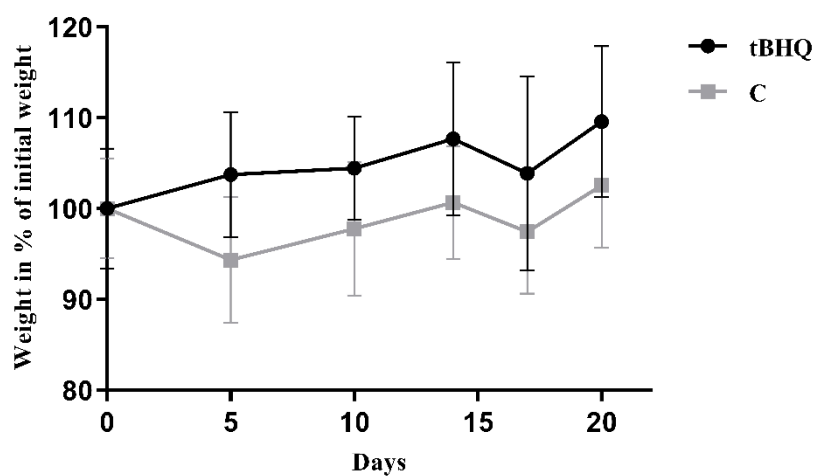
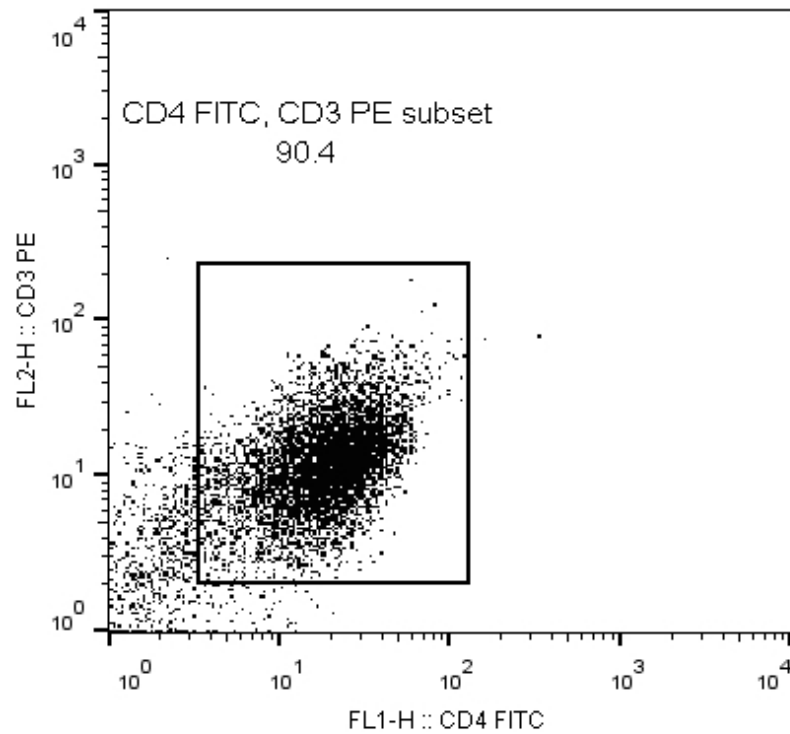


Supplementary Figure S1. Change in body weight over treatment time. Mice were maintained on food pellets supplemented with 1.5% (w/w) tBHQ or vehicle for 20 days. Weight of animals is expressed as percentage of original body weight measured at the first day of the treatment period. Data are means \pm SD of 6-6 mice/group



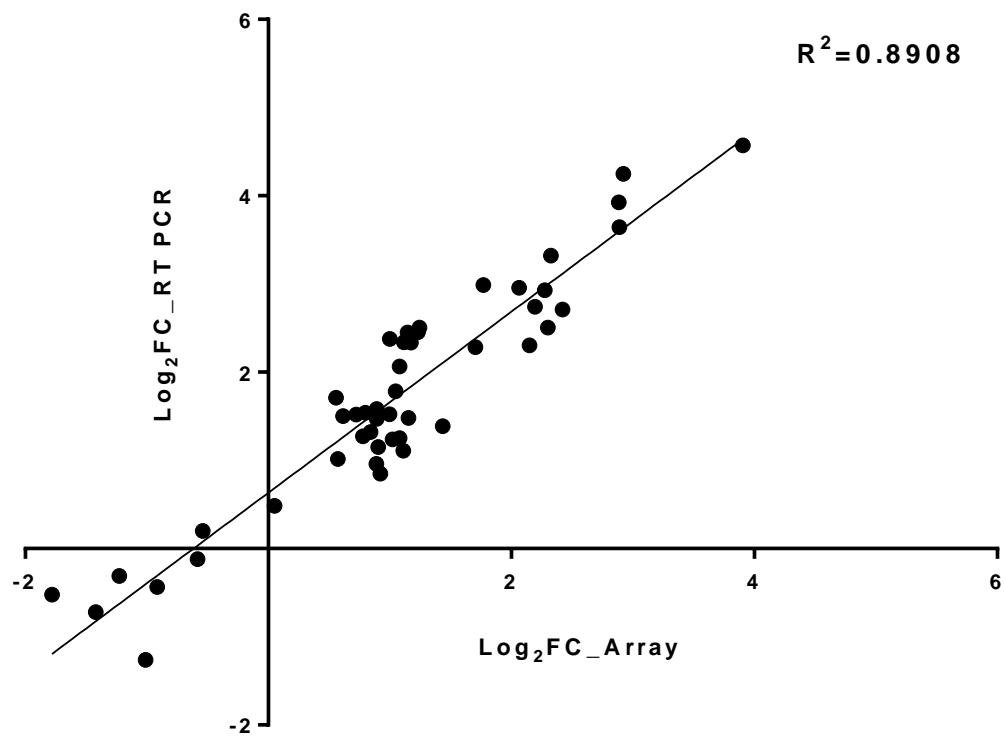
Supplementary Figure S2. Representative scatter plot of CD3⁺ positivity of CD4⁺ cells.

