

Supplementary Table S2. 993 known targets and 12 predicted targets.

No.	Gene Name	Protein Name	No. Drugs	Activator	Inhibitor	Dual-modulator
Known Targets						
1	NR1H2	Nuclear receptor subfamily 1 group I member 2	17	dexamethasone, piperine, fenofibrate, tamoxifen, genistein, spironolactone, resveratrol, mifepristone, nifedipine, pregnenolone, erlotinib, carbamazepine, quercetin, afimoxifene	estradiol, clotrimazole	paclitaxel
2	CACNB2	Voltage-dependent L-type calcium channel subunit beta-2	11	spironolactone, lacidipine, felodipine, isradipine, nilvadipine, nicardipine, nifedipine, nitrendipine, dronedarone, verapamil	n.a.	nimodipine
3	CACNA1D	Voltage-dependent L-type calcium channel subunit alpha-1D	11	spironolactone, lacidipine, felodipine, isradipine, nilvadipine, nicardipine, nifedipine, nitrendipine, dronedarone, verapamil	n.a.	nimodipine
4	KCNH2	Potassium voltage-gated channel subfamily H member 2	14	sertindole, pimozone, tamoxifen, chlorpromazine, prazosin, fluoxetine, amiodarone, procainamide, dronedarone, verapamil, doxazosin	clarithromycin, erythromycin	thioridazine
5	CALM1	Calmodulin	11	loperamide, felodipine, flunarizine, fluphenazine, nicardipine, chlorpromazine, nifedipine, pimozone	n.a.	melatonin, calcium, trifluoperazine
6	KIT	Mast/stem cell growth factor receptor Kit	9	nilotinib, sunitinib, regorafenib, pazopanib, sorafenib, ponatinib, dasatinib, imatinib	fostamatinib	n.a.
7	CACNA1C	Voltage-dependent L-type calcium channel subunit alpha-1C	12	spironolactone, lacidipine, felodipine, isradipine, nilvadipine, nicardipine, nifedipine, nitrendipine, dronedarone, verapamil	n.a.	nimodipine, calcium
8	CACNA1S	Voltage-dependent L-type calcium channel subunit alpha-1S	10	spironolactone, lacidipine, felodipine, isradipine, nilvadipine, nifedipine, nitrendipine, dronedarone, verapamil	n.a.	nimodipine
9	PDGFRB	Platelet-derived growth factor receptor beta	7	sunitinib, regorafenib, pazopanib, sorafenib, dasatinib, imatinib	fostamatinib	n.a.
10	MTOR	Serine/threonine-protein kinase mTOR	6	x1765, everolimus, temsirolimus, ridaforolimus, sirolimus	fostamatinib	n.a.
11	CACNA2D1	Voltage-dependent calcium channel subunit alpha-2/delta-1	7	spironolactone, nilvadipine, felodipine, isradipine, nicardipine, nifedipine, nitrendipine	n.a.	n.a.
12	PDGFRA	Platelet-derived growth factor receptor alpha	6	ponatinib, pazopanib, regorafenib, sunitinib, imatinib	fostamatinib	n.a.
13	CACNA1H	Voltage-dependent T-type calcium channel subunit alpha-1H	7	spironolactone, felodipine, flunarizine, isradipine, amiodarone, nifedipine, nitrendipine	n.a.	n.a.
14	AHR	Aryl hydrocarbon receptor	7	atorvastatin, cantharidin, quercetin, resveratrol, omeprazole	n.a.	nimodipine, emodin
15	ADRA1A	Alpha-1A adrenergic receptor	16	sertindole, doxazosin, nicardipine, lamotrigine, chlorpromazine, prazosin, clonidine, citalopram, cabergoline, olanzapine, dronedarone, verapamil, nortriptyline, maprotiline	n.a.	thioridazine, trifluoperazine
16	CACNA2D2	Voltage-dependent calcium channel subunit alpha-2/delta-2	5	spironolactone, felodipine, isradipine, amiodarone, nitrendipine	n.a.	n.a.
17	TUBB	Tubulin beta chain	6	colchicine, vinorelbine, copper, vinblastine, arteminol	n.a.	vincristine
18	SHBG	Sex hormone-binding globulin	7	spironolactone, tamoxifen, masoprocol, zinc, genistein, quercetin, afimoxifene	n.a.	n.a.
