

Supplementary Table 1: Phospho-proteomic data

Protein	Protein Names	Gene Names	PEP	Score	Modified Sequence	Position in peptide	Charge	m/z	Mass Error [ppm]
P07355	Annexin A2;Annexin II;Annexin-2;Calpactin I heavy chain;Calpactin-1 heavy chain;Chromobindin-8;Lipocortin II;p36;Placental anticoagulant protein IV;Protein I;Annexin A2 pseudogene 2;Lipocortin II pseudogene;Putative annexin A2-like protein	ANX2;ANX2L4;ANXA2;CAL1H;LPC2D;ANX2L2;ANX2P2;ANXA2P2;LPC2B	8.66E-72	232.53	_AY(ph)TNFDAERDAINIETAIK_	2	3	745.68249	0.11007
P18433	Receptor-type tyrosine-protein phosphatase alpha	PTPA;PTPRA;PTPRL2	2.09E-70	252.08	_VVQEQYIDAFSDY(ph)ANFK_	12	3	663.62743	-0.060737
Q07912	Activated CDC42 kinase 1;Tyrosine kinase non-receptor protein 2	ACK1;TNK2	2.30E-60	218.63	_KPTY(ph)DPVSEDQDPISDFKR_	4	3	802.02833	0.23233
O76039	Cyclin-dependent kinase-like 5;Serine/threonine-protein kinase 9	CDKL5;STK9	3.61E-43	201.24	_NISEGNNANYTEY(ph)VATR_	13	2	998.42583	-0.20401
P49840	Glycogen synthase kinase-3 alpha;Glycogen synthase kinase-3 beta	GSK3A;GSK3B	5.99E-43	234.39	_GEPNVSY(ph)ICSR_	7	2	681.28141	0.26332
Q9NWX8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	3.32E-35	180.66	_SREEDPTITEEISAMY(ph)SSVKNKPGQIVNK_	17	4	833.64045	-0.48144
Q9H792	Sugen kinase 269;Tyrosine-protein kinase Sgk269	KIAA2002;SGK269	7.55E-35	187.16	_VPIVINPNAY(ph)DNIAIY(ph)K_	16	2	1038.994	0.3645
Q9H792	Sugen kinase 269;Tyrosine-protein kinase Sgk269	KIAA2002;SGK269	7.55E-35	187.16	_VPIVINPNAY(ph)DNIAIY(ph)K_	10	2	1038.994	0.3645
O14828	Secretory carrier-associated membrane protein 3	C1orf3;PROPIN1;SCAMP3	1.29E-34	196.5	_QY(ph)ATIDVYNPFETR_	2	2	898.89819	0.11908
P08670	Vimentin	VIM	1.96E-34	192.39	_SIY(ph)ASSPGGVYATR_	3	2	754.84269	-0.43804
P28482	ERT1;Extracellular signal-regulated kinase 2;MAP kinase isoform p42;Mitogen-activated protein kinase 1;Mitogen-activated protein kinase 2	ERK2;MAPK1;PRKM1;PRKM2	2.18E-34	180.11	_VADPDHHTGFIT(ph)EY(ph)VATR_	15	3	768.65051	0.24611
Q9NWX8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	3.78E-34	185.02	_SGQSITVPESTY(ph)TSIQGDPQR_	12	3	777.68819	0.12371
P21860	Proto-oncogene-like protein c-ErbB-3;Receptor tyrosine-protein kinase erbB-3;Tyrosine kinase-type cell surface receptor HER3	ERBB3;HER3	1.59E-27	168.99	_DGGGPGGYYAAMGACPASEQGY(ph)EEMR_	22	3	905.00487	0.12377
P27361	ERT2;Extracellular signal-regulated kinase 1;Insulin-stimulated MAP2 kinase;MAP kinase isoform p44;Microtubule-associated protein 2 kinase;Mitogen-activated protein kinase 1;Mitogen-activated protein kinase 3;p44-ERK1	ERK1;MAPK3;PRKM3	8.43E-27	173.28	_IADPEHHTGFIT(ph)EY(ph)VATR_	15	3	777.99428	-0.029961
Q96GP6	Scavenger receptor class F member 2;Scavenger receptor expressed by endothelial cells 2 protein;SRECRP-1	SCARF2;SREC2;SREPCR	7.94E-26	177.81	_SASSVEGPGGAIY(ph)AR_	13	2	751.33777	0.32538
P49023	Paxillin	PXN	1.40E-24	181.66	_VGEEEHVY(ph)SFPNKQK_	8	3	624.28389	0.226
Q13627	Dual specificity tyrosine-phosphorylation-regulated kinase 1A;Dual specificity YAK1-related kinase;HP86;Protein kinase minibrain homolog;Dual specificity tyrosine-phosphorylation-regulated kinase 1B;Minibrain-related kinase;Mirk protein kinase	DYRK;DYRK1A;MNB;MNBH;DYRK1B;MIRK	4.32E-24	214.32	_IYQY(ph)IQSR_	4	2	575.76826	-0.25993
Q9NWX8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	7.22E-24	166.62	_ENDY(ph)ESISDIQQR_	4	2	867.35435	-0.048725

P07355	Annexin A2;Annexin II;Annexin-2;Calpactin I heavy chain;Calpactin-1 heavy chain;Chromobindin-8;Lipocortin II;p36;Placental anticoagulant protein IV;Protein I;Annexin A2 pseudogene 2;Lipocortin II pseudogene;Putative annexin A2-like protein	ANX2;ANX2L4;ANXA2;CAL1H;LPC2D;ANX2L2;ANX2P2;ANXA2P2;LPC2B	2.06E-21	160.78	_ISIEGDHSTPPSAY(ph)GSVK_	14	2	962.93805	0.36858
Q96PD2	CUB, LCCL and coagulation factor V/VIII-homology domains protein 1;Discoidin, CUB and LCCL domain-containing protein 2;Endothelial and smooth muscle cell-derived neuropilin-like protein	CLCP1;DCBLD2;ESDN	2.06E-21	158.78	_AGKPGIPAPDEIVY(ph)QVPQSTQEVSGAGR_	14	3	977.81312	-0.14382
Q9NWX8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	2.79E-21	159.13	_SVDGDQGGIMEGYPY(ph)EVIK_	14	2	987.43174	0.099347
Q9NZM3	Intersectin-2;SH3 domain-containing protein 1B;SH3P18;SH3P18-like WASP-associated protein	ITSN2;KIAA1256;SH3D1B;SWAP	4.43E-21	177.42	_REEPEAIY(ph)AAVVK_	8	2	785.36907	0.95654
P29317	Ephrin type-A receptor 2;Epithelial cell kinase;Tyrosine-protein kinase receptor ECK	ECK;EPHA2	1.58E-20	157.86	_VIEDDPEATY(ph)TTSGGKIPIR_	10	2	1121.5356	0.63984
P37802	SM22-alpha homolog;Transgelin-2;Neuronal protein 22;Neuronal protein NP25;Transgelin-3	CDABP0035;KIAA0120;TAGLN2;NP25;TAGLN3	1.16E-18	160.69	_GASQAGMTGY(ph)GMPR_	10	2	732.29399	-0.6792
P29597	Non-receptor tyrosine-protein kinase TYK2	TYK2	1.24E-17	163.99	_IIAQAEGEPCY(ph)IR_	11	2	800.36547	-0.35628
P07355	Annexin A2;Annexin II;Annexin-2;Calpactin I heavy chain;Calpactin-1 heavy chain;Chromobindin-8;Lipocortin II;p36;Placental anticoagulant protein IV;Protein I;Annexin A2 pseudogene 2;Lipocortin II pseudogene;Putative annexin A2-like protein	ANX2;ANX2L4;ANXA2;CAL1H;LPC2D;ANX2L2;ANX2P2;ANXA2P2;LPC2B	2.02E-17	183	_SIYY(ph)YIQQDTK_	4	2	751.33416	-0.12221
P54756	EPH homology kinase 1;EPH-like kinase 7;Ephrin type-A receptor 5;EPH-like kinase 8;Ephrin type-A receptor 4;Tyrosine-protein kinase receptor SEK;Tyrosine-protein kinase TYRO1;EPH-like kinase 4;Ephrin type-A receptor 3;HEK;Tyrosine-protein kinase receptor ETK1;Tyrosine-protein kinase TYRO4	EHK1;EPHA5;HEK7;EPA4;HEK8;SEK;TYRO1;EPA3;ETK;ETK1;HEK;TYRO4	2.36E-17	162.68	_VIEDDPEAAY(ph)TTR_	10	2	780.33489	0.60107
P02786	p90;T9;Transferrin receptor protein 1;Transferrin receptor protein 1, serum form	TFRC	3.37E-17	152.37	_SAFSNIFGGEPISY(ph)TR_	14	2	913.41147	0.027932
Q9NWX8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	7.98E-17	156.14	_SPSSCNDIY(ph)ATVK_	9	2	761.31819	0.34638
Q96J84	Kin of irregular chiasm-like protein 1;Kin of IRRE-like protein 1;Nephrin-like protein 1	KIRREL;KIRREL1;NEPH1	3.36E-16	163.51	_AIY(ph)SSFKDDVDIK_	3	2	790.86583	-0.061843
Q99569	p0071;Plakophilin-4	PKP4	9.62E-16	143.97	_TVHDMEQFGQQYDIY(ph)ER_	16	3	789.6631	0.12344
P52943	Cysteine-rich protein 2;Protein ESP1	CRIP2;CRP2	5.93E-15	133.95	_GVNIGGAGSYIY(ph)EKPIAEGPQVTGPIEVPAAR_	12	3	1097.5534	-0.063329
Q99569	p0071;Plakophilin-4	PKP4	1.15E-13	145.55	_NNY(ph)JAINTATYAEYRPIQYR_	3	3	867.07075	-0.46423
Q96J84	Kin of irregular chiasm-like protein 1;Kin of IRRE-like protein 1;Nephrin-like protein 1	KIRREL;KIRREL1;NEPH1	2.20E-13	169.93	_TPY(ph)EAYDPGK_	3	2	667.28923	0.30148
Q9NWX8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	2.98E-13	166.93	_AEFAEY(ph)ASVDR_	6	2	669.27411	0.19885
P53801	Pituitary tumor-transforming gene 1 protein-interacting protein;Pituitary tumor-transforming gene protein-binding factor	C21orf1;C21orf3;PTTG1IP	3.48E-12	156.58	_YGIFKEENPY(ph)AR_	10	2	783.85306	0.077163