CD4⁺ cells were isolated from splenocytes derived from tBHQ fed and control mice with magnetic separation. CD3 positivity of these cells were determined with FACS analysis.



Supplementary Figure S3. Correlation between cDNA microarray and RT-PCR data.

The fold changes in transcript levels of 47 selected genes determined by both methods were log₂ transformed, and the values were plotted against each other to evaluate their correlation.



Supplementary Table S1. List of significantly changed genes after per os tBHQ treatment measured with Agilent microarray. In total 269 genes were found with a significantly changed expression in tBHQ treated, splenic CD4⁺ cells compared to control ($p_{\text{nom}} < 0.05$). From these, altogether 47 genes were validated back by RT-PCR (marked with bold asterisk [*])

Up-regulated genes			Down-regulated genes		
GeneName	logFC	adj.P.Val	GeneName	logFC	adj.P.Val
<i>Stfa1</i>*	3.9064895	0.0169437	<i>Ubn1</i>	-0.391629	0.0497032
<i>LOC433016</i>	3.7924452	0.0169437	<i>Cenpl</i>	-0.400142	0.0490856
<i>Stfa2l1</i>	3.5874328	0.0169437	<i>Chic2</i>	-0.426049	0.0429823
<i>ENSMUST00000077110</i>	3.4803365	0.0162617	<i>Serbp1</i>	-0.429634	0.0462228
<i>2300002D11Rik</i>	3.3350887	0.0409651	<i>Cenpa</i>	-0.446086	0.0408644
<i>Hp</i>	3.0378437	0.0208273	<i>Amd1</i>	-0.482322	0.0415054
<i>Stfa2</i>*	2.9227256	0.0169437	<i>Camk2a</i>	-0.485021	0.0445632
<i>Retnlg</i>	2.9129956	0.02052	<i>0610040D20Rik</i>	-0.485044	0.0391519
<i>Il8rb</i>	2.8891376	0.0107003	<i>Rybp</i>	-0.504705	0.0385746
<i>Mmp8</i>*	2.8853301	0.0169437	<i>Sh3rf1</i>	-0.504826	0.0499011
<i>Cxcl2</i>	2.8182754	0.0379543	<i>Usp38</i>	-0.506739	0.0348195
<i>Clec4e</i>	2.7445173	0.0324984	<i>Lemd3</i>	-0.50696	0.0430313
<i>Il8rb</i>	2.6500234	0.0162617	<i>Siah2</i>	-0.508708	0.0480091
<i>Clec4d</i>	2.5828577	0.0310919	<i>Dnajb6</i>	-0.517009	0.0244566
<i>Chi3l1</i>	2.4505219	0.02052	<i>Prickle1</i>	-0.518386	0.0395634
<i>S100a8</i>*	2.4212595	0.0107003	<i>3230401D17Rik</i>	-0.518576	0.0265968
<i>G0s2</i>	2.3701683	0.0199841	<i>Bcl10</i>	-0.518704	0.0310919
<i>s100a9</i>*	2.3268041	0.0169437	<i>AK013994</i>	-0.526674	0.0461562
<i>Ppp1r3d</i>	2.3008787	0.0204766	<i>Tipr1</i>*	-0.539461	0.0408163
<i>Lcn2</i>*	2.2997459	0.0204857	<i>Pde4b</i>	-0.541338	0.0435927
<i>Trem3</i>*	2.27623	0.0169437	<i>Peg12</i>	-0.545333	0.0482127
<i>Chi3l3</i>	2.2595454	0.0491891	<i>1810009J06Rik</i>	-0.545503	0.0406771
<i>Csf3r</i>	2.2523436	0.0208386	<i>Srfbp1</i>	-0.546509	0.0435377
<i>Mrgpra2</i>	2.2362744	0.0169437	<i>Dnajb6</i>	-0.548789	0.0337991
<i>Mmp9</i>*	2.1942358	0.0107003	<i>Rkhd3</i>	-0.558443	0.0379543
<i>Gad1</i>*	2.1500906	0.0169437	<i>Tgif2</i>	-0.565342	0.046275
<i>Arg2</i>	2.0986002	0.0107003	<i>1700054N08Rik</i>	-0.573559	0.0234741
<i>Trem1</i>*	2.0639241	0.0236857	<i>Klra3</i>	-0.577878	0.0360263
<i>1100001G20Rik</i>	2.0575514	0.0216319	<i>P2ry14</i>*	-0.582939	0.035137
<i>Hdc</i>	1.8824383	0.037632	<i>Sox4</i>	-0.583874	0.0411697