19	CBR1	Carbonyl reductase [NADPH] 1	4	quercetin, resveratrol, curcumin	rutin	n.a.
20	ADRA1B	Alpha-1B adrenergic receptor	13	sertindole, doxazosin, nicardipine, chlorpromazine, prazosin, clonidine, cabergoline, olanzapine, dronedarone, verapamil, nortriptyline, maprotiline	n.a.	thioridazine
21	ABL1	Tyrosine-protein kinase ABL1	6	ponatinib, nilotinib, regorafenib, dasatinib, imatinib	fostamatinib	n.a.
22	CACNB1	Voltage-dependent L-type calcium channel subunit beta-1	6	spironolactone, lacidipine, dronedarone, azelnidipine, verapamil	n.a.	nimodipine
23	FRK	Tyrosine-protein kinase FRK	3	regorafenib, dasatinib	fostamatinib	n.a.
24	HDAC2	Histone deacetylase 2	5	theophylline, valproic acid, panobinostat, mocetinostat	n.a.	vorinostat
25	ENO1	Alpha-enolase	3	zinc, copper, arteminol	n.a.	n.a.

26	S100A8	Protein S100-A8	3	zinc, copper	n.a.	calcium
27	PRDX1	Peroxisredoxin-1	3	zinc, copper, arteminol	n.a.	n.a.
28	ADRA1D	Alpha-1D adrenergic receptor	11	sertindole, doxazosin, nicardipine, chlorpromazine, prazosin, clonidine, cabergoline, dronedarone, verapamil, nortriptyline, maprotiline	n.a.	n.a.
29	FGFR2	Fibroblast growth factor receptor 2	5	ponatinib, thalidomide, regorafenib	heparin, fostamatinib	n.a.
30	FGFR1	Fibroblast growth factor receptor 1	5	ponatinib, sorafenib, regorafenib	heparin, fostamatinib	n.a.
31	FLT3	Receptor-type tyrosine-protein kinase FLT3	5	ponatinib, sorafenib, sunitinib, quizartinib	fostamatinib	n.a.
32	FLT4	Vascular endothelial growth factor receptor 3	5	pazopanib, sorafenib, regorafenib, sunitinib	fostamatinib	n.a.
33	TNNC1	Troponin C, slow skeletal and cardiac muscles	4	felodipine, levosimendan	n.a.	calcium, trifluoperazine
34	RET	Proto-oncogene tyrosine-protein kinase receptor Ret	4	ponatinib, sorafenib, regorafenib	fostamatinib	n.a.
35	DRD2	D(2) dopamine receptor	14	sertindole, pimozone, triflupromazine, fluspirilene, fluphenazine, lamotrigine, chlorpromazine, memantine, cabergoline, olanzapine, nortriptyline, maprotiline	n.a.	thioridazine, trifluoperazine
36	CACNB4	Voltage-dependent L-type calcium channel subunit beta-4	5	spironolactone, lacidipine, dronedarone, verapamil	n.a.	nimodipine
37	CACNB3	Voltage-dependent L-type calcium channel subunit beta-3	5	spironolactone, lacidipine, dronedarone, verapamil	n.a.	nimodipine
38	S100A2	Protein S100-A2	3	zinc, copper	n.a.	calcium
39	HSPA8	Heat shock cognate 71 kDa protein	3	copper, dasatinib, arteminol	n.a.	n.a.
40	P4HB	Protein disulfide-isomerase	3	zinc, copper, arteminol	n.a.	n.a.
41	EEF1A1	Elongation factor 1-alpha 1	3	zinc, copper, arteminol	n.a.	n.a.
42	PIK3CG	Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit gamma isoform	5	xl765, quercetin	ly-294002, fostamatinib, wortmannin	n.a.
43	NTRK1	High affinity nerve growth factor receptor	3	regorafenib, imatinib	fostamatinib	n.a.
44	EPHA2	Ephrin type-A receptor 2	3	regorafenib, dasatinib	fostamatinib	n.a.
45	PRKAB1	5'-AMP-activated protein kinase subunit beta-1	3	metformin, acetylsalicylic acid	fostamatinib	n.a.
46	HMGCR	3-hydroxy-3-methylglutaryl-coenzyme A reductase	5	simvastatin, fluvastatin, atorvastatin, mevastatin, rosuvastatin	n.a.	n.a.
