

Table S1. Real-time RT-PCR TaqMan assay probes

Number	Gene symbol	Assay ID	Catalog Number
1	VIM	Hs00958111_m1	
2	CLDN1	Hs00221623_m1	
3	KRT1	Hs00196158_m1	
4	KRT10	Hs00166289_m1	
5	KRT15	Hs00951967_g1	
6	KRT17	Hs00356958_m1	
7	IL-23A	Hs00900828_g1	
8	DNMT1	Hs00945899_m1	4331182
9	DNMT3A	Hs01027166_m1	
10	DNMT3B	Hs00171876_m1	
11	TET1	Hs04189344_g1	
12	TET2	Hs00325999_m1	
13	TET3	Hs00896441_m1	
14	HDAC9	Hs01081558_m1	
15	18s rRNA	Hs99999901_s1	

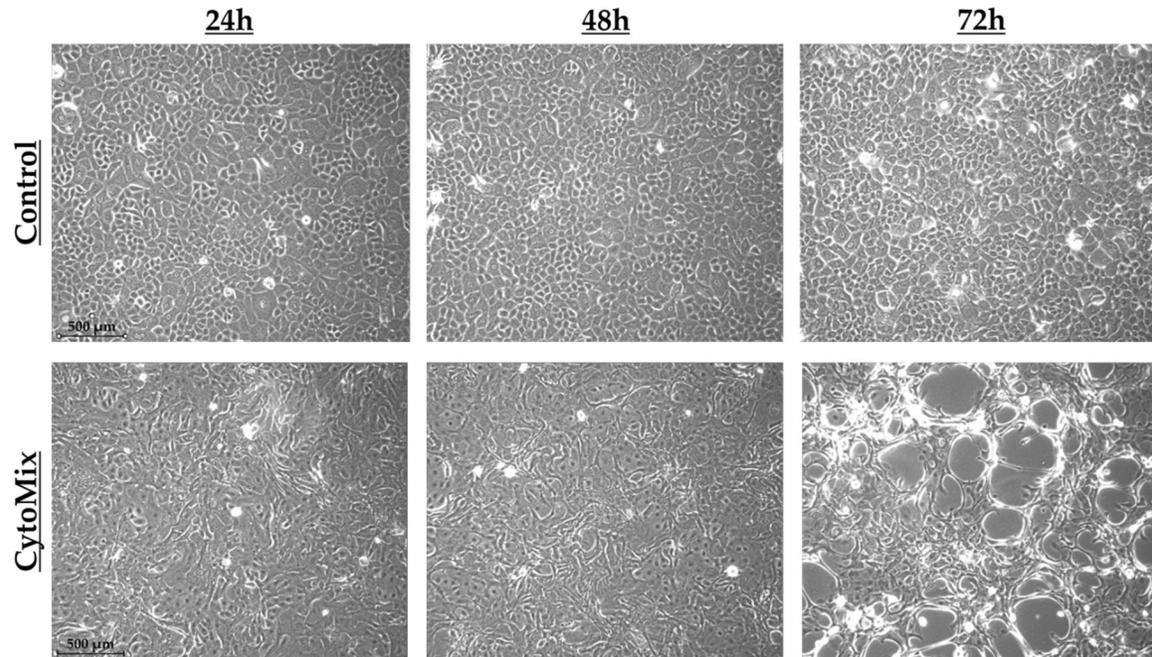


Figure S1. Morphological changes in severely inflamed keratinocytes. . To induce severe inflammation, KCs were treated with 10X CytoMix for 24, 48, and 72 hours. The representative images of three biological replicates are shown under transmitted light microscopy (n=3). Scale bars are 500 μm in Control and CytoMix groups.

Table S2. Enriched pathways in mildly and severely inflamed keratinocytes (KCs) compared to controls across biological process (BP), cellular component (CC), and molecular function (MF) categories.. Abbreviations: BP, biological process, CC, cellular component; MF, molecular function; KCs, keratinocytes.

