

Supplementary Figure S2. Overlap of genes among the top ten pathways enriched by PTV genes

Entrez Gene Id	Gene Symbol	REACTOME_EXTRACELLULAR_MATRIX_ORGANIZATION	REACTOME_RHO_GTPASE_CYCLE	REACTOME_RHO_GTPASE_CYCLE	REACTOME_RNA_POLYMERASE_II_TRANSCRIPTION	REACTOME_SIGNALING_BY_RHO_GTPASES_MIRO_GTPASES_AND_RHOBTB3	MAGA_MATRISOME	WP_INTEGRATED_BREAST_CANCER_PATHWAY	REACTOME_COLLAGEN_FORMATION	REACTOME_SIGNALING_BY_RECEPTOR_TYROSINE_KINASES	REACTOME_METABOLISM_OF_RNA	Gene Description
4312	MMP1											matrix metalloproteinase 1 [Source:HGNC Symbol;Acc:HGNC:7155]
1281	COL3A1											collagen type III alpha 1 chain [Source:HGNC Symbol;Acc:HGNC:2201]
1284	COL4A2											collagen type IV alpha 2 chain [Source:HGNC Symbol;Acc:HGNC:2203]
1289	COL5A1											collagen type V alpha 1 chain [Source:HGNC Symbol;Acc:HGNC:2209]
1297	COL9A1											collagen type IX alpha 1 chain [Source:HGNC Symbol;Acc:HGNC:2217]
9509	ADAMTS2											ADAM metalloproteinase with thrombospondin type 1 motif 2 [Source:HGNC Symbol;Acc:HGNC:218]
7093	TLL2											tolloid like 2 [Source:HGNC Symbol;Acc:HGNC:11844]
4316	MMP7											matrix metalloproteinase 7 [Source:HGNC Symbol;Acc:HGNC:7174]
4017	LOXL2											lysyl oxidase like 2 [Source:HGNC Symbol;Acc:HGNC:6666]
1307	COL16A1											collagen type XVI alpha 1 chain [Source:HGNC Symbol;Acc:HGNC:2193]
340267	COL28A1											collagen type XXVIII alpha 1 chain [Source:HGNC Symbol;Acc:HGNC:22442]
57642	COL20A1											collagen type XX alpha 1 chain [Source:HGNC Symbol;Acc:HGNC:14670]
284217	LAMA1											laminin subunit alpha 1 [Source:HGNC Symbol;Acc:HGNC:6481]
10319	LAMC3											laminin subunit gamma 3 [Source:HGNC Symbol;Acc:HGNC:6494]
2200	FBN1											fibrillin 1 [Source:HGNC Symbol;Acc:HGNC:3603]
2	A2M											alpha-2-macroglobulin [Source:HGNC Symbol;Acc:HGNC:7]
64386	MMP25											matrix metalloproteinase 25 [Source:HGNC Symbol;Acc:HGNC:14246]
63923	TNN											tenascin N [Source:HGNC Symbol;Acc:HGNC:22942]
84034	EMILIN2											elastin microfibril interfacer 2 [Source:HGNC Symbol;Acc:HGNC:19881]
23127	COLGALT2											collagen beta(1-O)galactosyltransferase 2 [Source:HGNC Symbol;Acc:HGNC:16790]
3691	ITGB4											integrin subunit beta 4 [Source:HGNC Symbol;Acc:HGNC:6158]
826	CAPNS1											calpain small subunit 1 [Source:HGNC Symbol;Acc:HGNC:1481]
10753	CAPN9											calpain 9 [Source:HGNC Symbol;Acc:HGNC:1486]
3818	KLKB1											kallikrein B1 [Source:HGNC Symbol;Acc:HGNC:6371]
3682	ITGAE											integrin subunit alpha E [Source:HGNC Symbol;Acc:HGNC:6147]
8174	MADCAM1											mucosal vascular addressin cell adhesion molecule 1 [Source:HGNC Symbol;Acc:HGNC:6765]
6093	ROCK1											Rho associated coiled-coil containing protein kinase 1 [Source:HGNC Symbol;Acc:HGNC:10251]
1729	DIAPH1											diaphanous related formin 1 [Source:HGNC Symbol;Acc:HGNC:2876]
5825	ARCD3											ATP binding cassette subfamily D member 3 [Source:HGNC Symbol;Acc:HGNC:67]
128239	IQGAP3											IQ motif containing GTPase activating protein 3 [Source:HGNC Symbol;Acc:HGNC:20669]
11113	CIT											citron rho-interacting serine/threonine kinase [Source:HGNC Symbol;Acc:HGNC:1985]
4162	MCAM											melanoma cell adhesion molecule [Source:HGNC Symbol;Acc:HGNC:6934]
116984	ARAP2											"ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 2 [Source:HGNC Symbol;Acc:HGNC:16924]"
80243	PREX2											"phosphatidylinositol-3,4,5-trisphosphate dependent Rac exchange factor 2 [Source:HGNC Symbol;Acc:HGNC:22950]"
26030	PLEKHG3											pleckstrin homology and RhoGEF domain containing G3 [Source:HGNC Symbol;Acc:HGNC:20364]
