

## 1 Additional file 10

Section and responses	GOBP	Proximal significant genes	Middle significant genes	Distal significant genes
Prox – Mid – Dist (all linear)	GO:0045785: positive regulation of cell adhesion	<i>Fgf1, Cx3cl1, Tgm2, Vegfa</i>	<i>Fgf1, Itgav, Pld2, Cx3cl1, Tgm2</i>	<i>Saa1, Tgm2</i>
Prox – Mid – Dist (linear – exponential – linear)	GO:0003333: amino acid transmembrane transport	<i>Slc7a1, Slc1a5, Slc36a1, Slc7a9, Serinc1</i>	<i>Slco4a1, Slc3a2, Slc36a1</i>	<i>Slc1a1, Slc7a9</i>
Prox – Mid (all linear)	GO:0007040: lysosome organization	<i>Abca1, Tpp1, Hexa, Cln6</i>	<i>Tpp1, Hexa, Hexb, Ppt1</i>	
	GO:0009615: response to virus	<i>Pml, Mst1r, Mavs, Ddx58, Oas1b, Unc93b1, Ifih1</i>	<i>Bcl2l1, Ifit1, Ddx58, Rnasel, Trim56, Irf7, Zbp1, Ifih1, Zc3hav1</i>	
	GO:0030335: positive regulation of cell migration	<i>Acp5, Adam10, Adam17, Bmp2, Fgf1, Igf1r, Ptk2b, Cx3cl1, Vegfa, Zfp703</i>	<i>Adam10, Bmp2, Fgf1, Igf1r, Itgav, Pik3r1, Pld2, Ptk2b, Cx3cl1, Zfp703</i>	
Prox – Mid (linear - exponential)	GO:0007243: intracellular protein kinase cascade	<i>Socs3, Fgf1, Smpd2, Wnk1, Rps6ka4, Tnik, Dapk1</i>	<i>Socs3, Jak2, Mknk1, Slc9a1, Ick, Tnik</i>	
	GO:0009615: response to virus	<i>Pml, Mst1r, Mavs, Ddx58, Oas1b, Unc93b1, Ifih1</i>	<i>Mx1, Mx2, Pml, Mst1r, Mavs</i>	
	GO:0030301: cholesterol transport	<i>Abca1, Npc1l1, Apob</i>	<i>Abca1, Abcg1, Scarb1, Stard3</i>	
	GO:0033344: cholesterol efflux	<i>Abca1, Npc1, Abcg5, Abcg8</i>	<i>Abca1, Abcg1, Scarb1</i>	
	GO:0042632: cholesterol homeostasis	<i>Abca1, Npc1, Npc1l1, Apob, Abcg5, Abcg8</i>	<i>Abca1, Abcg1, Scarb1</i>	
	GO:0046777: protein autophosphorylation	<i>Clk2, Igf1r, Uhmkk1, Lyn, Pak2, Wnk1, Map3k1, Taok3, Tnik</i>	<i>Jak2, Lyn, Pak1, Pim3, Tnik</i>	
Prox – Mid (logarithmic - linear)	GO:0071300: cellular response to retinoic acid	<i>Abca1, Lyn, Ptk2b, Ptk6, Mll5</i>	<i>Abca1, Lyn, Rxrb</i>	
	GO:0009615: response to virus	<i>Ifit1, Rnasel, Trim56, Irf7, Zbp1, Polr3f</i>	<i>Bcl2l1, Ifit1, Ddx58, Rnasel, Trim56, Irf7, Zbp1, Ifih1, Zc3hav1</i>	
Prox – Mid (all logarithmic)	GO:0043029: T cell homeostasis	<i>Bcl2l11, Fas, Stat5b</i>	<i>Bcl2l11, Gimap5</i>	
Prox – Mid (logarithmic - exponential)	GO:0009615: response to virus	<i>Ifit1, Rnasel, Trim56, Irf7, Zbp1, Polr3f</i>	<i>Mx1, Mx2, Pml, Mst1r, Mavs</i>	
	GO:0016358: dendrite development	<i>Mecp2, Pak1, Reln, Abi2</i>	<i>Pak1, Ss18l1</i>	
Mid – Dist (all linear)	GO:0006953: acute-phase response		<i>Reg3b, Reg3g, Saa2, Stat3, Sigirr</i>	<i>Saa1, Saa2</i>
	GO:0016042: lipid catabolic process		<i>Ddh1, Pafah1b2, Pla2g2a, Pld2, Ppt1, Daglb, Plb1, Plbd1, Plce1</i>	<i>Pla2g2a, Daglb, Pla2g2f, Plce1</i>

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3 **Table A10: Over-represented down-regulated Gene Ontology Biological Process (GOBP) terms that can be found in various**  
4 **intestinal sections.** For each term we specify the associated differentially expressed genes (adjusted p-value < 0.1; see Additional  
5 file 9).