased in murine COPD; increase recruitment of immune cells
1367860_a_at	<i>Mmp14</i>	Matrix metalloproteinase 14	Many	Up, PA	3	Specific haplo linked to mucin over production
1388111_at	<i>Eln</i>	Elastin	H	PO	3	Linked to elastic fiber formation
1393314_at	<i>Fgf1</i>	Fibroblast growth factor 1	H	Up	3	Related to airway remodeling
1368829_at	<i>Fbn1</i>	Fibrillin 1	M	KO	3	KO develops emphysema; alters sequestration of cytokines
1393356_at	<i>Pde5a</i>	Phosphodiesterase 5A, cGmp-specific	H	DT	4	regulation of airway remodeling, important drug target
1375523_at	<i>Marc5</i>	Myristoylated alanine-rich PKC substrate	M	PA	4	Blocks mucus hypersecretion in murine models
1382481_a_at	<i>Adam33</i>	ADAM metalloproteinase domain 33	H	PO	5	Linked to airway remodeling
1369115_at	<i>Adrb2</i>	Adrenergic, β -2-, receptor, surface	H	PO, DT	6	Polymorphism linked to COPD; important drug target
1373092_at	<i>Tgfb3</i>	Transforming growth factor, β receptor III	Many	PO, down	6	Polymorphism linked to both murine & human COPD
1386080_at	<i>Hcy1</i>	Hairy/enhancer-of-split related with YRPW 1	H	Down	6	Down-regulated in COPD smokers
1367631_at	<i>Cg1f</i>	Connective tissue growth factor	H	Up	7	Upregulated in the lungs of COPD patients
1389836_a_at	<i>Timp3</i>	TIMP metalloproteinase inhibitor 3	M	KO	7	KO develop emphysema like airspace enlargement
Lung Injury						
1372459_at	<i>Vasp</i>	Vasodilator-stimulated phosphoprotein	M	Down, KO, PA	2	KO = model for ALI with pulmonary damage
1387083_at	<i>Cf1f</i>	Cardiotrophin 1	R	DT	2	Attenuates LPS induced ALI
1379688_at	<i>Iga4</i>	Integrin, $\alpha 4$	M	PA	3	Prevents LPS induced ALI
1368342_at	<i>Ampd3</i>	Adenosine monophosphate deaminase 3	M	Up	3	Linked to increased neutrophil infiltration & cytokine production
1368300_at	<i>Adora2a</i>	Adenosine A2a receptor	M	DT	3	Agonist attenuates ALI & inhibits immune cell activation
1373401_at	<i>Trc</i>	Tenascin C	M	Up, KO	4	KO protected from ALI; linked to Tgff action on lung healing
1391428_at	<i>Angpt1</i>	Angiopoietin 1	M	DT	4	Attenuates H ₂ O ₂ induced ALI & vascular leakage
1375692_at	<i>Mapk1</i>	Mitogen-activated PK 1	M	DT	4	Inhibitor attenuates ALI by reducing inflammation
1388271_at	<i>Mt2a</i>	Metallothionein 2A	Many	Up, KO	6	KO= more susceptible to heavy metal induced lung injury
1368025_at	<i>Ddit4</i>	DNA-damage-inducible transcript 4	Many	Up, KO	6	Linked to cigarette smoke induced lung injury
1383169_at	<i>Lifr</i>	Leukemia inhibitory factor receptor α	M	Up	6	Increased in BLF & decreased in lung tissue in ALI
1382512_at	<i>Rock2</i>	Rho-associated, coiled-coil containing PK 2	M	DT	6	Inhibition attenuate ALI & decrease neutrophil emigration
1380926_at	<i>Map3k2</i>	Mitogen-activated PK kinase 2	M	KO	6	KO= more susceptible to heavy metal induced lung injury
1372615_at	<i>Aoc3</i>	Amine oxidase, copper containing 3	M	KO, DT	6	KO or inhibition attenuated ALI
1389836_a_at	<i>Timp3</i>	TIMP metalloproteinase inhibitor 3	M	KO	7	KO = increased neutrophil chemotactic activity
1367577_at	<i>Hspb1</i>	Heat shock 27kda protein 1	M	PA	8	Involved in ventilator associated lung injury