47	PPARD	Peroxisome proliferator-activated receptor delta	6	sulindac, valproic acid, fenofibrate, troglitazone, gw-501516	n.a.	rosiglitazone
48	BRAF	Serine/threonine-protein kinase B-raf	4	vemurafenib, sorafenib, regorafenib	fostamatinib	n.a.
49	HDAC1	Histone deacetylase 1	4	zinc, panobinostat, mocetinostat	n.a.	vorinostat
50	FLT1	Vascular endothelial growth factor receptor 1	5	pazopanib, sorafenib, regorafenib, sunitinib	fostamatinib	n.a.
51	CACNA1F	Voltage-dependent L-type calcium channel subunit alpha-1F	5	spironolactone, lacidipine, dronedarone, verapamil	n.a.	nimodipine
52	ADORA2A	Adenosine receptor A2a	5	theophylline, pentoxifylline, lamotrigine	mefloquine	adenosine
53	HDAC3	Histone deacetylase 3	3	panobinostat, mocetinostat	n.a.	vorinostat
54	AURKB	Aurora kinase B	3	at9283, hesperidin	fostamatinib	n.a.
55	PPARG	Peroxisome proliferator-activated receptor gamma	10	fenofibrate, sulfasalazine, valproic acid, resveratrol, amiodarone, telmisartan, troglitazone, curcumin	n.a.	indomethacin, rosiglitazone
56	KCNJ11	ATP-sensitive inward rectifier potassium channel 11	4	diazoxide, levosimendan, verapamil, glyburide	n.a.	n.a.
57	ADRB1	Beta-1 adrenergic receptor	10	lamotrigine, spermidine, amiodarone, cabergoline, salbutamol, olanzapine, dronedarone, nortriptyline	propranolol, esmolol	n.a.
58	UGT3A1	UDP-glucuronosyltransferase 3A1	2	quercetin, kaempferol	n.a.	n.a.
59	RPS6KA1	Ribosomal protein S6 kinase alpha-1	2	purvalanol a	fostamatinib	n.a.
60	APOBR	Apolipoprotein B receptor	2	zinc, copper	n.a.	n.a.
61	APOA1	Apolipoprotein A-I	2	zinc, copper	n.a.	n.a.
62	SFPQ	Splicing factor, proline- and glutamine-rich	2	copper, arteminol	n.a.	n.a.
63	ADRA2A	Alpha-2A adrenergic receptor	11	rilmidenidine, lamotrigine, chlorpromazine, prazosin, clonidine, cabergoline,	n.a.	dexmedetomidine

				olanzapine, dronedarone, nortriptyline, maprotiline		
64	KRT1	Keratin, type II cytoskeletal 1	2	zinc, copper	n.a.	n.a.
65	IGFALS	Insulin-like growth factor-binding protein complex acid labile subunit	2	zinc, copper	n.a.	n.a.
66	DDR1	Epithelial discoidin domain-containing receptor 1	2	imatinib	fostamatinib	n.a.
67	CFH	Complement factor H	2	zinc, copper	n.a.	n.a.
68	APOE	Apolipoprotein E	2	zinc, copper	n.a.	n.a.
69	C8B	Complement component C8 beta chain	2	zinc, copper	n.a.	n.a.
70	C4BPA	C4b-binding protein alpha chain	2	zinc, copper	n.a.	n.a.
71	KNG1	Kininogen-1	2	zinc, copper	n.a.	n.a.
72	APOA2	Apolipoprotein A-II	2	zinc, copper	n.a.	n.a.
73	CAST	Calpastatin	2	artenimol	n.a.	calcium
74	SNCA	Alpha-synuclein	2	resveratrol, copper	n.a.	n.a.
75	YES1	Tyrosine-protein kinase Yes	2	dasatinib	fostamatinib	n.a.
76	HTR2A	5-hydroxytryptamine receptor 2A	12	sertindole, fluspirilene, paroxetine, ketanserin, fluphenazine, lamotrigine, chlorpromazine, cabergoline, olanzapine, nortriptyline, maprotiline	n.a.	thioridazine