<i>Nfe2</i>	1.8673312	0.008929	<i>NAP007437-001</i>	-0.584212	0.0360263
<i>Emilin2</i>	1.8174195	0.0204766	<i>Gem</i>	-0.587821	0.0424369
<i>BC089618</i>	1.8101363	0.026206	<i>Rngtt</i>	-0.589558	0.0370012
<i>Alox5*</i>	1.7709131	0.0204766	<i>Dapp1</i>	-0.590742	0.0264522
<i>Lrg1</i>	1.7523144	0.0304426	<i>Slc22a2</i>	-0.596808	0.0497032
<i>Ccl6*</i>	1.703382	0.0179544	<i>Ptprf</i>	-0.597726	0.0264522
<i>Lilrb4</i>	1.6770058	0.0149756	<i>Kbtbd2</i>	-0.600365	0.0332443
<i>Dfna5h</i>	1.6426888	0.02052	<i>Glt28d2</i>	-0.601611	0.0480091
<i>Mtus1</i>	1.5887229	0.0216319	<i>Hbs1l</i>	-0.604691	0.0264522
<i>Cebpd</i>	1.5652603	0.0204857	<i>C030040K24Rik</i>	-0.612019	0.0424333
<i>Chi3l4</i>	1.4962512	0.0373994	<i>Tob2</i>	-0.62171	0.0310919
<i>Fndc1</i>	1.4674064	0.0199841	<i>Grb7</i>	-0.637942	0.040137
<i>Alox5*</i>	1.4654162	0.0317135	<i>Bhlhb2</i>	-0.638606	0.0208386
<i>Il1rn*</i>	1.4345521	0.0230512	<i>Myb</i>	-0.649523	0.0215293
<i>Padi4</i>	1.4258104	0.0424369	<i>Hmgn3</i>	-0.662442	0.0480091
<i>Mt1</i>	1.4242178	0.0469002	<i>Ptprf</i>	-0.671418	0.0289639
<i>Fpr-rs2</i>	1.4077917	0.0199841	<i>Atf3</i>	-0.678332	0.0310919
<i>Pi16</i>	1.4067729	0.03911	<i>Otud1</i>	-0.680716	0.0217045
<i>Emilin2</i>	1.4062323	0.0241828	<i>Ifi80</i>	-0.691938	0.0356522
<i>2300003P22Rik</i>	1.402857	0.0208273	<i>Skil</i>	-0.692136	0.046919
<i>Mtus1</i>	1.4020095	0.0230512	<i>Riok1</i>	-0.694497	0.040137
<i>Tnfaip2</i>	1.3847628	0.0359041	<i>Tieg3</i>	-0.695883	0.0445632
<i>Klra2</i>	1.3470671	0.0264522	<i>Pik3r3</i>	-0.707284	0.0482127
<i>Fpr1</i>	1.2951568	0.0351075	<i>Ube1l2</i>	-0.71087	0.0406771
<i>Ms4a8a</i>	1.2753775	0.0292462	<i>Jmy</i>	-0.71449	0.0469002
<i>Siglece</i>	1.265304	0.008929	<i>BC057022</i>	-0.729287	0.0208386
<i>Mrap</i>	1.2580866	0.0199841	<i>Dyrk3</i>	-0.738454	0.0241828
<i>Gcnt2</i>	1.2471069	0.0365111	<i>Hpse</i>	-0.743195	0.0334709
<i>A530064D06Rik</i>	1.2435046	0.0179544	<i>9630054F20Rik</i>	-0.746661	0.0199841
<i>Ifitm1*</i>	1.2428823	0.0216319	<i>D230015J17Rik</i>	-0.75302	0.0395634
<i>Edn1</i>	1.2405578	0.0359041	<i>Efnb2</i>	-0.75834	0.0241828
<i>5730557B15Rik</i>	1.2404816	0.0424369	<i>Tnfsf11</i>	-0.76561	0.0434025
<i>Nup155</i>	1.2339759	0.0204857	<i>Zfyve28</i>	-0.772459	0.0208386
<i>Cd33*</i>	1.2316716	0.0365111	<i>Lrrc16</i>	-0.779191	0.0346277
<i>Mboat2</i>	1.2297455	0.0208386	<i>5730596K20Rik</i>	-0.781622	0.0236857
<i>Sfxn5</i>	1.2135636	0.0415054	<i>Mogat1</i>	-0.782331	0.0216319
<i>Gzmb</i>	1.2117054	0.0422067	<i>Fosl2</i>	-0.790418	0.0264522
<i>Ms4a6d</i>	1.1988909	0.0334709	<i>Frat2</i>	-0.805562	0.0179544
<i>Slfn3</i>	1.181386	0.0389148	<i>Foxj3</i>	-0.823862	0.0323347
<i>2810417M05Rik</i>	1.1796615	0.0264522	<i>Crem</i>	-0.85436	0.0463652
<i>Tgfb1</i>	1.1743436	0.0169437	<i>Rel</i>	-0.85632	0.0480807
<i>Ifitm2*</i>	1.1740416	0.0179544	<i>Tnfrsf17</i>	-0.861409	0.0264522
<i>BC055004</i>	1.1692564	0.0466345	<i>Zfand2a</i>	-0.863498	0.0261117
<i>Slc16a3</i>	1.1640191	0.0241828	<i>2310050B05Rik</i>	-0.899224	0.0445632
<i>Padi4</i>	1.1560191	0.0409659	<i>Plk2</i>	-0.904059	0.0304426