O95297	Myelin protein zero-like protein 1;Protein zero-related	MPZL1;PZR;UNQ849/PR01787	8.15E-12	177.06	_SESVVY(ph)ADIR_	6	2	609.77374	-0.27146
Q6NZI2	Cavin-1;Polymerase I and transcript release factor	FKSG13;PTRF	1.62E-11	149.41	_VM(ox)IY(ph)QDEVKIPAK_	4	3	543.93678	0.37557
P54760	Ephrin type-B receptor 4;Tyrosine-protein kinase receptor HTK;Tyrosine-protein kinase TYRO11	EPHB4;HTK;TYRO11	1.71E-11	133.86	_FIEENSSDPTY(ph)TSSIGGK_	11	2	1006.4303	0.029376
O60716	Cadherin-associated Src substrate;Catenin delta-1;p120 catenin;p120(cas)	CTNND1;KIAA0384	2.36E-11	132.97	_INGPQDHSIIY(ph)STIPR_	12	3	676.66147	0.093833
P40763	Acute-phase response factor;Signal transducer and activator of transcription 3	APRF;STAT3	2.53E-11	139.46	_YCRPESQEHPADPGSAAPY(ph)IK_	20	3	861.3721	-0.26684
P56945	Breast cancer anti-estrogen resistance protein 1;Cas scaffolding protein family member 1;CRK-associated substrate;p130cas	BCAR1;CAS;CASS1;CRKAS	4.69E-11	137.61	_AQQGIY(ph)QVPGSPQFQSPPAK_	6	3	769.03861	0.18085
Q9Y276	BCS1-like protein;Mitochondrial chaperone BCS1	BCS1;BCS1L	7.94E-11	138.21	_TVMYTAGVSEWRPFY(ph)PR_	16	3	733.00273	-0.40732
Q6NZI2	Cavin-1;Polymerase I and transcript release factor	FKSG13;PTRF	1.90E-10	159.4	_SFTPDHVVY(ph)AR_	9	3	457.87462	0.61308
A6NI28	Rho GTPase-activating protein 10-like;Rho GTPase-activating protein 42	ARHGAP42	2.33E-10	138.97	_KIWIEMADGKEPIY(ph)TIPIISK_	14	3	866.12139	-0.35313
P19174	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma-1;Phosphoinositide phospholipase C-gamma-1;Phospholipase C-gamma-1;Phospholipase C-II;PLC-148	PLC1;PLCG1	2.54E-10	130.2	_NPGFY(ph)VEANPMPTFK_	5	2	896.39423	0.3186
Q9NUM4	Transmembrane protein 106B	TMEM106B	3.08E-10	128.22	_NGDVSQFPY(ph)VEFTGR_	9	2	898.38799	-0.07745
P07355	Annexin A2;Annexin II;Annexin-2;Calpactin I heavy chain;Calpactin-1 heavy chain;Chromobindin-8;Lipocortin II;p36;Placental anticoagulant protein IV;Protein I;Annexin A2 pseudogene 2;Lipocortin II pseudogene;Putative annexin A2-like protein	ANX2;ANX2L4;ANXA2;CAL1H;LPC2D;ANX2L2;ANX2P2;ANXA2P2;LPC2B	4.73E-09	138.71	_SYSPY(ph)DMIESIRK_	5	3	556.91615	-0.05809
P06733	2-phospho-D-glycerate hydro-lyase;Alpha-enolase;C-myc promoter-binding protein;Enolase 1;MBP-1;MPB-1;Non-neural enolase;Phosphopyruvate hydratase;Plasminogen-binding protein;2-phospho-D-glycerate hydro-lyase;Beta-enolase;Enolase 3;Muscle-specific enolase;Skeletal muscle enolase;2-phospho-D-glycerate hydro-lyase;Enolase 2;Gamma-enolase;Neural enolase;Neuron-specific enolase	ENO1;ENO1L1;MPBP1;MPB1;ENO3;ENO2	1.66E-08	124.78	_AAVPSGASTGIY(ph)EAIEIR_	12	2	942.95878	0.26139
P45984	c-Jun N-terminal kinase 2;JNK-55;Mitogen-activated protein kinase 9;Stress-activated protein kinase JNK2	JNK2;MAPK9;PRKM9	2.09E-08	126.1	_TACTNFMTPY(ph)VVTR_	11	3	624.60118	-0.038401
P08670	Vimentin	VIM	2.25E-08	172.23	_FANY(ph)IDKVR_	4	2	603.28936	-0.15263
P07947	p61-Yes;Proto-oncogene c-Yes;Proto-oncogene tyrosine-protein kinase Yes;p59-Fyn;Proto-oncogene c-Fyn;Proto-oncogene Syn;SLK;Tyrosine-protein kinase Fyn	YES;YES1;FYN	2.31E-08	138.24	_KIDNGGY(ph)YITTR_	7	2	740.84523	1.0172
P49023	Paxillin	PXN	3.95E-08	122.33	_FIHQQPQSSS(ph)PVY(ph)GSSAK_	13	3	703.30104	0.651
Q96RT1	Densin-180-like protein;Erbb2-interacting protein;Protein LAP2	ERBB2IP;ERBIN;KIAA1225;LAP2	4.23E-08	128.85	_RAQIPEGDY(ph)JSYR_	9	3	549.92241	0.038024
Q99569	p0071;Plakophilin-4	PKP4	5.79E-08	124.07	_SAVSPDIHITPIY(ph)EGR_	13	2	917.94039	0.2845
O60716	Cadherin-associated Src substrate;Catenin delta-1;p120 catenin;p120(cas)	CTNND1;KIAA0384	6.84E-08	127.87	_SIDNNY(ph)STPNER_	6	2	745.30138	-0.3899
P42685	FYN-related kinase;Nuclear tyrosine protein kinase RAK;Protein-tyrosine kinase 5;Tyrosine-protein kinase FRK	FRK;PTK5;RAK	7.18E-08	125.72	_HGHY(ph)FVAIFDYQAR_	4	3	601.93828	0.0071844
Q68CZ2	Tensin-3;Tensin-like SH2 domain-containing protein 1;Tumor endothelial marker 6	TEM6;TENS1;TNS3;PPP	9.14E-08	116.78	_KISIGQY(ph)DNDAGGQIPFSK_	7	3	706.66829	0.4896

Q68CZ2	Tensin-3;Tensin-like SH2 domain-containing protein 1;Tumor endothelial marker 6	TEM6;TENS1;TNS3;TPP	1.70E-07	120.77	_ESMCSTPAFPVSPETPY(ph)VK_	17	2	1103.9755	0.16656
Q9Y490	Talin-1	KIAA1027;TLN;TLN1	1.73E-07	122.78	_TMQFEPSTMVY(ph)DACR_	11	2	958.37485	-0.27415
P07947	p61-Yes;Proto-oncogene c-Yes;Proto-oncogene tyrosine-protein kinase Yes;p59-Fyn;Proto-oncogene c-Fyn;Proto-oncogene Syn;SLK;Tyrosine-protein kinase Fyn;pp60c-src;Proto-oncogene c-Src;Proto-oncogene tyrosine-protein kinase Src	YES;YES1;FYN;SRC;SRC1	4.98E-07	135.55	_WTAPEAAIY(ph)GR_	9	2	657.79755	0.14977
Q05397	Focal adhesion kinase 1;pp125FAK;Protein-tyrosine kinase 2	FAK;FAK1;PTK2	5.78E-07	101.94	_THAVSVSETDDY(ph)AEIIDEEDTYTMPSTR_	12	3	1085.7902	0.07297
O15061	Desmuslin;Synemin	DMN;KIAA0353;SYN;SYNM	6.61E-07	118.87	_EVPVY(ph)IGEDSTIAR_	5	2	814.88201	0.12203
O00461	Golgi integral membrane protein 4;Golgi integral membrane protein, cis;Golgi phosphoprotein 4;Golgi-localized phosphoprotein of 130 kDa	GIMPC;GOLIM4;GOLPH4;GPP130	2.44E-06	125.18	_GREEHY(ph)EEEEEEEDGAVAEK_	6	3	882.01173	0.36511
P62158	Calmodulin	CALM;CALM1;CALM2;CALM3;CALML2;CAM;CAM1;CAM2;CAM3;CAMB;CAMC;CAMIII	3.24E-06	119.69	_VFDKDGNGY(ph)ISAAEIR_	9	3	612.28389	0.046848
Q9UDY2	Tight junction protein 2;Tight junction protein ZO-2;Zona occludens protein 2;Zonula occludens protein 2	TJP2;X104;ZO2	3.68E-06	118.76	_IEIAQKHPDIY(ph)AVPIK_	11	3	639.00781	0.30085
Q68CZ2	Tensin-3;Tensin-like SH2 domain-containing protein 1;Tumor endothelial marker 6	TEM6;TENS1;TNS3;TPP	5.78E-06	105.35	_WDS(ph)YENISADGVEIHTQGVPVDSIY(ph)h)AK_	25	3	1037.7722	0.23132
P05388	60S acidic ribosomal protein P0;60S ribosomal protein L10E;60S acidic ribosomal protein P0-like	RPLP0	9.29E-06	163.64	_IJIIDDY(ph)PK_	8	2	649.32561	0.22752
Q8IWW6	Rho GTPase-activating protein 12;Rho-type GTPase-activating protein 12	ARHGAP12	1.08E-05	116.13	_AT(ph)TPPNQGRPDS(ph)PVY(ph)ANIQEIK_	15	3	879.378	0.091275
Q99569	p0071;Plakophilin-4	PKP4	1.30E-05	122.33	_STTNY(ph)VDFYSTK_	5	2	753.31343	0.13094
P05141	Adenine nucleotide translocator 2;ADP,ATP carrier protein 2;ADP,ATP carrier protein, fibroblast isoform;ADP/ATP translocase 2;Solute carrier family 25 member 5	ANT2;SLC25A5	1.80E-05	123.88	_AAAY(ph)FGIYDTAK_	3	2	650.28649	-0.11073
Q9Y2X7	ARF GTPase-activating protein GIT1;Cool-associated and tyrosine-phosphorylated protein 1;G protein-coupled receptor kinase-interactor 1;GRK-interacting protein 1	GIT1	2.24E-05	107.41	_IQPFHSTEIEDDAIY(ph)SVHVPAGIYR_	15	3	979.79881	0.17479
Q8IY95	Transmembrane protein 192	TMEM192	2.39E-05	106.35	_AKPEPDIIEEKIY(ph)AYPSNITSETGFR_	14	3	1059.8391	0.21904
P54753	EPH-like kinase 2;Ephrin type-B receptor 3;Tyrosine-protein kinase TYRO6	EPHB3;ETK2;HEK2;TYRO6	2.61E-05	138.98	_IQQY(ph)IAPGMK_	4	2	614.79342	0.50878
Q9NWO8	Csk-binding protein;Phosphoprotein associated with glycosphingolipid-enriched microdomains 1;Transmembrane adapter protein PAG;Transmembrane phosphoprotein Cbp	CBP;PAG;PAG1	3.16E-05	104.44	_DSSSQENMVEDCIY(ph)ETVK_	14	2	1107.4343	-0.25358
P07948	Tyrosine-protein kinase Lyn	LYN	3.45E-05	115.29	_SIDNGGY(ph)YISPR_	7	2	711.30848	-0.089595
P22626	Heterogeneous nuclear ribonucleoproteins A2/B1	HNRNPA2B1;HNRPA2B1	4.06E-05	102.39	_NMGGPYGGGNGYGGGGGGGGY(ph)GR_	22	3	757.29541	0.32713
Q05397	Focal adhesion kinase 1;pp125FAK;Protein-tyrosine kinase 2	FAK;FAK1;PTK2	4.13E-05	151.44	_YMEDSTY(ph)Y(ph)KASK_	8	2	823.29828	0.052333
Q05397	Focal adhesion kinase 1;pp125FAK;Protein-tyrosine kinase 2	FAK;FAK1;PTK2	4.13E-05	151.44	_YMEDSTY(ph)Y(ph)KASK_	7	2	823.29828	0.052333