10160	FARP1											"FERM, ARH/RhoGEF and pleckstrin domain protein 1 [Source:HGNC Symbol;Acc:HGNC:3591]"
9912	ARHGAP44											Rho GTPase activating protein 44 [Source:HGNC Symbol;Acc:HGNC:29096]
10114	FAM13A											family with sequence similarity 13 member A [Source:HGNC Symbol;Acc:HGNC:19367]
5099	PCDH7											protocadherin 7 [Source:HGNC Symbol;Acc:HGNC:8659]
29941	PKN3											protein kinase N3 [Source:HGNC Symbol;Acc:HGNC:17999]
93063	ARHGAP18											Rho GTPase activating protein 18 [Source:HGNC Symbol;Acc:HGNC:21035]
114822	RHPN1											rhopilin Rho GTPase binding protein 1 [Source:HGNC Symbol;Acc:HGNC:19973]
84033	OBSCN											"obscurin, cytoskeletal calmodulin and titin-interacting RhoGEF [Source:HGNC Symbol;Acc:HGNC:15719]"
9824	ARHGAP11A											Rho GTPase activating protein 11A [Source:HGNC Symbol;Acc:HGNC:15783]
23129	PLXND1											plexin D1 [Source:HGNC Symbol;Acc:HGNC:9107]
10811	NOXA1											NADPH oxidase activator 1 [Source:HGNC Symbol;Acc:HGNC:10668]
2889	RAPGEF1											Rap guanine nucleotide exchange factor 1 [Source:HGNC Symbol;Acc:HGNC:4568]
1793	DOCK1											dedicator of cytokinesis 1 [Source:HGNC Symbol;Acc:HGNC:2987]
23048	FNBP1											formin binding protein 1 [Source:HGNC Symbol;Acc:HGNC:17069]
2289	RND1											Rho family GTPase 1 [Source:HGNC Symbol;Acc:HGNC:18314]
23348	DOCK9											dedicator of cytokinesis 9 [Source:HGNC Symbol;Acc:HGNC:14132]
752	FMNL1											formin like 1 [Source:HGNC Symbol;Acc:HGNC:1212]
84904	ARHGAP39											Rho guanine nucleotide exchange factor 39 [Source:HGNC Symbol;Acc:HGNC:25909]
27237	ARHGAP16											Rho guanine nucleotide exchange factor 16 [Source:HGNC Symbol;Acc:HGNC:15515]
79180	EFHD2											EF-hand domain family member D2 [Source:HGNC Symbol;Acc:HGNC:28670]
79834	PEAK1											pseudopodium enriched atypical kinase 1 [Source:HGNC Symbol;Acc:HGNC:29431]
57473	ZNF512B											zinc finger protein 512B [Source:HGNC Symbol;Acc:HGNC:29212]
5515	PPP2CA											protein phosphatase 2 catalytic subunit alpha [Source:HGNC Symbol;Acc:HGNC:9299]
2810	SFN											stratifin [Source:HGNC Symbol;Acc:HGNC:10773]
3549	IHH											Indian hedgehog signaling molecule [Source:HGNC Symbol;Acc:HGNC:5956]
641	BLM											BLM RecQ like helicase [Source:HGNC Symbol;Acc:HGNC:1058]
6790	AURKA											aurora kinase A [Source:HGNC Symbol;Acc:HGNC:11393]
5371	PML											PML nuclear body scaffold [Source:HGNC Symbol;Acc:HGNC:9113]
472	ATM											ATM serine/threonine kinase [Source:HGNC Symbol;Acc:HGNC:795]
637	BID											BH3 interacting domain death agonist [Source:HGNC Symbol;Acc:HGNC:1050]
2962	GTF2F1											general transcription factor IIF subunit 1 [Source:HGNC Symbol;Acc:HGNC:4652]
4686	NCBP1											nuclear cap binding protein subunit 1 [Source:HGNC Symbol;Acc:HGNC:7658]
253260	RICTOR											RPTOR independent companion of MTOR complex 2 [Source:HGNC Symbol;Acc:HGNC:28611]
11059	WWP1											WW domain containing E3 ubiquitin protein ligase 1 [Source:HGNC Symbol;Acc:HGNC:17004]
5707	PSMD1											"proteasome 26S subunit, non-ATPase 1 [Source:HGNC Symbol;Acc:HGNC:9554]"
80349	WDR61											WD repeat domain 61 [Source:HGNC Symbol;Acc:HGNC:30300]
4848	CNOT2											CCR4-NOT transcription complex subunit 2 [Source:HGNC Symbol;Acc:HGNC:7878]
4850	CNOT4											CCR4-NOT transcription complex subunit 4 [Source:HGNC Symbol;Acc:HGNC:7880]
6430	SRSF5											serine and arginine rich splicing factor 5 [Source:HGNC Symbol;Acc:HGNC:10787]
55339	WDR33											WD repeat domain 33 [Source:HGNC Symbol;Acc:HGNC:25651]