Cd14*	1.1540813	0.0179544	Dusp4*	-0.913381	0.0354384
AK087372	1.151899	0.0329407	Nfil3*	-0.914336	0.0409659
Mmp7*	1.146066	0.0216319	<i>Tnfsf4</i>	-0.915992	0.0265968
<i>Stac2</i>	1.1384134	0.0236221	<i>Slco4a1</i>	-0.925644	0.0318903
<i>Ms4a11</i>	1.1302852	0.0304426	Dusp4*	-0.952144	0.0169437
Drd3*	1.1149364	0.0360263	<i>Tmem163</i>	-0.958325	0.0387303
LOC384622	1.110668	0.0199841	<i>Snf1lk</i>	-0.979634	0.0169437
Apoe*	1.1101803	0.0179544	<i>Nfil3</i>	-1.010053	0.02052
0610040J01Rik	1.109578	0.0379543	<i>Hey1</i>	-1.028181	0.0495035
<i>Gnaz</i>	1.1011279	0.0289639	9830130M13Rik	-1.149571	0.0478532
Pla2g7*	1.0815618	0.0268795	<i>Slc41a2</i>	-1.210258	0.0199841
Ccr12*	1.0814998	0.0359041	<i>Hs3st1</i>	-1.218633	0.0424369
<i>Myo18b</i>	1.0793971	0.0485988	Dusp14*	-1.227388	0.0230512
<i>Slc11a1</i>	1.072413	0.0208273	<i>Klk1b4</i>	-1.237813	0.0463652
2310005C01Rik	1.0722742	0.0337991	<i>Zc3h12c</i>	-1.256982	0.0199841
<i>Clqa</i>	1.062227	0.0199841	<i>Mgl1</i>	-1.411163	0.0208273
3230401I01Rik	1.0601258	0.0200108	Dusp10*	-1.419826	0.0107003
<i>Syn2</i>	1.0577219	0.0334709	<i>Gzma</i>	-1.424467	0.0264522
<i>Hs3st2</i>	1.0513419	0.0310919	<i>Epha2</i>	-1.444171	0.0199841
Il1b*	1.0480056	0.0482127	2210020M01Rik	-1.516391	0.0264522
<i>Lrp1</i>	1.0403633	0.0215201	<i>Klk1b5</i>	-1.585054	0.0433009
<i>Ier3</i>	1.0387872	0.0310919	<i>Upb1</i>	-1.59126	0.0241828
AI452102	1.0372	0.0264522	<i>Siglech</i>	-1.695752	0.0409659
9830107B12Rik	1.0362593	0.0318903	Cd209d*	-1.78035	0.0230512
<i>Clqb</i>	1.0350895	0.0346277	<i>Cox6a2</i>	-1.809345	0.033583
<i>Clec7a</i>	1.0304137	0.0409651			
<i>Ifitm2</i>	1.0288298	0.026206			
<i>C6</i>	1.0250447	0.0406771			
<i>Gas6</i>	1.0244309	0.0290369			
Mgst1*	1.0233708	0.0230512			
<i>Sepn1</i>	1.023357	0.0208386			
LOC676870	1.0232467	0.0356522			
6030422H21Rik	1.0144226	0.0208273			
<i>Pira3</i>	1.0008394	0.0208386			
<i>Adams20</i>	0.9989663	0.0424369			
Pira6*	0.9986171	0.0497032			
C130076O07Rik	0.9926432	0.0179544			
<i>Centd3</i>	0.9923345	0.0406771			
<i>Mgst1</i>	0.9779364	0.0408644			
<i>Pdgfc</i>	0.9761474	0.0489969			
<i>Cyp4f18</i>	0.9730086	0.0204766			
<i>Pira3</i>	0.96965	0.0204857			
<i>Tspan4</i>	0.9643841	0.0200108			
<i>Pax6</i>	0.9584796	0.032949			
<i>Sult1a1</i>	0.9559812	0.0334709			