P19174	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma-1;Phosphoinositide phospholipase C-gamma-1;Phospholipase C-gamma-1;Phospholipase C-II;PLC-148	PLC1;PLCG1	5.88E-05	109.15	_IGTAEPTY(ph)GAIYEGR_	8	2	846.36927	0.11105
Q86Z02	Homeodomain-interacting protein kinase 1;Homeodomain-interacting protein kinase 2	HIPK1;KIAA0630;HIPK2	0.000101964	135.55	_AVCSTY(ph)IQSR_	6	2	632.77322	0.80537
Q9H422	Androgen receptor-interacting nuclear protein kinase;Fas interacting serine/threonine-protein kinase;Homeodomain-interacting protein kinase 3;Homolog of protein kinase YAK1	DYRK6;FIST3;HIPK3;PKY	0.000161161	132.88	_TVCSTY(ph)IQSR_	6	2	647.7785	-0.029696
P07948	Tyrosine-protein kinase Lyn;Hemopoietic cell kinase;p59-HCK/p60-HCK;Tyrosine-protein kinase HCK	LYN;HCK	0.000203065	130.98	_VIEDNEY(ph)TAR_	7	2	645.27411	0.81073
Q9Y6N7	Deleted in U twenty twenty;H-Robo-1;Roundabout homolog 1	DUTT1;ROBO1	0.000618688	112.13	_NGITSTY(ph)AGIR_	7	2	616.78718	-0.67231
Q14511	Cas scaffolding protein family member 2;CRK-associated substrate-related protein;Enhancer of filamentation 1;Enhancer of filamentation 1 p55;Neural precursor cell expressed developmentally down-regulated protein 9;p105;Renal carcinoma antigen NY-REN-12	CASL;CASS2;NEDD9	0.00113419	108.35	_TGHGYVY(ph)EYPSR_	7	2	754.81393	0.14492
P04626	Metastatic lymph node gene 19 protein;p185erbB2;Proto-oncogene c-ErbB-2;Proto-oncogene Neu;Receptor tyrosine-protein kinase erbB-2;Tyrosine kinase-type cell surface receptor HER2	ERBB2;HER2;MLN19;NEU;NGL	0.0011417	108.89	_IIDIDETEVY(ph)HADGGKVPIK_	9	3	731.68735	0.12318
Q9H5Y7	SLIT and NTRK-like protein 6	SLITRK6	0.00121181	91.355	_ANIHAEPDY(ph)IEVIEQQT_	9	2	1025.4619	0.16866
Q13671	Ras and Rab interactor 1;Ras inhibitor JC99;Ras interaction/interference protein 1	RIN1	0.00156177	88.071	_EKPAQDPIY(ph)DVPNASGGQAGGQRPGR_	9	3	948.11379	-0.055101
Q9Y4G6	Talin-2	KIAA0320;TLN2	0.00160058	92.538	_ECDY(ph)SIDGINR_	4	2	711.27378	0.63188
O60674	Janus kinase 2;Tyrosine-protein kinase JAK2	JAK2	0.00165454	96.673	_REVGDY(ph)GQIHETEVIK_	6	3	689.33665	-0.010315
P68104	Elongation factor 1-alpha 1;Elongation factor Tu;Eukaryotic elongation factor 1 A-1;Leukocyte receptor cluster member 7;Eukaryotic elongation factor 1 A-like 3;Putative elongation factor 1-alpha-like 3;Elongation factor 1-alpha 2;Eukaryotic elongation factor 1 A-2;Statin-S1	EEF1A;EEF1A1;EF1A;LENG7;EEF1AL3;EEF1A2;EEF1AL;STN	0.0022359	103.08	_EHAIAY(ph)TIGVK_	7	2	697.85761	0.21926
Q07912	Activated CDC42 kinase 1;Tyrosine kinase non-receptor protein 2	ACK1;TNK2	0.00237983	101.42	_VSSTHY(ph)YIIPERPSYIER_	6	3	764.03498	0.11051
Q07912	Activated CDC42 kinase 1;Tyrosine kinase non-receptor protein 2	ACK1;TNK2	0.00237983	101.42	_VSSTHY(ph)YIIPERPSYIER_	7	3	764.03498	0.11051
P62805	Histone H4	H4/A;H4/B;H4/C;H4/D;H4/E;H4/G;H4/H;H4/I;H4/J;H4/K;H4/M;H4/N;H4/O;H4F2;H4FA;H4FB;H4FC;H4FD;H4FE;H4FG;H4FH;H4FI;H4FJ;H4FK;H4FM;H4FN;H4FO;HIST1H4A;HIST1H4B;HIST1H4C;HIST1H4D;HIST1H4E;HIST1H4F;HIST1H4H;HIST1H4I;HIST1H4J;HIST1H4K;HIST1H4L;HIST2H4;HIST2H4A;HIST2H4B;HIST4H4	0.00259363	111.61	_ISGIY(ph)EETR_	6	2	630.79722	0.18207

P30530	AXL oncogene;Tyrosine-protein kinase receptor UFO	AXL;UFO	0.00281166	139.88	_KIYNGDY(ph)YR_	7	2	636.27645	-0.019143
P05556	Fibronectin receptor subunit beta;Integrin beta-1;VLA-4 subunit beta	FNRB;ITGB1;MDF2;MSK12	0.00369143	109.66	_WDTGENPIY(ph)K_	9	2	651.77374	0.29504
Q96HC4	Enigma homolog;Enigma-like PDZ and LIM domains protein;PDZ and LIM domain protein 5	ENH;L9;PDLIM5	0.00472536	92.19	_YTEFY(ph)HVPTSDASK_	5	3	621.26461	-1.0231
Q60716	Cadherin-associated Src substrate;Catenin delta-1;p120 catenin;p120(cas)	CTNND1;KIAA0384	0.00478616	100.88	_QDVY(ph)GPQPQVR_	4	2	683.81119	0.09893
O43491	Band 4.1-like protein 2;Generally expressed protein 4.1	EPB41L2	0.00591832	132.01	_VEGDNIY(ph)VR_	7	2	572.75535	-0.14516
P35222	Beta-catenin;Catenin beta-1	CTNNB;CTNNB1;OK/SW-cl.35;PRO2286	0.00600556	105.57	_IHY(ph)GIPVVVK_	3	2	602.82812	-0.11522
Q5SSJ5	Heterochromatin protein 1-binding protein 3;Protein HP1-BP74	HP1BP3	0.00764973	87.647	_YVIENHPGTNSNY(ph)QMHIK_	13	3	780.02772	-0.081882
Q9BY49	2,4-dienoyl-CoA reductase-related protein;HPDHase;Peroxisomal trans-2-enoyl-CoA reductase;pVI-ARL	PECR;PRO1004	0.00834588	97.798	_AGVY(ph)NITK_	4	2	473.2257	-0.28267
P56945	Breast cancer anti-estrogen resistance protein 1;Cas scaffolding protein family member 1;CRK-associated substrate;p130cas	BCAR1;CAS;CASS1;CRKAS	0.00991404	80.746	_HIIAPGPQDIY(ph)DVPPVR_	11	3	656.33106	-0.002609
Q9Y3B3	Transmembrane emp24 domain-containing protein 7	CGI-109;TMED7	0.0155733	99.5	_KQY(ph)DSFTFTASK_	3	2	751.83179	-0.27437
P46783	40S ribosomal protein S10	RPS10	0.0195452	122.52	_IAIY(ph)EIIFK_	4	2	595.31706	0.027738
Q96QZ7	Atrophin-1-interacting protein 3;BAI1-associated protein 1;Membrane-associated guanylate kinase inverted 1;Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1;Trinucleotide repeat-containing gene 19 protein;WW domain-containing protein 3	AIP3;BAIAP1;BAP1;MAGI1;TNRC19	0.0196685	79.633	_IEDPVY(ph)GIYYVDHINRK_	6	3	725.34878	-0.36377
P68104	Elongation factor 1-alpha 1;Elongation factor Tu;Eukaryotic elongation factor 1 A-1;Leukocyte receptor cluster member 7;Eukaryotic elongation factor 1 A-like 3;Putative elongation factor 1-alpha-like 3;Elongation factor 1-alpha 2;Eukaryotic elongation factor 1 A-2;Statin-S1	EEF1A;EEF1A1;EF1A;LENG7;EEF1AL3;EEF1A2;EEF1AL;STN	0.037377	93.178	_STTGHIIY(ph)K_	9	2	600.78665	0.073073

Supplementary Table 2. Patient demographics for the specimens on the annotated melanoma TMA.

Demographics	Frequency (N=94)	Percent
Male	55	58.5%
Age (mean)	64 years (range 37-88 years)	
Stage at surgery		
II	15	16.0%
III	43	45.7%
IV	36	38.3%
Site of tumor specimen		
Primary/cutaneous	24	25.5%
LN met	25	26.6%
Dermal/SC met	23	24.5%
Visceral met	22	23.4%
Free of disease after surgery*	76	80.9%
*No gross margins or other metastatic disease at time of surgery		

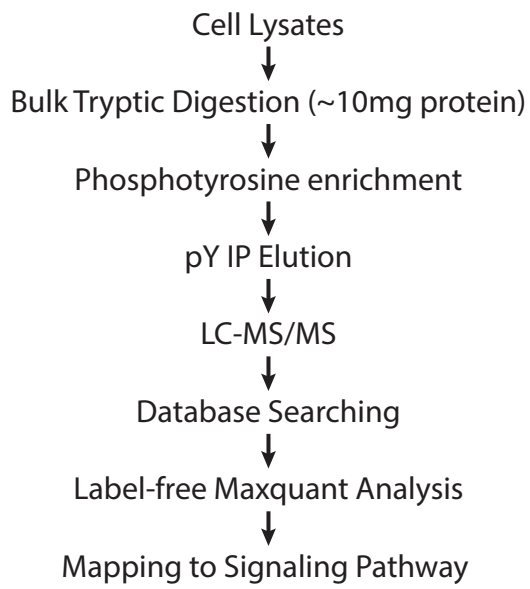
Supplementary Table 3. Median overall survival data for melanoma patients represented on the TMA based upon PTEN staining status.