77	NR1D2	Nuclear receptor subfamily 1 group D member 2	2	n.a.	sr-9009, sr-9011	n.a.
78	NR1D1	Nuclear receptor subfamily 1 group D member 1	2	n.a.	sr-9009, sr-9011	n.a.
79	EGFR	Epidermal growth factor receptor	6	erlotinib, lapatinib, afatinib, alvocidib, gefitinib	fostamatinib	n.a.
80	KHSRP	Far upstream element-binding protein 2	2	resveratrol, artenimol	n.a.	n.a.
81	APLP1	Amyloid-like protein 1	2	zinc, copper	n.a.	n.a.
82	PDIA3	Protein disulfide-isomerase A3	2	zinc, copper	n.a.	n.a.
83	IGKV3-20	Ig kappa chain V-III region GOL	2	zinc, copper	n.a.	n.a.
84	PPARA	Peroxisome proliferator-activated receptor alpha	7	resveratrol, fenofibrate, valproic acid, troglitazone, gw-501516	n.a.	indomethacin, rosiglitazone
85	ESRRA	Steroid hormone receptor ERR1	3	genistein, troglitazone, afimoxifene	n.a.	n.a.
86	FGFR3	Fibroblast growth factor receptor 3	3	ponatinib, pazopanib	fostamatinib	n.a.
87	DSP	Desmoplakin	2	zinc, artenimol	n.a.	n.a.
88	SERPINA4	Kallistatin	2	zinc, copper	n.a.	n.a.
89	KRT9	Keratin, type I cytoskeletal 9	2	zinc, copper	n.a.	n.a.
90	KRT10	Keratin, type I cytoskeletal 10	2	zinc, copper	n.a.	n.a.
91	ITIH2	Inter-alpha-trypsin inhibitor heavy chain H2	2	zinc, copper	n.a.	n.a.
92	HPR	Haptoglobin-related protein	2	zinc, copper	n.a.	n.a.
93	CHRM4	Muscarinic acetylcholine receptor M4	8	paroxetine, nicardipine, lamotrigine, olanzapine, maprotiline, nortriptyline, acetylcholine	atropine	n.a.
94	CLU	Clusterin	2	zinc, copper	n.a.	n.a.
95	CFI	Complement factor I	2	zinc, copper	n.a.	n.a.
96	APOA4	Apolipoprotein A-IV	2	zinc, copper	n.a.	n.a.
97	AHSG	Alpha-2-HS-glycoprotein	2	zinc, copper	n.a.	n.a.
98	A1BG	Alpha-1B-glycoprotein	2	zinc, copper	n.a.	n.a.
99	S100A9	Protein S100-A9	2	zinc	n.a.	calcium
100	ATP5A1	ATP synthase subunit alpha, mitochondrial	3	piceatannol, quercetin, artenimol	n.a.	n.a.
101	LYN	Tyrosine-protein kinase Lyn	3	ponatinib, dasatinib	fostamatinib	n.a.
102	TFF1	Trefoil factor 1	2	raloxifene, afimoxifene	n.a.	n.a.
103	HTR2C	5-hydroxytryptamine receptor 2C	9	sertindole, fluphenazine, chlorpromazine, fluoxetine, citalopram, cabergoline, olanzapine, nortriptyline, maprotiline	n.a.	n.a.
104	TEK	Angiopoietin-1 receptor	3	ponatinib, regorafenib	fostamatinib	n.a.
105	PGAM1	Phosphoglycerate mutase 1	2	copper, artenimol	n.a.	n.a.