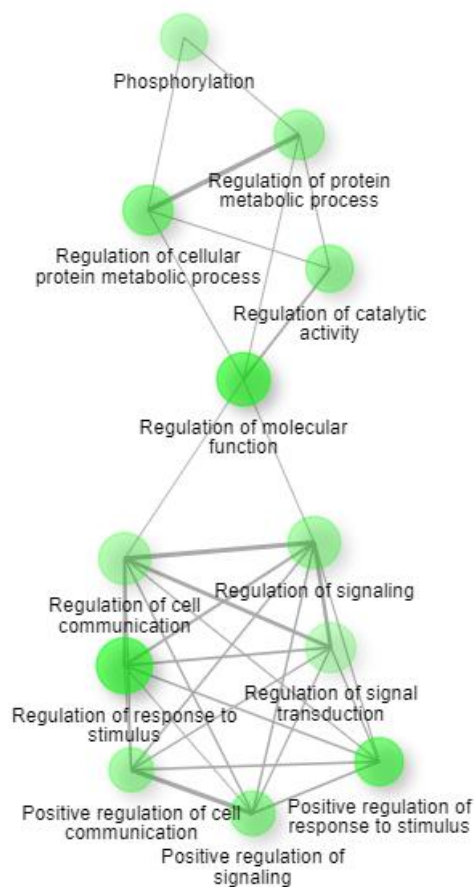
<i>Pygl</i>	0.9442645	0.0406771			
<i>Lgmn</i>	0.9439797	0.0265208			
<i>Lhfp</i>	0.9433504	0.0354384			
<i>Pilra</i>	0.9322316	0.0395634			
<i>Rab3il1</i>	0.9315289	0.0169437			
<i>Kcnj16</i>	0.927932	0.0334709			
<i>2310076L09Rik</i>	0.9270255	0.0318903			
<i>Il13ra1*</i>	0.9225341	0.0360263			
<i>Sepx1</i>	0.9184596	0.0445632			
<i>Fcgr3</i>	0.9175912	0.0365111			
<i>Mt1</i>	0.9158274	0.0228018			
<i>Cav1*</i>	0.9043254	0.0369571			
<i>Ptgs2*</i>	0.8921205	0.0265208			
<i>P2ry2*</i>	0.8916829	0.0264522			
<i>C130050O18Rik</i>	0.8906791	0.0264522			
<i>Nr1h3*</i>	0.8889046	0.0264522			
<i>Tnfrsf13</i>	0.8804367	0.0462228			
<i>1200002N14Rik</i>	0.8796729	0.0199841			
<i>LOC381484</i>	0.8791967	0.0354384			
<i>Ptplad2</i>	0.8612147	0.0256834			
<i>Fut7</i>	0.861012	0.0379543			
<i>Lypla3</i>	0.8600306	0.0462228			
<i>Hfe</i>	0.8493904	0.026206			
<i>Myo1d</i>	0.8474245	0.0365111			
<i>Foxo3a</i>	0.8466951	0.0433009			
<i>Ptgs1</i>	0.8414499	0.0370951			
<i>Tirap*</i>	0.8337591	0.0379543			
<i>Csf1r</i>	0.832827	0.0429823			
<i>Hck</i>	0.8316354	0.0179544			
<i>Csf1r</i>	0.8272789	0.0310919			
<i>Slc45a3</i>	0.8199816	0.0204766			
<i>Vcam1</i>	0.8125966	0.0395634			
<i>8030453O22Rik</i>	0.8102447	0.0409651			
<i>Anxa2</i>	0.8023203	0.0169437			
<i>Ccl24*</i>	0.7978902	0.0334709			
<i>Clec4a2</i>	0.7969552	0.0304426			
<i>Scamp5</i>	0.7961883	0.0199841			
<i>Csf1r</i>	0.7938383	0.0354384			
<i>Plxnb2</i>	0.7936975	0.0236857			
<i>Cab39l</i>	0.7883911	0.0208386			
<i>Jundm2</i>	0.7850421	0.0169437			
<i>Lyzs</i>	0.7836424	0.0304426			
<i>Tirap</i>	0.7775237	0.0208386			
<i>Hk3</i>	0.7731507	0.0184191			
<i>ENSMUST00000039068</i>	0.7708831	0.037219			