Status	Event Rate	Median Survival (months)	95% CI (months)
PTEN-	24/34	16.8	10.9-22.7
PTEN+	29/59	40.0	23.7-56.3
Overall	53/93	23.0	7.8-38.2

Supplementary Table 4. Median overall survival data for melanoma patients represented on the TMA based upon PTEN and FN staining status.

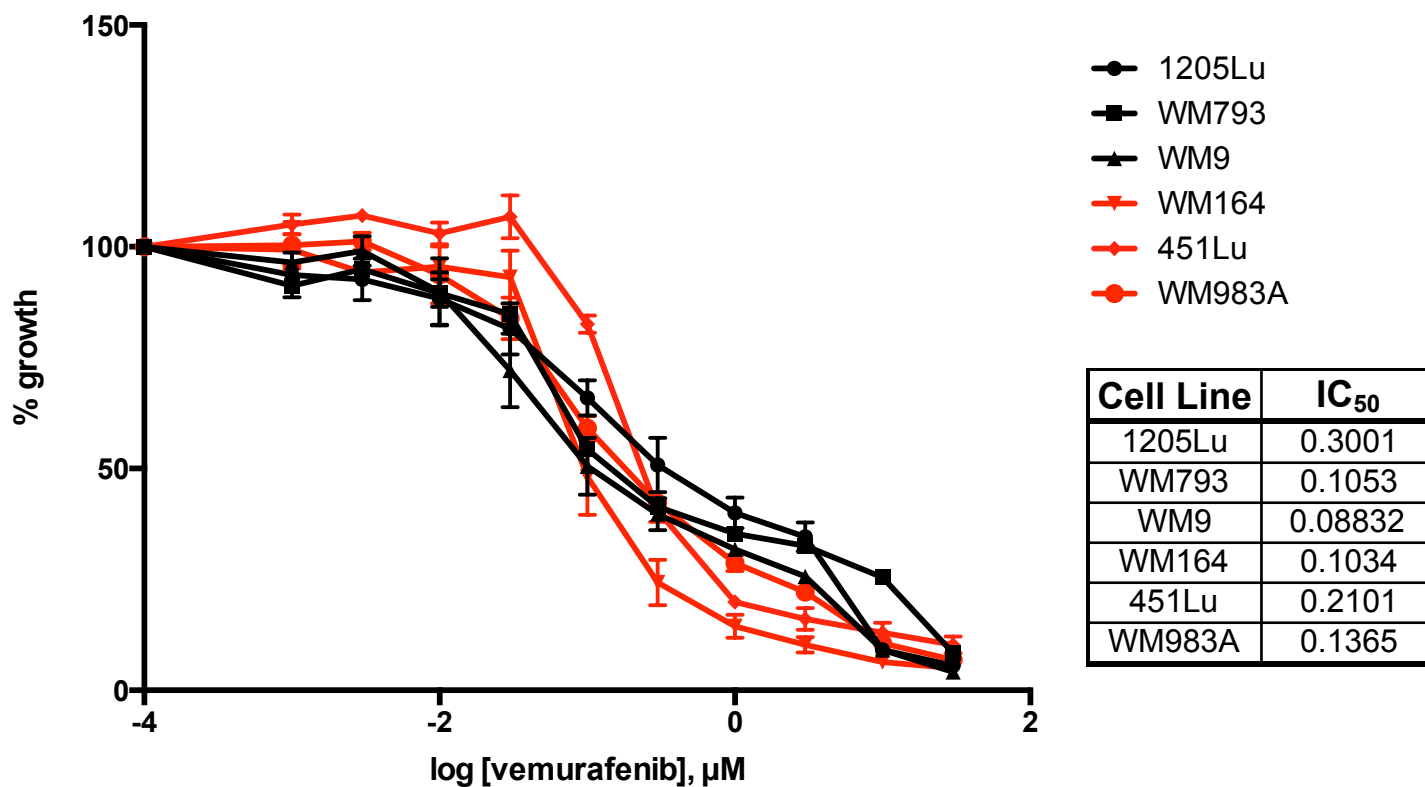
Status	Event Rate	Median Survival (months)	95% CI (months)
FN low / PTEN-	5/8	28.3	0.4-56.2
FN high / PTEN-	19/26	15.1	10.8-19.4
FN low / PTEN+	6/17	45.2	0.1-90.3
FN high / PTEN+	23/41	29.9	12.8-47.0
Overall	53/92	23.0	11.3-34.7

Proteomic Work-flow

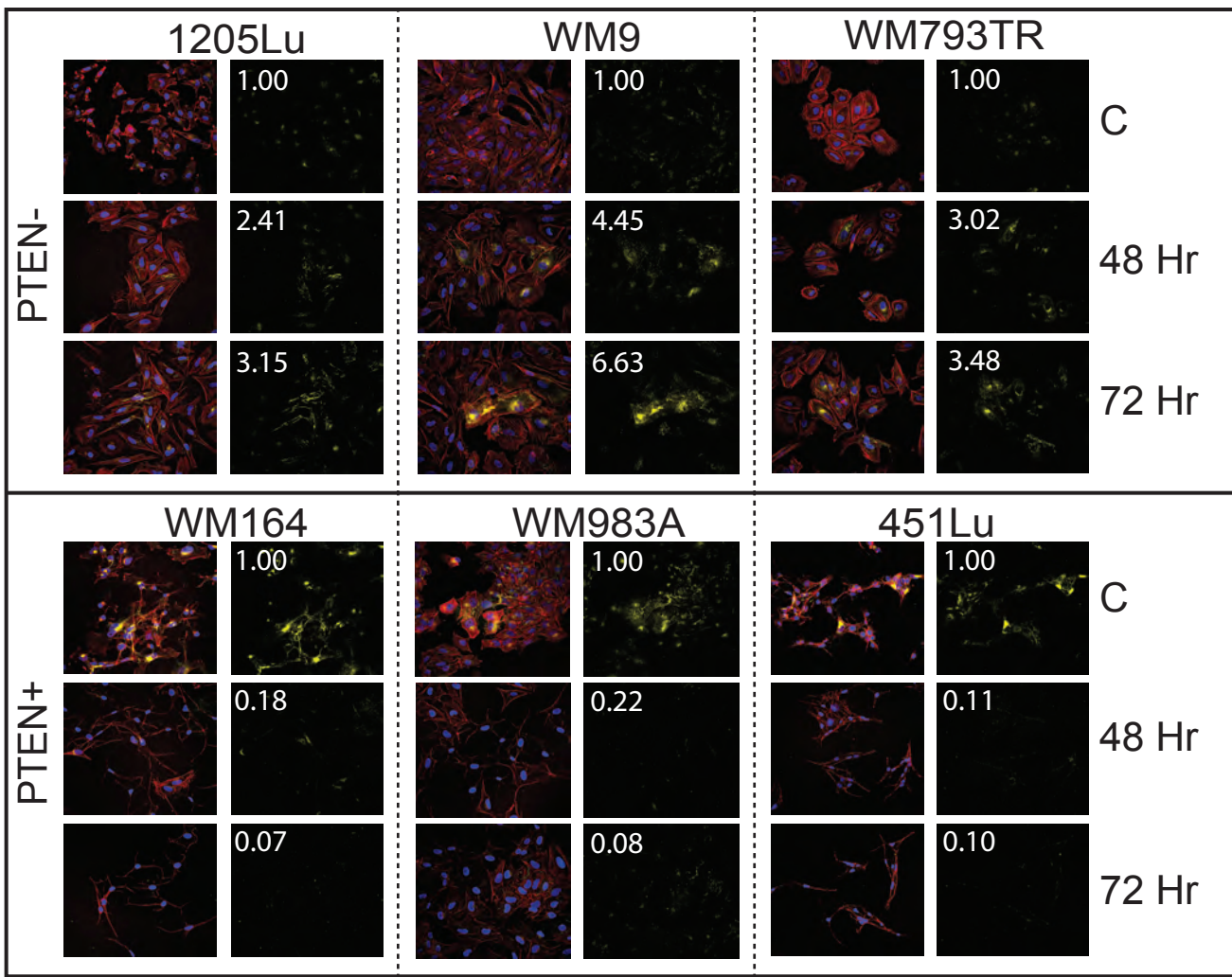


Supplementary Figure 1. Work flow of the phospho-proteomics experiment.