106	HNRNPA2B1	Heterogeneous nuclear ribonucleoproteins A2/B1	2	copper, arteminol	n.a.	n.a.
107	CYP1B1	Cytochrome P450 1B1	3	genistein, quercetin	n.a.	2-methoxyestradiol
108	ZAK	Mitogen-activated protein kinase kinase kinase MLT	2	dasatinib	fostamatinib	n.a.
109	CSF1R	Macrophage colony-stimulating factor 1 receptor	3	sunitinib, imatinib	fostamatinib	n.a.
110	ESRRG	Estrogen-related receptor gamma	4	tamoxifen, troglitazone, afimoxifene	estradiol	n.a.
111	APP	Amyloid beta A4 protein	4	zinc, resveratrol, copper, deferoxamine	n.a.	n.a.
112	EPHA5	Ephrin type-A receptor 5	2	dasatinib	fostamatinib	n.a.
113	ATP4A	Potassium-transporting ATPase alpha chain 1	3	omeprazole	pantoprazole	esomeprazole
114	FGR	Tyrosine-protein kinase Fgr	2	dasatinib	fostamatinib	n.a.
115	CLIC1	Chloride intracellular channel protein 1	2	copper, arteminol	n.a.	n.a.
116	ACTG1	Actin, cytoplasmic 2	2	copper, arteminol	n.a.	n.a.
117	PRKAG3	5'-AMP-activated protein kinase subunit gamma-3	2	acetylsalicylic acid	fostamatinib	n.a.
118	PRKAG2	5'-AMP-activated protein kinase subunit gamma-2	2	acetylsalicylic acid	fostamatinib	n.a.
119	PRKAG1	5'-AMP-activated protein kinase subunit gamma-1	2	acetylsalicylic acid	fostamatinib	n.a.
120	PRKAA2	5'-AMP-activated protein kinase catalytic subunit alpha-2	2	acetylsalicylic acid	fostamatinib	n.a.
121	PRKCG	Protein kinase C gamma type	2	tamoxifen	fostamatinib	n.a.
122	RPS6KA3	Ribosomal protein S6 kinase alpha-3	2	acetylsalicylic acid	fostamatinib	n.a.
123	DDR2	Discoidin domain-containing receptor 2	2	regorafenib	fostamatinib	n.a.
124	CHRM1	Muscarinic acetylcholine receptor M1	11	triflupromazine, paroxetine, nicardipine, lamotrigine, chlorpromazine, citalopram, olanzapine, maprotiline, nortriptyline, acetylcholine	atropine	n.a.
125	KDR	Vascular endothelial growth factor receptor 2	6	ponatinib, pazopanib, sorafenib, regorafenib, sunitinib	fostamatinib	n.a.
126	SERPINA6	Corticosteroid-binding globulin	2	zinc, copper	n.a.	n.a.
127	PGLYRP2	N-acetylmuramoyl-L-alanine amidase	2	zinc, copper	n.a.	n.a.
128	CACNA1A	Voltage-dependent P/Q-type calcium channel subunit alpha-1A	3	spironolactone, loperamide, verapamil	n.a.	n.a.
129	ORM2	Alpha-1-acid glycoprotein 2	3	chlorpromazine, zinc, thalidomide	n.a.	n.a.
130	SCN2A	Sodium channel protein type 2 subunit alpha	3	valproic acid, metoprolol, lamotrigine	n.a.	n.a.
131	TOP1MT	DNA topoisomerase I, mitochondrial	2	topotecan	irinotecan	n.a.
132	RRM1	Ribonucleoside-diphosphate reductase large subunit	3	hydroxyurea, gemcitabine, clofarabine	n.a.	n.a.
133	RAF1	RAF proto-oncogene serine/threonine-protein kinase	3	sorafenib, regorafenib	fostamatinib	n.a.
134	S100A4	Protein S100-A4	2	copper	n.a.	trifluoperazine
135	STK17B	Serine/threonine-protein kinase 17B	2	quercetin	fostamatinib	n.a.
136	ALOX5	Arachidonate 5-lipoxygenase	5	resveratrol, sulfasalazine, masoprocol	rhein, fostamatinib	n.a.
137	CHRM5	Muscarinic acetylcholine receptor M5	7	paroxetine, nicardipine, lamotrigine, olanzapine, nortriptyline, maprotiline	atropine	n.a.
138	PTGS1	Prostaglandin G/H synthase 1	9	meloxicam, sulfasalazine, acetylsalicylic acid, naproxen, sulindac, minoxidil, resveratrol, salicylic acid	n.a.	indomethacin
139	TOP2A	DNA topoisomerase 2-alpha	6	etoposide, idarubicin, doxorubicin, genistein, dactinomycin, daunorubicin	n.a.	n.a.
140	GSN	Gelsolin	2	zinc, copper	n.a.	n.a.
141	CFL1	Cofilin-1	2	copper, arteminol	n.a.	n.a.
142	PRKCI	Protein kinase C iota type	2	tamoxifen	fostamatinib	n.a.
143	TNNC2	Troponin C, skeletal muscle	2	felodipine	n.a.	calcium
144	MAP4	Microtubule-associated protein 4	2	arteminol	n.a.	paclitaxel
145	PRKCE	Protein kinase C epsilon type	2	tamoxifen	fostamatinib	n.a.
146	BIRC5	Baculoviral IAP repeat-containing protein 5	2	reserpine	n.a.	berberine
147	PSMB5	Proteasome subunit beta type-5	2	carfilzomib	n.a.	bortezomib

148	ADORA1	Adenosine receptor A1	4	theophylline, pentoxifylline, lamotrigine	n.a.	adenosine
149	PTGS2	Prostaglandin G/H synthase 2	9	meloxicam, sulfasalazine, acetylsalicylic acid, naproxen, sulindac, resveratrol, thalidomide, salicylic acid	n.a.	indomethacin
