Table 2. Summary of cDNA array data analysis. (Supplementary)

	p-value	Fold decrease (vs WT)	Gene Symbol	Gene Assignment
	0.001	4.51	Prkg2	protein kinase, cGMP-dependent, type II
	0.010	2.14	Slc15a2	solute carrier family 15 (H+/peptide transporter), membe
	0.039	2.04	Cldn4	claudin 4, tight juncion
	0.000	1.63	Sprr2j	small proline-rich protein 2J
	0.040	1.58	Olfr1310	olfactory receptor 1310
a)	0.007	1.58	EG382156	predicted gene, EG382156
اج. ا	0.007	1.56	Trim13	tripartite motif-containing 13
<u>ا</u> ا	0.005	1.55	Dusp10	dual specificity phosphatase 10
Σ	0.035	1.55	Mt2	metallothionein 2
Genes down-regulated in KO mice	0.043	1.55	Myef2	myelin basic protein expression factor 2, brain muscle differentiation
	0.049	1.54	Ppm1j	protein phosphatase 1J
	0.033	1.52	Efna3	ephrin A3
	0.018	1.50	lfrd1	interferon-related developmental regulator 1, differentiation in muscle
	0.007	1.50	ll1rl2	interleukin 1 receptor-like 2
	0.040	1.48	Adh6b	alcohol dehydrogenase 6B (class V)
	0.014	1.44	Xirp2	xin actin-binding repeat containing 2
	0.025	1.43	Tacstd2	tumor-associated calcium signal transducer 2
	0.032	1.41	Arl4a	ADP-ribosylation factor-like 4A
	0.027	1.41	Ddc	dopa decarboxylase, serotonin synthesis
	0.036	1.41	Olfr24	olfactory receptor 24
	0.004	1.40	Ddi1	DNA-damage inducible 1, homolog 1 (S. cerevisiae)
	0.013	1.39	Olfr958	olfactory receptor 958
	0.048	1.38	Best2	bestrophin 2, calcium activated cloride channel
	0.014	1.36	Olfr521	olfactory receptor 521
	p-value	Fold increase	Gene	Cono Assignment
	p railed	(vs WT)	Symbol	Gene Assignment
	0.031	(vs WT) 1.75	Symbol Nap1l2	nucleosome assembly protein 1-like 2
		<b>1.75</b> 1.72	ā	
	0.031	1.75	Nap1l2	nucleosome assembly protein 1-like 2
	<b>0.031</b> 0.016	<b>1.75</b> 1.72	Nap1l2 Pgk1	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1
	0.031 0.016 0.005	1.75 1.72 1.72	Nap1l2 Pgk1 Cma2	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell
	0.031 0.016 0.005 0.048	1.75 1.72 1.72 1.58	Nap1l2 Pgk1 Cma2 Gng3	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3
a	0.031 0.016 0.005 0.048 0.024	1.75 1.72 1.72 1.58 1.55	Nap1I2 Pgk1 Cma2 Gng3 Hist1h2ab	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab
nice	0.031 0.016 0.005 0.048 0.024 0.037	1.75 1.72 1.72 1.58 1.55 1.51	Nap1I2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4
) mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045	1.75 1.72 1.72 1.58 1.55 1.51	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1
KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich
I in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021	1.75 1.72 1.72 1.58 1.55 1.51 1.50 1.49 1.47	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest
ted in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete
ulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021	1.75 1.72 1.72 1.58 1.55 1.51 1.50 1.49 1.47	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest
egulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.43	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9
o-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8
up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.43 1.42 1.42	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family
nes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.43 1.42 1.42 1.41	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.43 1.42 1.42 1.41 1.40 1.38	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022 0.046	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.42 1.42 1.41 1.40 1.38 1.38	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11 Lcp2	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis lymphocyte cytosolic protein 2
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022 0.044 0.036	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.42 1.42 1.41 1.40 1.38 1.38	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11 Lcp2 Prune2	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis lymphocyte cytosolic protein 2 prune homolog 2 (Drosophila)
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022 0.046 0.036 0.014	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.43 1.42 1.42 1.41 1.40 1.38 1.38 1.38	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11 Lcp2 Prune2 Khdc1a	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis lymphocyte cytosolic protein 2 prune homolog 2 (Drosophila) KH domain containing 1A
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022 0.044 0.046 0.036 0.014 0.040	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.42 1.42 1.41 1.40 1.38 1.38 1.38 1.37 1.37	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11 Lcp2 Prune2 Khdc1a 434166	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis lymphocyte cytosolic protein 2 prune homolog 2 (Drosophila) KH domain containing 1A predicted gene, 434166
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022 0.046 0.036 0.014 0.040 0.036	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.42 1.42 1.41 1.40 1.38 1.38 1.38 1.37 1.37	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11 Lcp2 Prune2 Khdc1a 434166 Scgn	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis lymphocyte cytosolic protein 2 prune homolog 2 (Drosophila) KH domain containing 1A predicted gene, 434166 secretagogin, EF-hand calcium binding protein
Genes up-regulated in KO mice	0.031 0.016 0.005 0.048 0.024 0.037 0.045 0.014 0.037 0.021 0.009 0.039 0.017 0.040 0.022 0.043 0.022 0.044 0.046 0.036 0.014 0.040	1.75 1.72 1.72 1.58 1.55 1.51 1.51 1.50 1.49 1.47 1.45 1.43 1.42 1.42 1.41 1.40 1.38 1.38 1.38 1.37 1.37	Nap1l2 Pgk1 Cma2 Gng3 Hist1h2ab Clca4 Nusap1 Rab18 Ccna2 Kprp Mak16 Kdelr3 Ccl28 Ly9 Zfp804a Rab3c Rps6ka6 Kif11 Lcp2 Prune2 Khdc1a 434166	nucleosome assembly protein 1-like 2 phosphoglycerate kinase 1 chymase 2, mast cell G protein, gamma 3 histone cluster 1, H2ab chloride channel calcium activated 4 nucleolar and spindle associated protein 1 RAB18, member RAS oncogene family cyclin A2 keratinocyte expressed, proline-rich MAK16 homolog (S. cerevisiae), mutation casue G1 arrest KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein rete chemokine (C-C motif) ligand 28 lymphocyte antigen 9 zinc finger protein 804A, activated by HOXC8 RAB3C, member RAS oncogene family ribosomal protein S6 kinase polypeptide 6 kinesin family member 11, mitosis lymphocyte cytosolic protein 2 prune homolog 2 (Drosophila) KH domain containing 1A predicted gene, 434166

Total RNA was extracted from the proximal colon mucosa from three  $Prkg2^{+/-}$  and three  $Prkg2^{+/+}$  mice. Labeling, hybridization to Affimetrix GeneChip Mouse Genome Array, quantitation and statistical analysis of gene expression were all performed by the Genomics Core facility at the Georgia Regents University Cancer Center. Genes marked by bold-face were related to differentiation (downregulated) or proliferation (upregulated) using Panther Analysis Software (http://www.pantherdb.org).