log-dose vs response

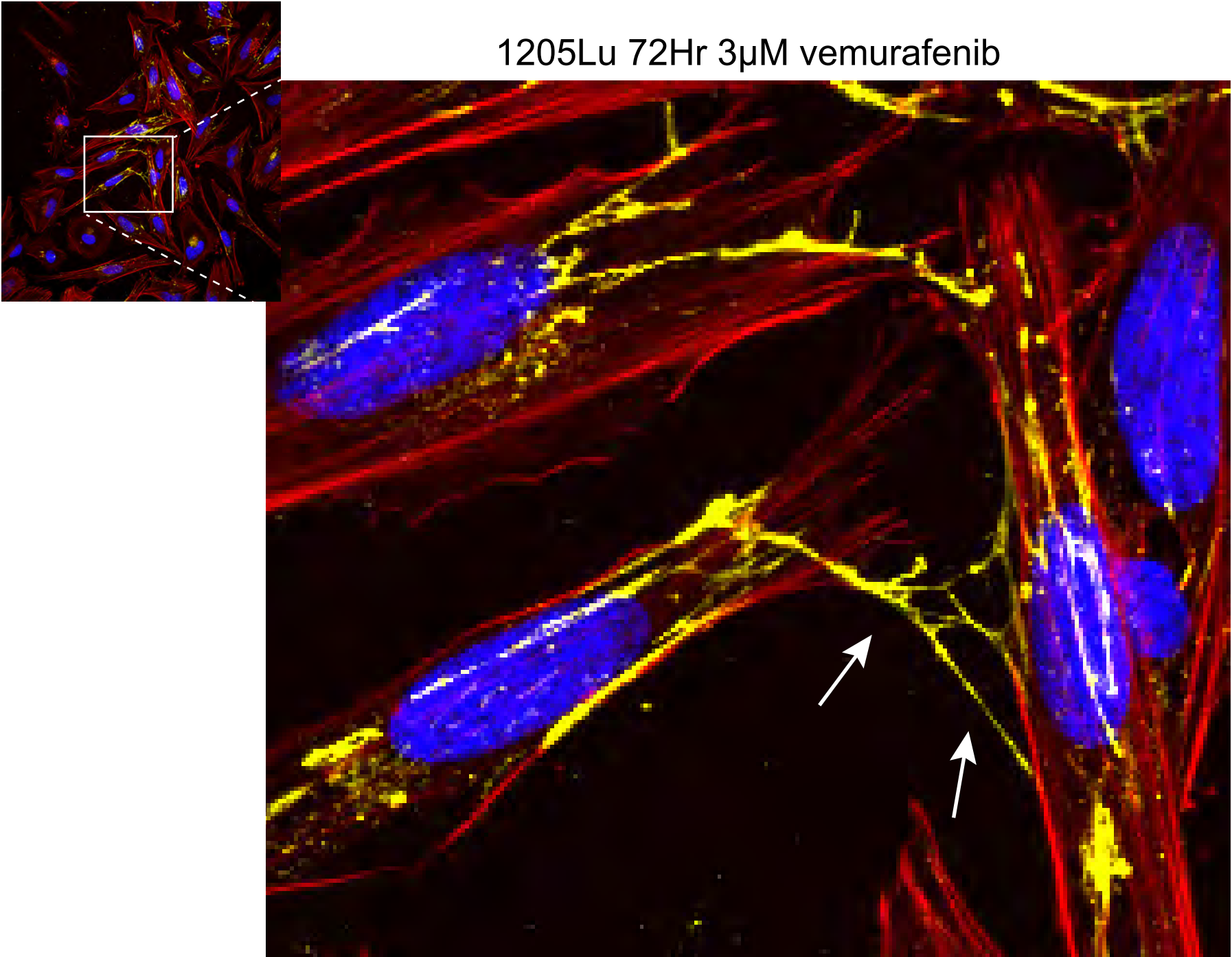


Supplementary Figure 2. MTT growth inhibition assay. Three BRAFV600E PTEN- (black) and three BRAFV600E PTEN+ (red) cell lines were used for an MTT growth inhibition assay following 72 hour treatment with vemurafenib. IC₅₀ values were calculated using GraphPad Prism 6 software.



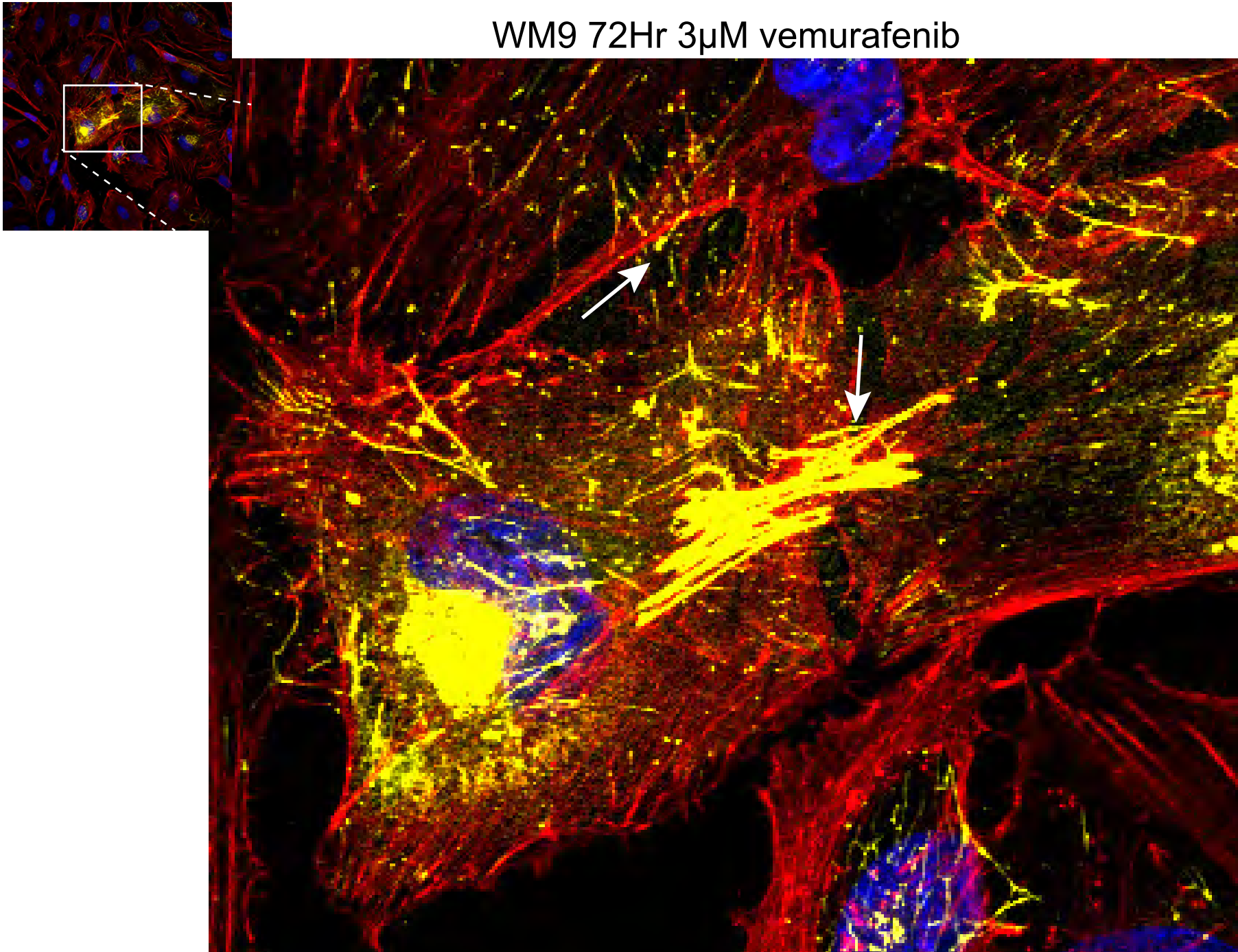
Supplementary Figure 3. Vemurafenib induces FN expression in BRAFV600E/PTEN- melanoma cell lines. Immunofluorescence staining showing the induction of FN expression (yellow) following 48- and 72-hour 3 μ M vemurafenib treatment. Fold changes calculated based on total fluorescence intensity of the yellow (FN) channel per cell.

1205Lu 72Hr 3 μ M vemurafenib



Supplementary Figure 4. Close-up image of immunofluorescent staining of FN (yellow), actin (Phalloidin, red), and the nucleus (DAPI, blue) showing extracellular FN deposition in 1205Lu following a 72-hour 3 μ M vemurafenib treatment.

WM9 72Hr 3 μ M vemurafenib



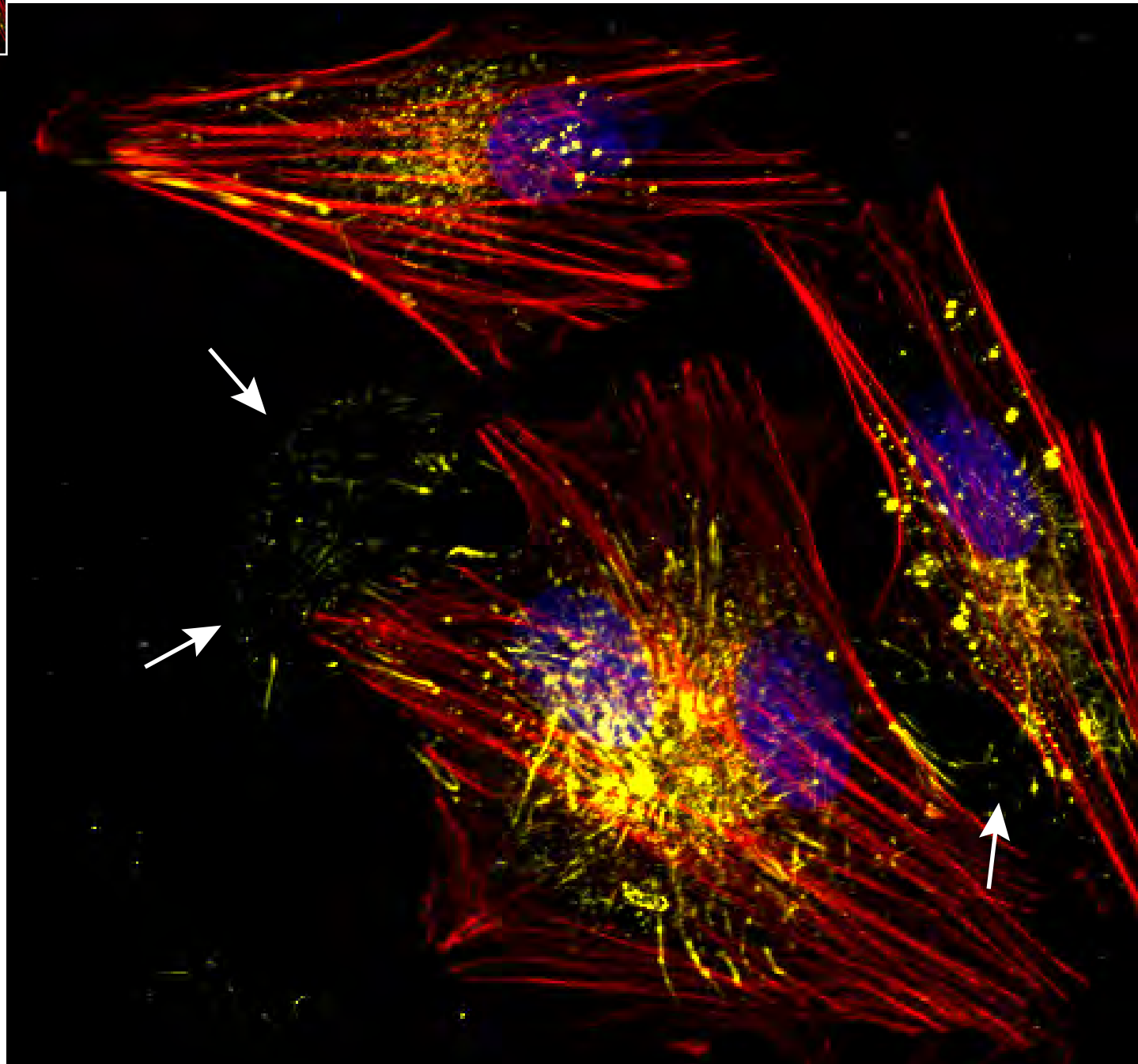
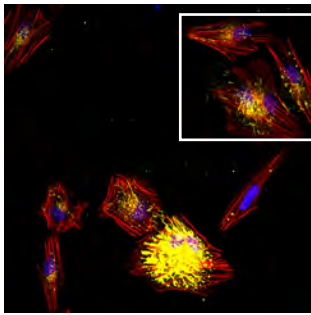
Supplementary Figure 5. Close-up image of immunofluorescent staining of FN (yellow), actin (Phalloidin, red), and the nucleus (DAPI, blue) showing extracellular FN deposition in WM9 following a 72-hour 3 μ M vemurafenib treatment.