<i>Gpd1</i>	0.7644566	0.0354384			
<i>Gcnt1</i>	0.756508	0.026206			
<i>Ccl24</i>	0.7499391	0.0334709			
<i>Osm</i>	0.7480422	0.02052			
<i>Tcn2</i>	0.7441501	0.0379543			
<i>Amhr2</i>	0.7428653	0.0480807			
<i>Pdgfc</i>	0.7380453	0.0469002			
<i>Aldh3b1</i>	0.737373	0.0409651			
<i>Rcsd1</i>	0.7366419	0.0241828			
<i>Gpr141</i>	0.7305162	0.0169437			
<i>Gcnt1</i>	0.7297506	0.0302708			
<i>Dok3</i>	0.7248771	0.0208386			
<i>Camk1*</i>	0.7239797	0.0409659			
<i>Mertk</i>	0.7226912	0.0435927			
<i>AK036708</i>	0.7214743	0.0408644			
<i>Cr2</i>	0.7188317	0.0430313			
<i>B430306N03Rik</i>	0.709819	0.0377836			
<i>Anxa2</i>	0.7078039	0.0199841			
<i>Scd2</i>	0.7054011	0.0395634			
<i>Ppap2b</i>	0.7043332	0.0424333			
<i>Lgals3</i>	0.7022757	0.0395634			
<i>6430548M08Rik</i>	0.7003627	0.03911			
<i>Hip1</i>	0.6990555	0.026206			
<i>AK041774</i>	0.6948503	0.0409659			
<i>Prfl</i>	0.6925697	0.0387303			
<i>Lilrb3</i>	0.6915752	0.0358353			
<i>Ela1</i>	0.6904486	0.0343527			
<i>Mapk13</i>	0.6838903	0.0317135			
<i>Stard8</i>	0.6836808	0.0370012			
<i>Ncf2</i>	0.6823333	0.0439583			
<i>Ninj1</i>	0.6747365	0.0179544			
<i>Galc</i>	0.6710196	0.0217501			
<i>Popdc2</i>	0.6696056	0.0260572			
<i>Fcer1g</i>	0.6690582	0.0313892			
<i>Nupr1</i>	0.6630438	0.0478532			
<i>Fcer1g</i>	0.6598249	0.0260572			
<i>Ifitm7</i>	0.6582268	0.0424333			
<i>AK038388</i>	0.6382835	0.0406771			
<i>Pfkfb4</i>	0.6374585	0.0406771			
<i>Scarb1</i>	0.6315394	0.0208386			
<i>Tmem106a</i>	0.6180528	0.0199841			
<i>Cd300d*</i>	0.6149989	0.0411697			
<i>TC1486688</i>	0.6117544	0.0260572			
<i>Myh9</i>	0.6091942	0.0314247			
<i>Tia1</i>	0.6088532	0.0354384			

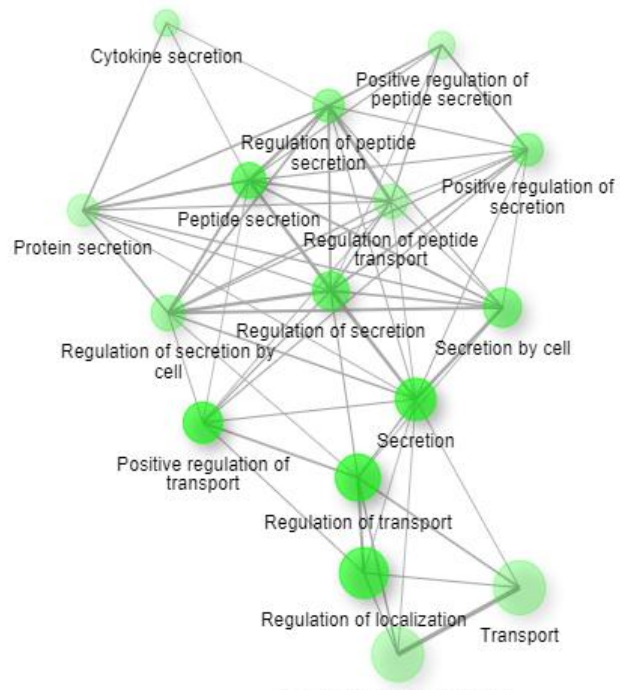
<i>Csf2rb1</i>	0.6082428	0.0379543			
<i>Pctk3</i>	0.6079319	0.0251503			
<i>AK089867</i>	0.6061738	0.040137			
<i>Pstk</i>	0.6043853	0.0291848			
<i>AK045243</i>	0.5816074	0.0354384			
<i>Cd244</i>	0.5794334	0.0304426			
<i>NAP045951-1</i>	0.5753181	0.040137			
<i>Irak3</i>	0.5752363	0.0497032			
<i>Comt</i>*	0.5720299	0.0283388			
<i>Lyl1</i>	0.5654871	0.0387303			
<i>D030029J20Rik</i>	0.5613431	0.0424369			
<i>NAP029356-1</i>	0.5587797	0.0408644			
<i>C130026L21Rik</i>	0.5581975	0.0445632			
<i>Apob48r*</i>	0.5575131	0.026206			
<i>Fgl2</i>	0.5385596	0.0465107			
<i>B230208L21Rik</i>	0.5305764	0.0424369			
<i>Tmem37</i>	0.5286151	0.0390745			
<i>Ctsb</i>	0.514308	0.0406771			
<i>D8Erd354e</i>	0.5095144	0.0459494			
<i>Gpr146</i>	0.5041779	0.0342793			
<i>Atp13a2</i>	0.5021957	0.0334709			
<i>Lyn</i>	0.4847448	0.0289639			
<i>Pars2</i>	0.4803258	0.046229			
<i>Rab3a</i>	0.4800285	0.0464859			
<i>Eif4ebp1</i>	0.4763669	0.0424369			
<i>Zfp3</i>	0.4747451	0.0430313			
<i>Tnfrsf19l</i>	0.4703432	0.0283494			
<i>Hectd2</i>	0.4681382	0.0463652			
<i>Ppt2</i>	0.4584579	0.0360263			
<i>Myo7a</i>	0.4575087	0.0465408			
<i>Cd151</i>	0.4495158	0.0478532			
<i>Slc16a10</i>	0.4308468	0.0444629			
<i>Pscd4</i>	0.4060573	0.0490856			
<i>Abcg1</i>	0.3776486	0.0478532			