150	PSMB1	Proteasome subunit beta type-1	2	carfilzomib	n.a.	bortezomib
151	C4B	Complement C4-B	2	zinc, copper	n.a.	n.a.
152	ITK	Tyrosine-protein kinase ITK/TSK	2	pazopanib	fostamatinib	n.a.
153	SLC29A1	Equilibrative nucleoside transporter 1	2	troglitazone	fostamatinib	n.a.
154	VTN	Vitronectin	2	zinc, copper	n.a.	n.a.
155	AGT	Angiotensinogen	2	zinc, copper	n.a.	n.a.
156	PDE5A	cGMP-specific 3',5'-cyclic phosphodiesterase	4	theophylline, pentoxifylline	sildenafil, fostamatinib	n.a.
157	PARP1	Poly [ADP-ribose] polymerase 1	4	veliparib, theophylline, olaparib, zinc	n.a.	n.a.
158	ACSL4	Long-chain-fatty-acid--CoA ligase 4	2	troglitazone	n.a.	rosiglitazone
159	PON1	Serum paraoxonase/arylesterase 1	2	zinc, copper	n.a.	n.a.
160	HDAC9	Histone deacetylase 9	2	valproic acid, panobinostat	n.a.	n.a.
161	FYN	Tyrosine-protein kinase Fyn	2	dasatinib	fostamatinib	n.a.
162	PRKAB2	5'-AMP-activated protein kinase subunit beta-2	2	acetylsalicylic acid	fostamatinib	n.a.
163	KRT2	Keratin, type II cytoskeletal 2 epidermal	2	zinc, copper	n.a.	n.a.
164	PPAT	Amidophosphoribosyltransferase	2	mercaptopurine, dasatinib	n.a.	n.a.
165	CACNG1	Voltage-dependent calcium channel gamma-1 subunit	3	spironolactone, nitrendipine, fluspirilene	n.a.	n.a.
166	IKBKB	Inhibitor of nuclear factor kappa-B kinase subunit beta	3	sulfasalazine, acetylsalicylic acid	fostamatinib	n.a.
167	TTR	Transthyretin	2	zinc, copper	n.a.	n.a.
168	ERBB4	Receptor tyrosine-protein kinase erbB-4	2	afatinib	fostamatinib	n.a.
169	BCR	Breakpoint cluster region protein	2	ponatinib, dasatinib	n.a.	n.a.
170	AKT1	RAC-alpha serine/threonine-protein kinase	3	perifosine, genistein, resveratrol	n.a.	n.a.
171	CHRM3	Muscarinic acetylcholine receptor M3	9	paroxetine, nicardipine, lamotrigine, chlorpromazine, olanzapine, maprotiline, nortriptyline, acetylcholine	atropine	n.a.
172	CHRM2	Muscarinic acetylcholine receptor M2	9	triflupromazine, paroxetine, nicardipine, lamotrigine, olanzapine, maprotiline, nortriptyline, acetylcholine	atropine	n.a.
173	HDAC8	Histone deacetylase 8	3	zinc, panobinostat	n.a.	vorinostat
174	TOP2B	DNA topoisomerase 2-beta	3	daunorubicin, dactinomycin, etoposide	n.a.	n.a.
175	RYR1	Ryanodine receptor 1	2	dantrolene, tetracaine	n.a.	n.a.
176	PARP2	Poly [ADP-ribose] polymerase 2	2	veliparib, olaparib	n.a.	n.a.
177	SLCO1B3	Solute carrier organic anion transporter family member 1B3	2	n.a.	clarithromycin	ginsenoside rb1
178	CACNA2D3	Voltage-dependent calcium channel subunit alpha-2/delta-3	2	spironolactone, nilvadipine	n.a.	n.a.
179	PRKCD	Protein kinase C delta type	2	tamoxifen	fostamatinib	n.a.
180	CSK	Tyrosine-protein kinase CSK	2	dasatinib	fostamatinib	n.a.
181	FGFR4	Fibroblast growth factor receptor 4	2	ponatinib	heparin	n.a.
182	C5	Complement C5	2	zinc, copper	n.a.	n.a.
183	BDKRB1	B1 bradykinin receptor	2	zinc	enalaprilat	n.a.
184	PDCD6	Programmed cell death protein 6	2	zinc	n.a.	calcium
185	PGK1	Phosphoglycerate kinase 1	2	copper, arteminol	n.a.	n.a.
186	ADRA2B	Alpha-2B adrenergic receptor	8	chlorpromazine, prazosin, clonidine, cabergoline, olanzapine, dronedarone, nortriptyline, maprotiline	n.a.	n.a.