1205Lu BRAF siRNA



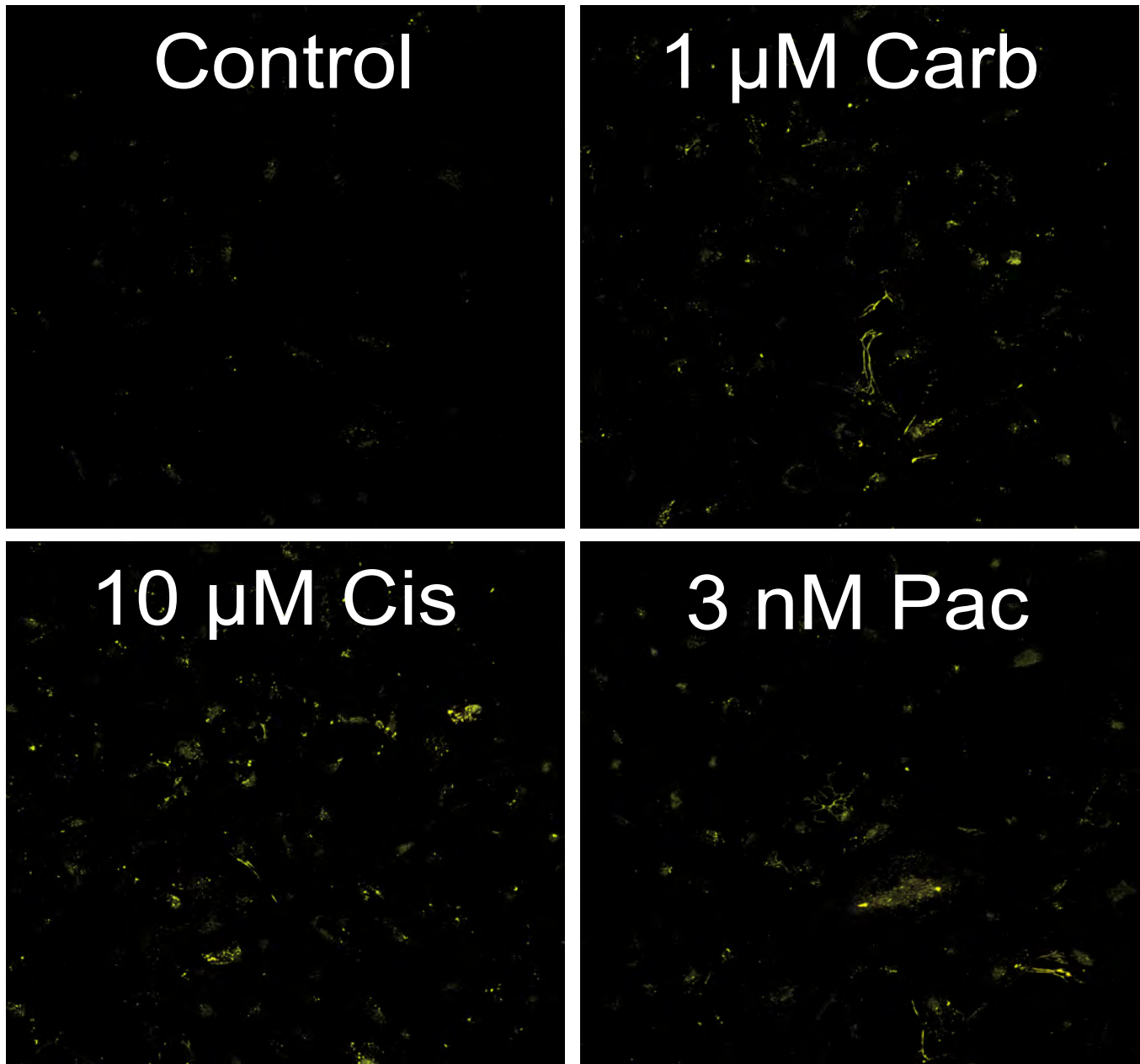
Supplementary Figure 6. Close-up image of immunofluorescent staining of FN (yellow), actin (Phalloidin, red), and the nucleus (DAPI, blue) showing extracellular FN deposition in 1205Lu following a siRNA-mediated knockdown of BRAF.

1205Lu BRAF siRNA



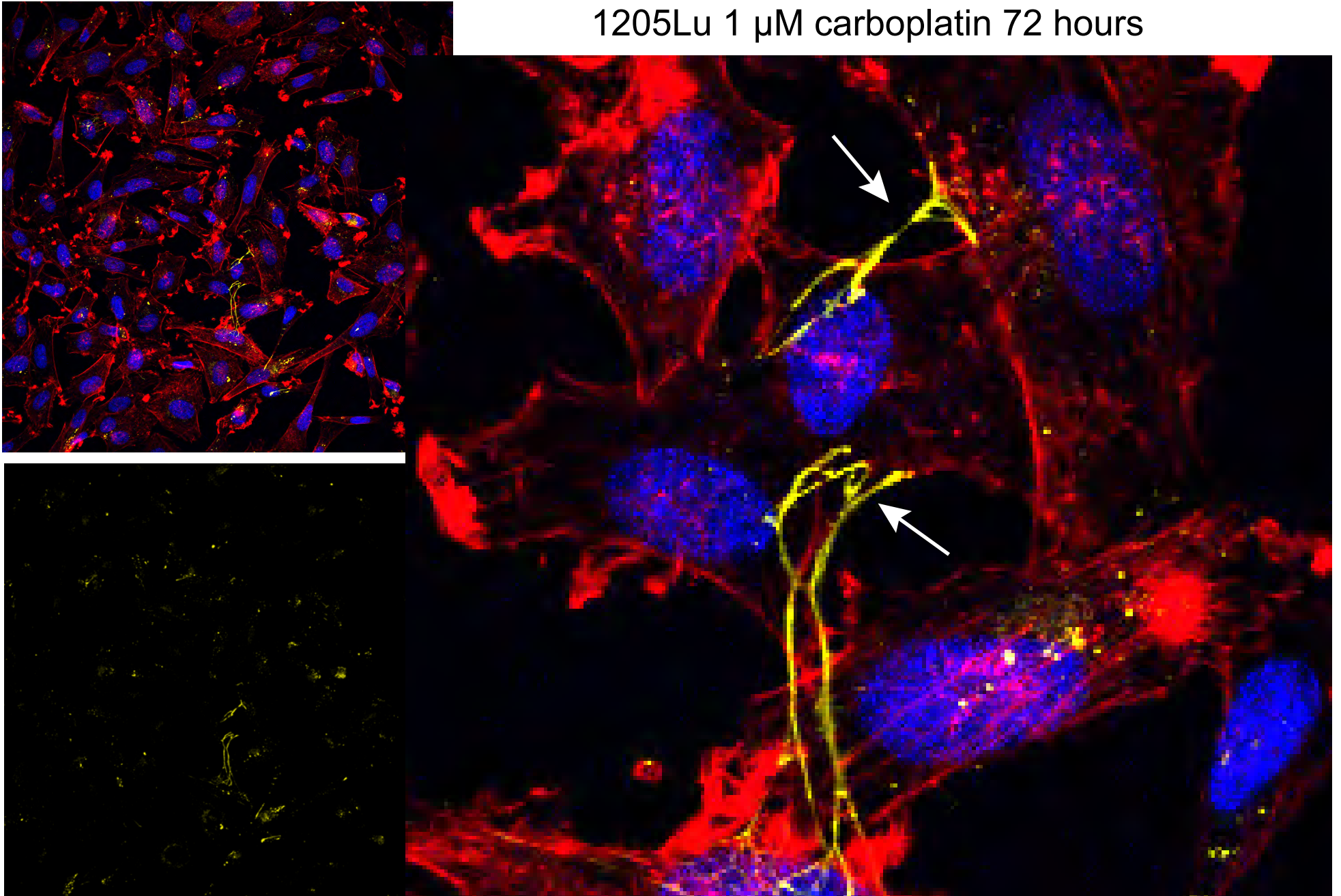
Supplementary Figure 7. Close-up image of immunofluorescent staining of FN (yellow), actin (Phalloidin, red), and the nucleus (DAPI, blue) showing extracellular FN deposition in 1205Lu following a siRNA-mediated knockdown of BRAF.

1205Lu

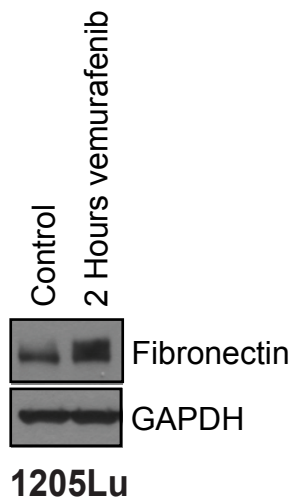
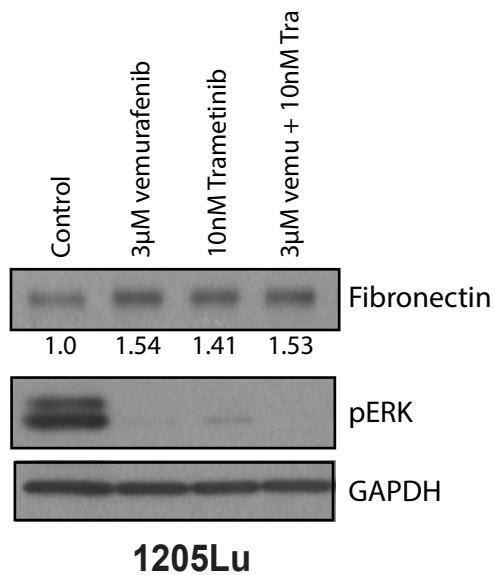


Supplementary Figure 8. Cytotoxic chemotherapy induces FN expression in 1205Lu PTEN-melanoma cells. Cells were treated with 10 μ M cisplatin, 1 μ M carboplatin and 3nM paclitaxel for 72 hours before being stained for FN (yellow).

