

17	9245135	9261748	<i>IDO1</i>	positive regulation of type 2 immune response
18	28946497	29028107	<i>WNT2</i>	positive regulation of epithelial cell proliferation involved in lung morphogenesis
18	28946497	29028107	<i>WNT2</i>	lung induction
18	37377924	37599931	<i>AOAH</i>	negative regulation of inflammatory response

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34 **Table S4. Information of genes which are previously reported as with swine EP or human asthma related genes. Descriptions of the gene**  
35 **functions are based on literature search and GeneCard.**

Candidate genes	Chr	Physical position	XP-EHH score	Fst value	Function	Reference
<i>TCF7</i>	2	142047175	0.75	0.58	Involved in the Wnt signaling pathway and immune response.	(Zhu <i>et al.</i> 2015)
<i>EPAS1</i>	3	100164175	0.57	0.72	Responds to hypoxia-responsive.	(Ai <i>et al.</i> 2014)
<i>TGFBR3</i>	4	136718160	0.96	0.83	Airway remodeling.	(Kim <i>et al.</i> 2010)
<i>MMP2</i>	6	27552563	1.02	0.58	Plays crucial role in the inflammatory response.	(Huang <i>et al.</i> 2009)
<i>AXL</i>	6	44979578	0.71	0.75	Mediates innate immune response.	(Sun <i>et al.</i> 2010)
<i>SPDEF</i>	7	35242328	0.95	0.64	Mediates mucus secretion in airway.	(Rajavelu <i>et al.</i> 2015)
<i>CYP1A1</i>	7	63474840	0.54	0.80	Responds to inflammatory response caused by <i>M.hyo</i> pneumoniae.	(Fang <i>et al.</i> 2016)
<i>CYP1A2</i>	7	63474840	0.54	0.80	Susceptibility to hyperoxic lung injury.	(Wang <i>et al.</i> 2015)
<i>CXCL2</i>	8	74284832	0.75	0.62	Inflammation response and the pathogenesis of airway remodeling.	(Al-Alwan <i>et al.</i> 2013)
<i>TLR2</i>	8	79818077	0.69	0.84	Responds to inflammatory response caused by <i>M.hyo</i> pneumoniae.	(Fang <i>et al.</i> 2013)
<i>CCL11</i>	12	42446570	0.66	0.57	Significantly related to increased risk of asthma.	(Zhou <i>et al.</i> 2017)
<i>CTNNB1</i>	13	27684730	0.73	0.60	Plays crucial role in the Wnt/ $\beta$ -catenin signaling pathway.	(Smolich <i>et al.</i> 1993)
<i>IL7R</i>	16	22326963	0.58	0.76	Responds to adaptive immune response.	(Kurz <i>et al.</i> 2006)
<i>WNT2</i>	18	30813337	0.54	0.63	Involved in the Wnt signaling pathway and immune response.	(Smolich <i>et al.</i> 1993)