Supplementary Figure S5. Additional subnetworks from Network analysis. Nodes represent GO pathways significantly changed in gene set enrichment analysis ($p < 0.05$, false discovery rate < 0.25). Green nodes represent GO terms, grey edges connection between them. The size of the nodes is proportional with the number of genes in the GO term and the thickness of grey edges represents the number of common genes between two GO terms (FDR=0.25, $p < 0.05$, edge cutoff 0.5).

A. Regulation of cell signaling



B. Secretion and transport



Supplementary Table S2. Significantly changed GO, KEGG, Reactome, TF, WP and CORUM terms after g:Profiler analysis [64]. Input genes were from Table 1 (significantly changed after tBHQ treatment and those that are related to influenza or SARS-CoV-2). A.) Influenza, B.) SARS-CoV-2.

A. Influenza

Source	Term_name	Adjusted_p_value
GO:BP	inflammatory response	5.64E-07
GO:BP	defense response	3.17285E-05
GO:MF	prostaglandin-endoperoxide synthase activity	0.000133097
GO:BP	innate immune response	0.001645605
WP	Photodynamic therapy-induced NF-kB survival signaling	0.002947529
GO:BP	immune system process	0.00327487
GO:BP	response to other organism	0.003615254
GO:BP	response to external biotic stimulus	0.003670657
GO:BP	response to biotic stimulus	0.00443811
WP	Fibrin complement receptor 3 signaling pathway	0.005907833
WP	Prostaglandin synthesis and regulation	0.00632312
GO:BP	biological process involved in interspecies interaction between organisms	0.007312913
KEGG	Transcriptional misregulation in cancer	0.007621782
GO:BP	defense response to other organism	0.007698772
GO:BP	cellular response to bacterial lipoprotein	0.010159674
GO:BP	response to bacterial lipopeptide	0.010159674
GO:BP	cellular response to bacterial lipopeptide	0.010159674
GO:BP	response to bacterium	0.010453143
GO:MF	peptidase activity	0.018413225
GO:BP	positive regulation of receptor binding	0.018949096
GO:BP	response to bacterial lipoprotein	0.018949096
WP	AGE/RAGE pathway	0.019942137
GO:BP	immune response	0.021481211
KEGG	NF-kappa B signaling pathway	0.023179192
GO:BP	cyclooxygenase pathway	0.024353083
GO:BP	regulation of cell migration	0.029835374
GO:BP	response to lipoteichoic acid	0.030428808
GO:BP	cellular response to lipoteichoic acid	0.030428808
GO:BP	regulation of localization	0.032330113
GO:BP	positive regulation of cell migration	0.032875638
REAC	Immune System	0.033089112
GO:BP	response to external stimulus	0.037708531
GO:BP	positive regulation of cell motility	0.040765128
GO:BP	cell migration	0.041761747

GO:BP	regulation of cell motility	0.0428563
REAC	Synthesis of Prostaglandins (PG) and Thromboxanes (TX)	0.043553629
GO:BP	positive regulation of cellular component movement	0.045615296
GO:BP	positive regulation of locomotion	0.046795933
CORUM	COX1 homodimer complex	0.049947455
CORUM	PTGS2 homodimer complex	0.049947455