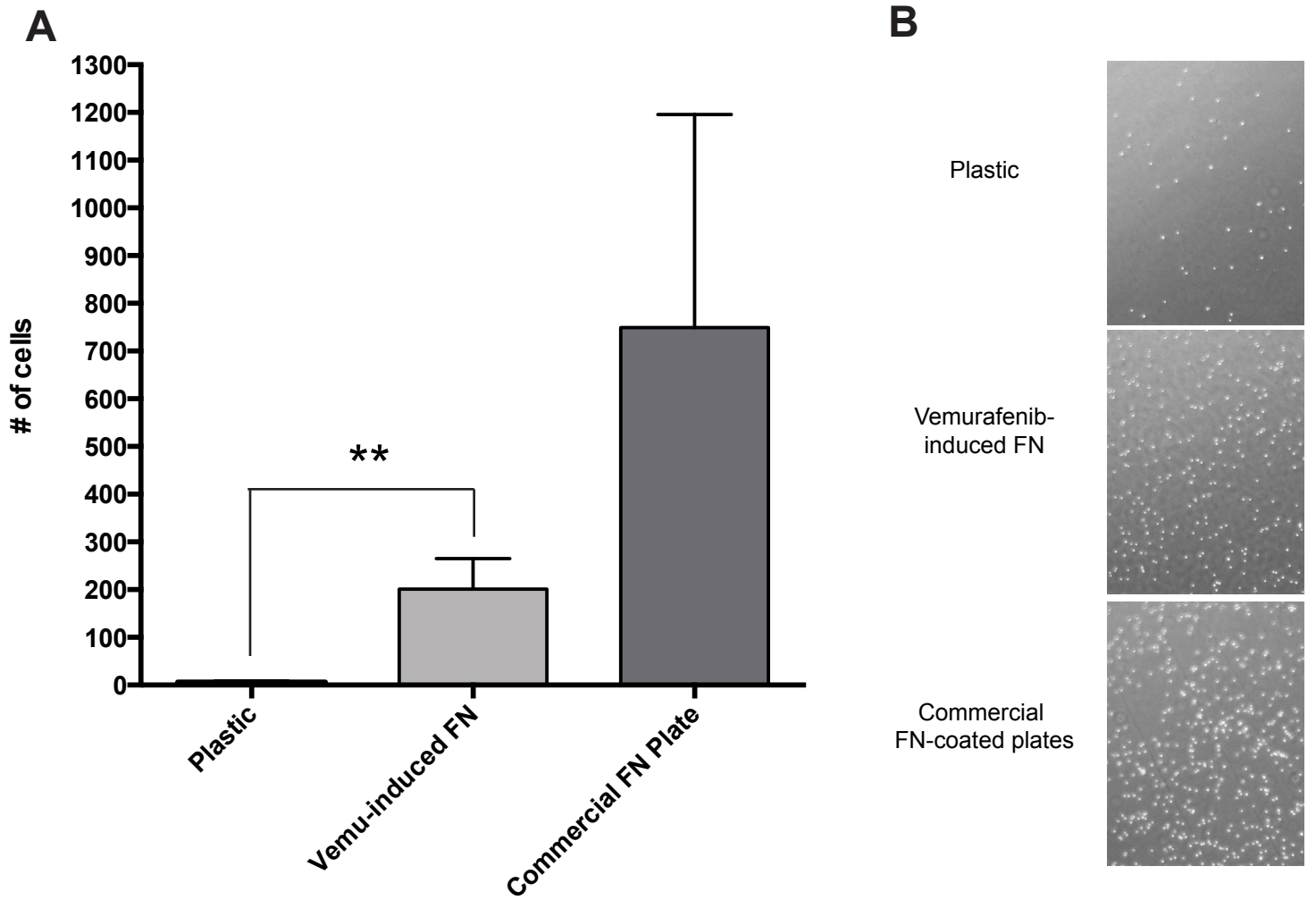
1205Lu 1 μ M carboplatin 72 hours



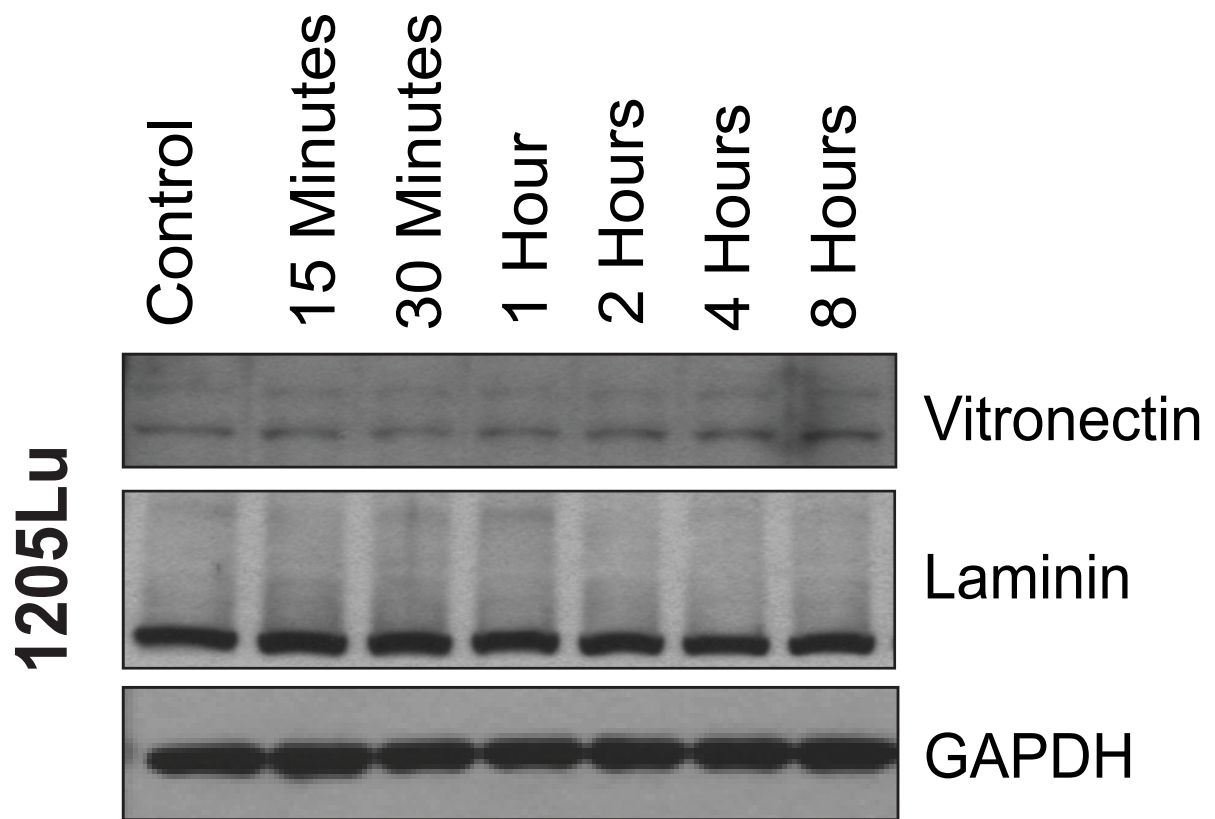
Supplementary Figure 9. Close-up image of immunofluorescent staining of FN (yellow), actin (Phalloidin, red), and the nucleus (DAPI, blue) showing extracellular FN deposition in 1205Lu following a 72-hour 1 μ M carboplatin treatment.

A**B**

Supplementary Figure 10. A: Western blot of 1205Lu lysates showing FN upregulation after a 2-hour treatment with 3 μ M vemurafenib. **B:** Western blot showing FN upregulation in 1205Lu with the combination of vemurafenib and trametinib (3 μ M, 10nM respectively, 2 hour treatment).

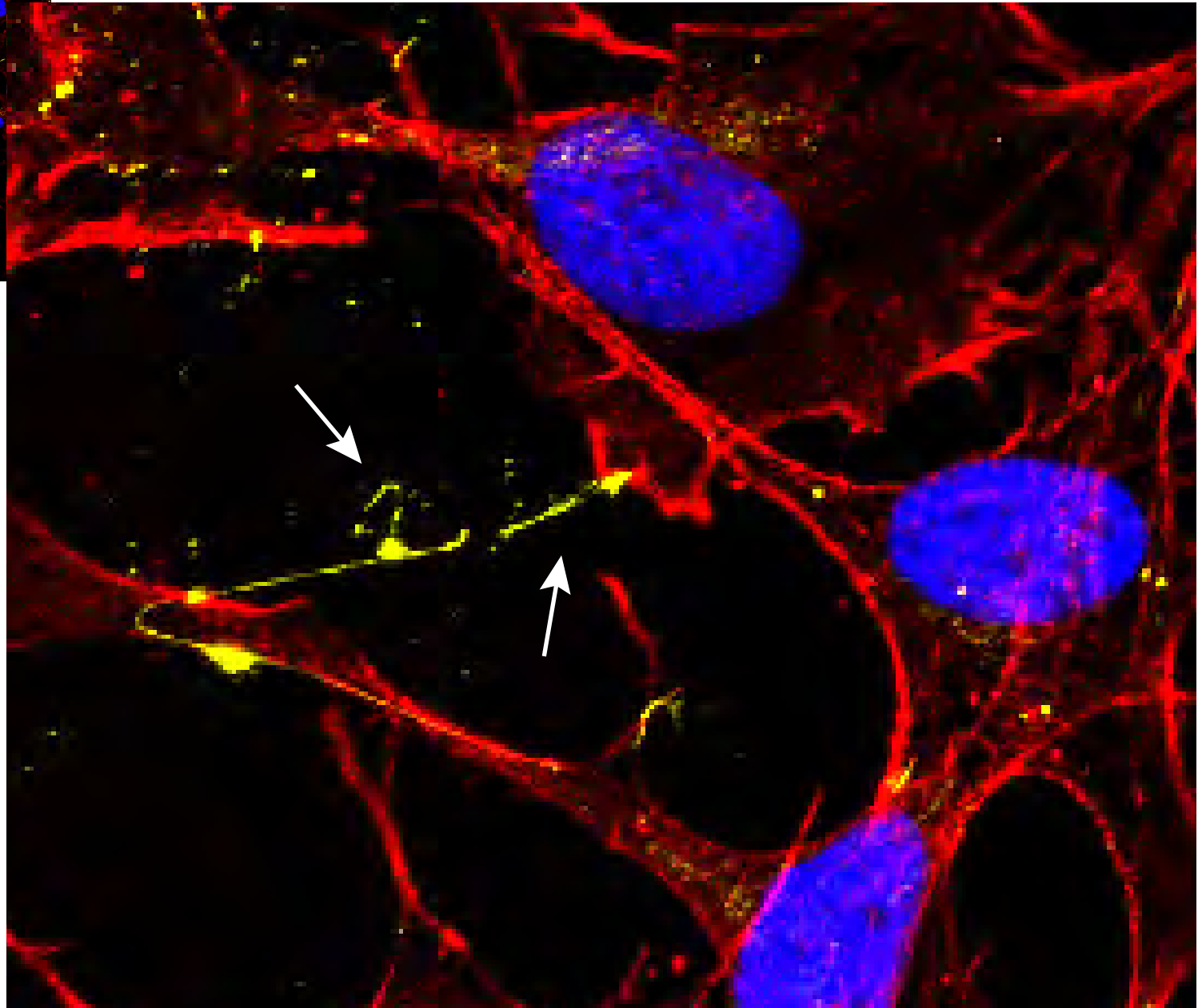
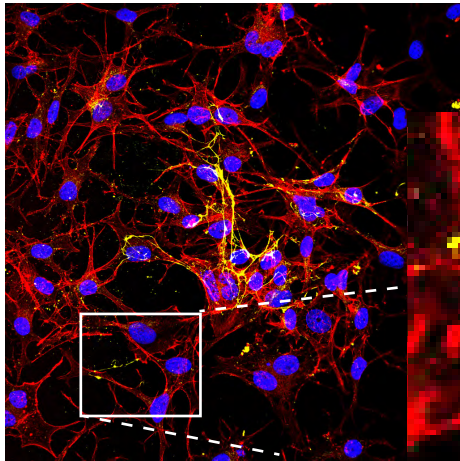