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<i>Microbial Infection</i>						
1368200_at	<i>Cx3cl1</i>	Chemokine ligand 1	M	Up	2	Increased pulmonary expression after metapneumovirus infection
1368073_at	<i>Irf1</i>	Interferon regulatory factor 1		PA	2	Regulates IFN production; important role in TB infection
1370847_at	<i>Spon2</i>	Spondin 2	M	KO	3	KO more prone to viral infection
1391737_at	<i>Ncf4</i>	Neutrophil cytosolic factor 4	M	KO	3	KO= defective ROS production in neutrophils
1388527_at	<i>Anxrl</i>	Anthrax toxin receptor 1		PA	3	Internalization of anthrax toxins
1372818_at	<i>Colect12</i>	Collectin sub-family 12	Many	PA	4	Pathogen binding & clearance
1376880_at	<i>Tbk1</i>	TANK-binding kinase 1		PA	4	Induction of IFN after bacterial or viral infection
1393432_a_at	<i>Dhx36</i>	DEAH box 36		PA	4	Involved in sensing of microbial DNA in dendritic cells
1389521_at	<i>Ivns1abp</i>	Influenza virus NS1A binding protein		PA	6	Influenza viral infection
1392648_at	<i>Mrc1</i>	Mannose receptor, C 1		PA	7	Pathogen molecular pattern recognition
<i>Pulmonary & Cystic Fibrosis</i>						
1370941_at	<i>Pdgfra</i>	Platelet-derived growth factor receptor, α	M	DT	1	Inhibition decreases parenchymal fibrosis
1367624_at	<i>Aif4</i>	Activating transcription factor 4	H	Up	1	Linked to ER stress & apoptosis of alveolar cells
1387219_at	<i>Adm</i>	Adrenomedullin	H	Up	2	Higher plasma levels in cystic fibrosis patients
1368408_at	<i>Grk5</i>	G protein-coupled receptor kinase 5	H	Up	2	Regulation of β 2-adrenoceptor
1388583_at	<i>Cxcl12</i>	Chemokine ligand 12	Many	Up, PA, DT	3	Inhibition attenuates fibrosis by blocking fibrocyte recruitment
1393508_at	<i>Nox4</i>	NADPH oxidase 4	Many	Up	3	Modulation of response to TGF β & PDGF signaling
1383641_at	<i>Ednra</i>	Endothelin receptor A	H	Up, PO	3	Pro-inflammatory peptide & SM agonist
1395413_at	<i>Lrp6</i>	LDLR-related protein 6	H	Up	6	Associated with increased Wnt signaling
<i>Pulmonary Hypertension (PH)</i>						
1374529_at	<i>Thbs1</i>	Thrombospondin 1	M	KO	1	KO resistant to PH
1387219_at	<i>Adm</i>	Adrenomedullin	H	Up	2	Plasma Adm higher in PH patients
1387083_at	<i>Cfjl</i>	Cardiotrophin 1	M	DT	2	Treatment attenuates PH & linked to nitric oxide synthesis
1370642_s_at	<i>Pdgfrb</i>	Platelet-derived growth factor receptor, β	H	Up	2	Upregulated in PH patients
1399027_at	<i>Rhoa</i>	Ras homolog gene family, A	R	Up, DT	2	Increased activity in PH; attenuated by inhibitors
1367866_at	<i>Fbln5</i>	Fibulin 5	M	Up	4	Increased expression in murine PH
1393356_at	<i>Pde5a</i>	Phosphodiesterase 5A, cgnp-specific	Many	DT	4	Inhibition attenuates PH by regulating vascular remodeling
1389780_at	<i>Tipi</i>	Tissue factor pathway inhibitor	M	TG	4	Overexpression inhibits PH
1367982_at	<i>Alas1</i>	Aminolevulinatase, delta-, synthase 1	M	Up	6	Increased expression in PH
1382512_at	<i>Rock2</i>	Rho-associated, coiled-coil containing PK 2	Many	Up, DT	6	Inhibition attenuates PH
<i>Others</i>						
1374529_at	<i>Thbs1</i>	Thrombospondin 1	H	Up	1	Increased serum levels in Idiopathic interstitial pneumonia

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<i>Others</i>						
1368073_at	<i>Irf1</i>	Interferon regulatory factor 1	R	Up	2	Induced in alveolar cells during endotoxemia
1383906_at	<i>Neur13</i>	Neuralized homolog 3	M	Up, PA	3	Upregulated in murine endotoxemia & suppressed by GC
1389780_at	<i>Tjpi</i>	Tissue factor pathway inhibitor	H	DT	4	Recombinant Tjpi in phase 3 trial for CAP treatment
<i>Cancer (Selected Genes)</i>						
1370642_s_at	<i>Pdgfrb</i>	Platelet-derived growth factor receptor, β	H	DT	2	Inhibitor in clinical trial for treating metastatic solid tumors
1383189_at	<i>Tnfrsf10</i>	Tumor necrosis factor superfamily, 10	H	DT	3	Recombinant protein in clinical trial for treating advanced NSCLC
1388583_at	<i>Cxcl12</i>	Chemokine ligand 12	H	DT	3	Antagonists in clinical trial for treating NSCLC
1394919_at	<i>Hgf</i>	Hepatocyte growth factor	H	DT	3	Neutralizing antibody in clinical trial for treating NSCLC
1373683_at	<i>Fyn</i>	FYN oncogene related to SRC, FGR, YES	H	DT	4	Inhibitor in clinical trial for treating NSCLC
1391428_at	<i>Angpt1</i>	Angiopoietin 1	H	DT	4	Neutralizing antibody in clinical trial for treating solid tumors
1377113_at	<i>Fhl1</i>	Fms-related tyrosine kinase 1	H	DT	4	Inhibitor and ribozyme in clinical trial for treating NSCLC

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