Group	Go term	p value	Functional group	Number of Genes
Mildly-inflamed KCs	tissue development	5.6839E-18	BPs	167
	inflammatory response	3.8299E-13		77
	myeloid leukocyte activation	1.4831E-14		74
	skin development	5.6667E-28		75
	taxis	1.5593E-09		62
	cytoplasmic vesicle part	6.0089E-14	CCs	119
	vesicle	3.3224E-18		280
	tertiary granule	1.7841E-05		20
	lysosome	7.3392E-05		49
	plasma membrane	6.4435E-11		302
	interleukin-1 receptor binding	1.9859E-06	MFs	7.00
	cytokine receptor binding	1.7496E-07		32.00
	serine-type endopeptidase inhibitor activity	7.0770E-06		15.00
	RAGE receptor binding	2.1181E-05		5.00
	receptor binding	2.6492E-05		100.00

Group	Go term	p value	Functional group	Number of Genes
Severely-inflamed KCs	cellular nitrogen compound metabolic process	2.8466E-42	BPs	2536.00
	intracellular transport	9.7072E-22		804.00
	gated channel activity	1.2215E-15		77.00
	negative regulation of biological process	3.4488E-12		2048.00
	organonitrogen compound metabolic process	9.8856E-29		2604.00
	intracellular part	4.3187E-142	CCs	5190.00
	mitochondrion	1.06014E-28		792.00
	cell periphery	2.72435E-26		1491.00
	organelle membrane	1.62322E-16		1137.00
	extracellular exosome	2.00502E-11		1087.00
	cation channel activity	3.7769E-16	MFs	42.00
	G-protein coupled receptor activity	3.1626E-78		67.00
	methyltransferase activity	7.9790E-08		110.00
	serine-type endopeptidase activity	2.8176E-07		57.00
	nucleotide binding	3.9468E-05		909.00

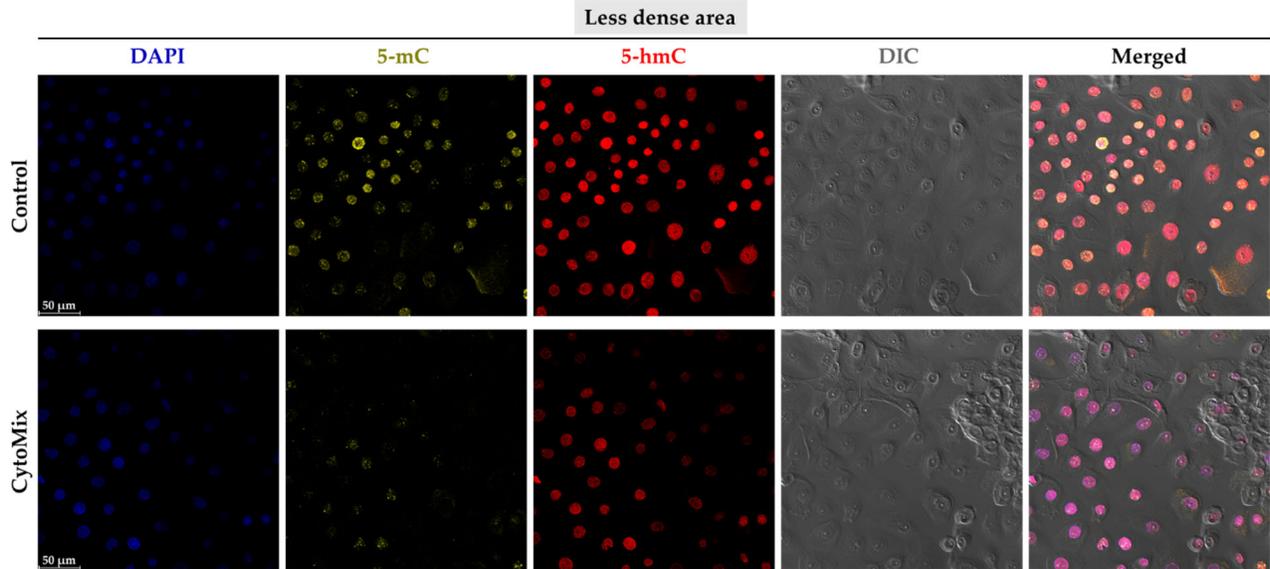


Figure S2. Differential 5-mC and 5-hmC patterns in keratinocytes treated with/without CytoMix in low density areas. The KCs were seeded at a density of $1.0\text{-}1.2 \times 10^5$ cells/well in 8-well slide chambers and were treated with or without CytoMix for 48 hours to induce mild inflammation. Then, the cells were fixed with 4% PFA and stained for 5-mC (in yellow) and 5-hmC (in red). The nuclei were stained with DAPI (in blue). The confocal microscopy images were taken from control and CytoMix-treated KCs ($n=3$). Scale bars are $50 \mu\text{m}$ in both control and CytoMix panels.