B. SARS-CoV2

Source	Term_name	Adjusted_p_value
GO:BP	defense response	0.000865474
GO:BP	viral entry into host cell	0.001508618
GO:BP	entry into host	0.001816696
GO:BP	immune response	0.00205686
GO:BP	immune system process	0.002310072
GO:BP	movement in host environment	0.002392321
GO:CC	lytic vacuole	0.002971444
GO:CC	lysosome	0.002971444
GO:BP	biological process involved in interaction with host	0.003613031
TF	Factor: Erg; motif: NRRSAGGAAGNGG; match class: 1	0.004826403
GO:CC	vacuole	0.005442771
GO:CC	external side of plasma membrane	0.006186628
GO:CC	cell surface	0.008500716
GO:BP	biological process involved in interspecies interaction between organisms	0.013102578
GO:CC	endosome lumen	0.017800021
GO:BP	biological process involved in symbiotic interaction	0.019718536
GO:BP	defense response to other organism	0.022349117
WP	Network map of SARS-CoV-2 signaling pathway	0.026302756
GO:BP	viral life cycle	0.029748527
GO:CC	side of membrane	0.030316127
GO:BP	response to stress	0.035059475
GO:BP	response to external stimulus	0.035839933

Supplementary Table S3. Putative AHR and NRF2 binding sites on the genes listed in Table 1. After analysis with GeneHancer, those genes were selected from the list, that had ‘elite’ enhancer–gene relations reflecting both a high-likelihood enhancer definition and a strong enhancer–gene association. A Influenza, B SARS-CoV2

A. Influenza

	AhR			Nrf2		
Gene symbol	GH Identifier	GH Type	GH Score	GH Identifier	GH Type	GH Score
<i>CtsB</i>	GH08J011856	Promoter/Enhancer	2.1	GH08J011856	Promoter/Enhancer	2.1
	GH08J011851	Promoter/Enhancer	1.6	GH08J011876	Promoter/Enhancer	1.9
	H08J011843	Enhancer	1	-	-	-
<i>Cd14</i>	-	-	-	-	-	-
<i>Cd151</i>	GH11J000839	Promoter/Enhancer	2	GH11J000824	Promoter/Enhancer	1.9
	H11J001301	Promoter/Enhancer	2.1	-	-	-
	GH11J000794	Promoter/Enhancer	2	-	-	-
<i>Cd209d</i>	GH19J007521	Promoter/Enhancer	2.3	-	-	-
	GH20J060078	Enhancer	0.9	-	-	-
<i>Ifitm1</i>	GH11J000352	Promoter/Enhancer	1.6	-	-	-
<i>Ifitm2</i>	GH11J000352	Promoter/Enhancer	1.6	-	-	-
<i>Cxcr2</i> (<i>Il8rb</i>)	-	-	-	-	-	-
<i>Osm</i>	-	-	-	GH22J030193	Enhancer	1.5
	-	-	-	GH22J030201	Promoter/Enhancer	2.1
	-	-	-	GH22J030263	Enhancer	1
<i>Padi4</i>	-	-	-	GH01J017347	Enhancer	1
<i>Perforin</i>	-	-	-	-	-	-
<i>Ppp1r3d</i>	-	-	-	GH20J059938	Promoter/Enhancer	2.2
	-	-	-	GH20J060054	Promoter/Enhancer	1.6
<i>Syn2</i>	-	-	-	GH03J012191	Enhancer	1.3

B. SARS-CoV2

	Ahr			Nrf2		
Gene symbol	GH Identifier	GH Type	GH Score	GH Identifier	GH Type	GH Score
<i>Anxa2</i>	GH15J060388 ,	Promoter/Enhancer	2.1	GH15J060388	Promoter/Enhancer	2.1
	H15J060476	Promoter/Enhancer	1.9	GH15J060368	Promoter/Enhancer	1.5
	-	-	-	GH15J060525	Enhancer	1.2
<i>Cd14</i>	-	-	-	-		
<i>Dusp10</i>	-	-	-	GH01J221687	Enhancer	1.1
	-	-	-	H01J221986	Enhancer	1.4
<i>Fpr-rs2</i>	-	-	-	-	-	-
<i>Gzmb</i>	-	-	-	-	-	-
<i>Mgl1</i>	-	-	-	-	-	-
<i>Mmp7</i>	GH15J060388 ,	Promoter/Enhancer	2.1	-	-	-
<i>Mmp9</i>	H15J060476	Promoter/Enhancer	1.9	-	-	-
<i>Otud</i>	-	-		-	-	-
<i>Ptgs1</i>	GH09J122346	Enhancer	1.1	-	-	-
<i>Ptgs2</i>	-	-	-	-	-	-
<i>Rel</i>	H02J061535	Promoter/Enhancer	2.3	GH02J061535	Promoter/Enhancer	2.3
	H02J061015	Promoter/Enhancer	2			
<i>Tirap</i>	GH11J125624	Promoter/Enhancer	2	GH11J126350	Promoter/Enhancer	2
<i>Trem1</i>	-	-	-	-	-	-
<i>Tnfrsf13</i> (<i>April</i>)	H17J007571	Promoter/Enhancer	2	-	-	-
	GH17J007556	Promoter/Enhancer	2	-	-	-
	GH17J007347	Promoter/Enhancer	2.1	-	-	-
<i>Usp38</i>	-	-	-	GH04J143183	Promoter/Enhancer	1.8