Supplementary Figure 11. A: Cell adhesion assay showing 1205Lu cell attachment to different surfaces, including plastic, vemurafenib-induced FN and commercially-available FN-coated plates after 15 minute incubation. **B:** Representative images of cell attachment in A.

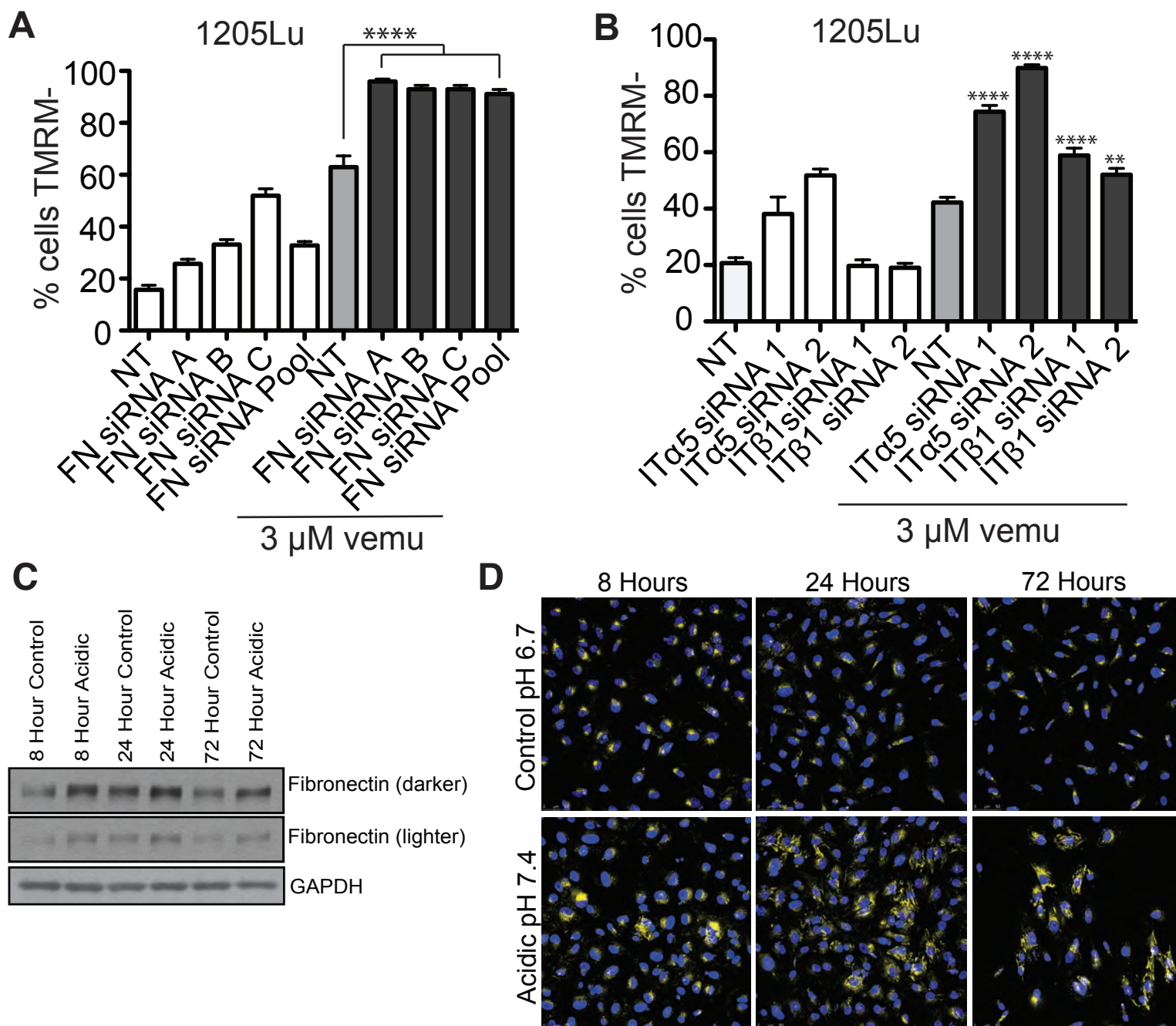


Supplementary Figure 12. Vemurafenib does not induce expression of vitronectin or laminin. 1205Lu cells were treated with drug for 0-8 hrs followed by Western blotting for vitronectin and laminin. GAPDH shows even protein loading.

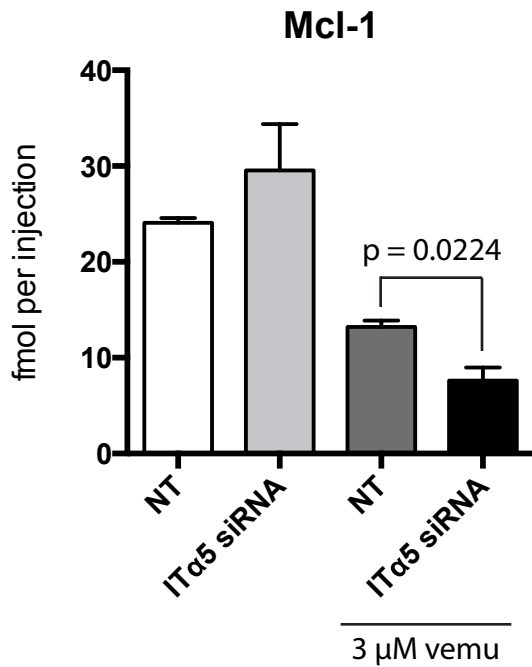
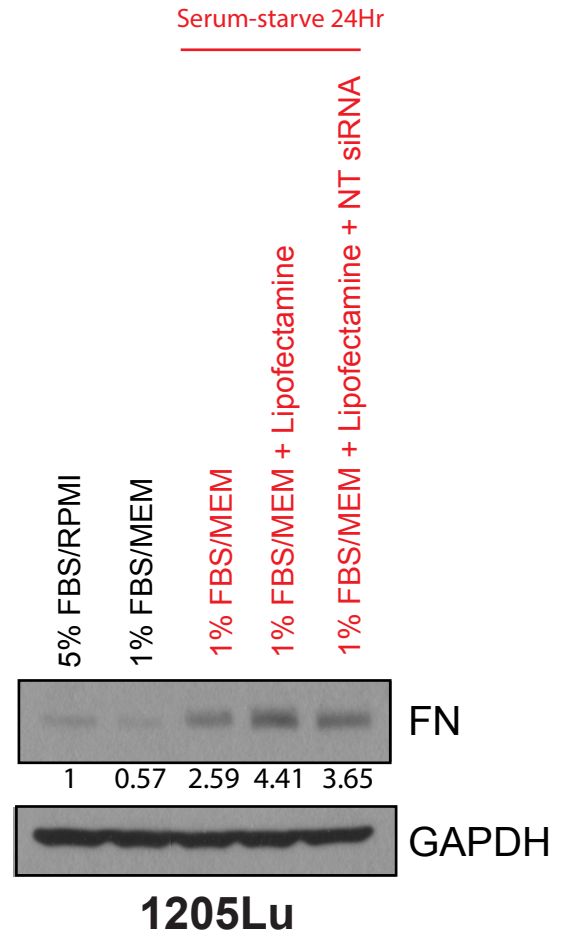
WM164 PTEN siRNA + 3 μ M vemurafenib



Supplementary Figure 13. Close-up image of immunofluorescent staining of FN (yellow), actin (Phalloidin, red), and the nucleus (DAPI, blue) showing extracellular FN deposition in WM164 following a siRNA-mediated knockdown of PTEN and 48-hour treatment with 3 μ M vemurafenib.



Supplementary Figure 14. Integrin/FN signaling is required for melanoma cell survival on therapy. **A:** siRNA knockdown of FN enhances vemurafenib mediated cell death. 1205Lu melanoma cells were transfected with three individual siRNAs and an siRNA pool targeting FN followed by treatment with vemurafenib (3 μ M, 72 hours). TMRM staining was measured by flow cytometry. **B:** Knockdown of α 5 and β 1 integrin enhance vemurafenib-induced (3 μ M, 48 hrs.) apoptosis in 1205Lu cells. TMRM staining was measured by flow cytometry. **C:** Acid stress induced FN expression in BRAFV600E/PTEN- melanoma cell lines. 1205Lu melanoma cell line was grown in either normal (pH 7.4) or mildly acidic (pH6.7) media for 8-72 hours and Western blotting was used to show increased FN expression in cells cultured in mildly acidic media. **D:** Immunofluorescence showing increased FN expression (yellow) following treatment with acidic media as in (C).

A**B**

Supplementary Figure 15. A: Quantification of Mcl-1 levels with vemurafenib treatment and integrin knockdown using LC-MRM. **B:** Western Blot shows induction of FN in response to serum starvation and lipofectamine. The cells were plated and allowed to attach overnight. They were then transfected in serum-free MEM with lipofectamine (1:200 final dilution) for 24 hours, after which FBS was added to final concentration of 1% for an additional 48 hours.