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[illegible]

## B

-650 TAAATAATGAATGTAGGCTGGGCGCGGTGGCTCACGCCTGTAATCCACGACCTTTGGGAGGCCGAGGCA  
 -580 GCGGATCATGAGGTCAAGAGATCAAGATCATCTTGGCTACATGGTGAACCCGCTCTTACTAAAAATA  
 -510 CAAAATTAGCTGGGCATGTTGGCACTCGCTGTTGTCTCAGTACTGGGAGGCTGAGGTAGGAGAATC  
 -440 ACTTGAAACCAGGAGGAGGAGTTCCAGTGAGCCGAGATCATGCTGCTGCACTCCAGCCTGGCCAGAGAG  
 -370 CAAGCCTCTGTCTCAAAAATAAATAAATAAATTTTAAAAATAATGAACGCAGGCCAAGAAAGATT  
 -300 GTGGGAAATGGGGTGATATTTTGCATAGACTTCTAAGGCTAAGAAGG(AAAACAAACAGAGTGGTGGGC  
 -230 ACAAACTACCCCAACCCCAACTGGGTCCCAACTCTAGGCTCTCTGGCCTGGCACCACCACAGAAAGGCC  
 -160 CCGTTCCCCAAACCTCAGGGTATTCTTAGTCCCTCCTGTTCCAGCGCTGCCAATCCCGCGGCCACCCC  
 -90 ACTTTAGTTGCGTGTTCACGCTCTCCGCGCCGCCCTCCCGGCGTGAAACGGACGTGCTTTTATAGAG  
 -20 AGTCCACTGGGCTTGGAGTCAAGTGGCAATACAGGGGCAATAACCAGGCGTGTTCCAAGGGGGAGCCCC  
 +51 GCTCTGCAGCCCTGTGCGCCGTAGAGAGCTGGACTTAGGCTGGCAGCATGGCCAGTTCAAGGTCAAGGT  
 +121 TCCACCGGAGAAGCCTTCGGGGCTGGCACATGGACAAAGTGCTGTGTCAGCATCGTGGGGACCCGGGA  
 +191 GAGAGCCCCCCACTGCCCTGGACAATCTCGGCAAGGAGTTCACTGCGGGCGCTGTGAGTGCGTGGGAGT

## ALOX15B

**Figure S1. Bioinformatic analysis of the promoter regions of *ALOX15* and *ALOX15B* genes.** (A and B) Bioinformatic analysis of the promoter regions (-650bp ~ +250bp) of *ALOX15* (A) and *ALOX15B* (B) genes revealed multiple putative binding sites for GR and p300. Blue box: GR binding sites; Red box: p300 binding sites. Arrows indicate primer aligning positions in ChIP assay. TSS, transcription start site.

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-640 GCACGGGCTGAGGCGACCCCCAGCCCCCTCCCGTCCGCACACCCCCACCGCGGTCCAG
-580 CAGCCGGGCGGCGTTCGACGCCTAGGGGGGACCATTACATAACCCCGCGCCCGCGGCGT
-520 CTTCTCCCGCCCGCGGGCGGCCCCGAACGGAGCCCCGGGGGCGGGCGCCCAGCAC
                                CREB
-460 CTGGCCGCCGCGGTGGGGCCGTAGCAGCGGCCGTATTATTATTTCCGCGGAAAG
-400 GAAGGCGAAGGAGGGGAGCGCGGCGGAGGAGGGCCGCCTGCGCCGCCCGGAGCGGG
-340 GCCTCCTCGGTGGGCTCCGCGTCGGCGCGGGCGTGCGGGCGGCGCTGCTCGGCCCGGCC
-280 CCTCGGCCCTCTGGTCCGGCCAGCTCCGCTCCCGGCGTCCTTGCCGCGCCTCCGCCGGCC
-220 GCCGCGGATGTGAGGCGGCGGCGAGCCTGGCTCTCGGCTCGGGCGAGTTCTCTGCGG
                                CREB
-160 CCATTAGGGGCCGCTGCGGCGGCGGCGGCGSAGCGCGCGGCAGGAGAGGGTTCCGA
                                CREB
-100 GGGTGGGGGCGCAGGCCCGGGAGGGGGCACCGGGAGGAGGTGAGTGTCTCTTGTCGCCTC
-40  CTCCTCTCCCCCCTTTTCGCCCCCGCTCCTTGTGGCGATGAGAAGGAGGAGGACAGCGC
                                TSS
+21  CGAGGAGGAAGAGGTTGATGGCGGCGCGGAGCTCCGAGAGACCTCGGCTGGGCAGGGGC
+81  CGGCCGTGGCGGGCCGGGACTGCGCCTCTAGAGCCGCGAGTTCTCGGAATTTCGCCGCA
+141 GCGGACGCGCTCGGCGAATTTGTGCTCTTGTGCCCTCTCCGGGCTTGGGCCAGGCCCC

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## *EP300*

**Figure S2. Bioinformatic analysis of the promoter region of *EP300* gene.** Bioinformatic analysis of the promoter regions (-640bp ~ +200bp) of *EP300* gene revealed multiple putative binding sites for CREB. Boxed red letters indicate putative CREB binding sites. TSS, transcription start site. Arrows indicate primer aligning positions in ChIP assay.

**Table S1. Demographic and clinical characteristics of recruited pregnant women**

	TNL (n=7)	TL (n=7)	<i>P</i> value
Maternal age (year)	33.00±2.52	32.00±2.58	0.48
Gestational age at delivery (week)	38.96±0.23	39.00±0.49	0.85
Delivery mode			
Vaginal (%)	0	100%	N/A
C-section (%)	100%	0	N/A
Membrane rupture			
SPOM (%)	0	100%	N/A
ARM (%)	100%	0	N/A
Gravidity median (range)	2 (1-5)	2 (1-2)	0.27
Parity median (range)	1 (1-2)	1 (1-2)	0.12
Fetal gender (male/female)	3/4	3/4	0.78
Birth weight (g)	3395.29±207.12	3255.00±143.03	0.17

TNL, term not in labor; TL, term in labor; ARM, artificial rupture of membranes; C-section, caesarean section; SPOM, spontaneous rupture of membranes with labor. Maternal age, gestational age at delivery, and birth weight were expressed as mean ± SD and analyzed with unpaired Student's t-test. Gravidity and parity were expressed as median (min–max) and analyzed with the Mann–Whitney U test. Fetal gender was analyzed with Chi-square test. Significance was set at  $P < 0.05$ .

**Table S2. Primer sequences used in qRT-PCR and ChIP.**

	Gene	Forward Primer (5'-3')	Reverse primer (5'-3')
qRT-PCR	<i>ALOX15</i>	GAAATTAACGTCCGGGCCA	CGATTCCTTCCACATACCGAT
	<i>ALOX15B</i>	CTTCATAGCCACCCTCCAC	AGGGGCCTTTGGTCTCCA
	<i>EP300</i>	TCCGCCAGCGATGGCACAGA	AGGGGAACCTACCAGATCGCAGC
	<i>GAPDH</i>	CCCCTCTGCTGATGCCCCCA	TGACCTTGGCCAGGGGTGCT
ChIP	<i>ALOX15</i>	CTGTACCAGGCGTTGATTCC	AATCAACTCCGCCTACCGCT
	<i>ALOX15B</i>	AATAACCAGGCGTGTCACAG	CCACGATGCTGACAGACACT
	<i>EP300</i>	CTCCCGTCCGCACACAC	CTCCTTCGCCTTCCTTTCCC

**Table S3. Antibody information**

Antigen	Company	Catalog #	RRID	Dilution Concentration			
				WB	IHC/IF	ChIP	CoIP
<b>ALOX15</b>	Thermo Fisher	MA5-25853	AB_2722848	1:500	1:100		
<b>ALOX15B</b>	Thermo Fisher	PA5-97456	AB_2812073	1:500	1:100		
<b>P300</b>	Abcam	ab14984	AB_301550	1:200			1:50
<b>t-CREB</b>	Cell Signaling	9104S	AB_490881	1:1000		1:50	
<b>p-CREB (Ser<sup>133</sup>)</b>	Cell Signaling	9198S	AB_2561044	1:1000			
<b>t-STAT3</b>	Cell Signaling	9139S	AB_331757	1:1000		1:50	
<b>p-STAT3 (Tyr<sup>705</sup>)</b>	Cell Signaling	9145S	AB_2491009	1:1000			
<b>Lamin A/C</b>	Cell Signaling	4777S	AB_10545756	1:1000			
<b>GAPDH</b>	Proteintech	60004-1	AB_2107436	1:10000			
<b>H3K27ac</b>	Abcam	ab4729	AB_2118291			1:100	
<b>GR</b>	Cell Signaling	12041S	AB_2631286	1:500		1:50	