187	GLRA1	Glycine receptor subunit alpha-1	4	zinc, taurine, copper	atropine	n.a.
188	TUBB1	Tubulin beta-1 chain	3	cabazitaxel, colchicine	n.a.	paclitaxel
189	ERBB2	Receptor tyrosine-protein kinase erbB-2	3	lapatinib, afatinib	fostamatinib	n.a.

190	SCN5A	Sodium channel protein type 5 subunit alpha	5	carbamazepine, verapamil, valproic acid, ranolazine, procainamide	n.a.	n.a.
191	CEBPB	CCAAT/enhancer-binding protein beta	1	quercetin	n.a.	n.a.
192	NNMT	Nicotinamide N-methyltransferase	1	niacin	n.a.	n.a.
193	MAP2K3	Dual specificity mitogen-activated protein kinase 3	1	n.a.	fostamatinib	n.a.
194	LRRK2	Leucine-rich repeat serine/threonine-protein kinase 2	1	n.a.	fostamatinib	n.a.
195	HIST1H1E	Histone H1.4	1	copper	n.a.	n.a.
196	IGHA1	Ig alpha-1 chain C region	1	zinc	n.a.	n.a.
197	PZP	Pregnancy zone protein	1	zinc	n.a.	n.a.
198	SERPIND1	Heparin cofactor 2	2	zinc, copper	n.a.	n.a.
199	ROCK2	Rho-associated protein kinase 2	2	fasudil	fostamatinib	n.a.
200	RIOK2	Serine/threonine-protein kinase RIO2	1	n.a.	fostamatinib	n.a.
201	ATP1A2	Sodium/potassium-transporting ATPase subunit alpha-2	1	ouabain	n.a.	n.a.
202	ATP5C1	ATP synthase subunit gamma, mitochondrial	2	piceatannol, quercetin	n.a.	n.a.
203	HSPA2	Heat shock-related 70 kDa protein 2	1	quercetin	n.a.	n.a.
204	TUBG1	Tubulin gamma-1 chain	1	vinblastine	n.a.	n.a.
205	TUBE1	Tubulin epsilon chain	1	vinblastine	n.a.	n.a.
206	C3	Complement C3	2	zinc, copper	n.a.	n.a.
207	TUBD1	Tubulin delta chain	1	vinblastine	n.a.	n.a.
208	ABCC5	Multidrug resistance-associated protein 5	1	curcumin	n.a.	n.a.
209	BCR/ABL fusion	BCR/ABL fusion protein isoform X9	1	imatinib	n.a.	n.a.
210	TP53	Cellular tumor antigen p53	2	zinc, acetylsalicylic acid	n.a.	n.a.
211	EPX	Eosinophil peroxidase	1	n.a.	n.a.	melatonin
212	DRD1	D(1A) dopamine receptor	7	triflupromazine, fluphenazine, lamotrigine, chlorpromazine, cabergoline, olanzapine	n.a.	thioridazine
213	RORB	Nuclear receptor ROR-beta	1	n.a.	n.a.	melatonin
214	KCNH7	Potassium voltage-gated channel subfamily H member 7	2	prazosin, doxazosin	n.a.	n.a.
215	ASMT	Acetylserotonin O-methyltransferase	1	n.a.	n.a.	melatonin
216	CYP11B2	Cytochrome P450 11B2, mitochondrial	1	spironolactone	n.a.	n.a.
217	UGT1A1	UDP-glucuronosyltransferase 1-1	1	n.a.	fostamatinib	n.a.
218	HIF1A	Hypoxia-inducible factor 1-alpha	2	n.a.	px-478	2-methoxyestradiol
219	CPN2	Carboxypeptidase N subunit 2	1	zinc	n.a.	n.a.
220	CPN1	Carboxypeptidase N catalytic chain	1	zinc	n.a.	n.a.
221	HCK	Tyrosine-protein kinase HCK	2	quercetin	fostamatinib	n.a.
222	CASP8	Caspase-8	1	bardoxolone	n.a.	n.a.
223	APOC2	Apolipoprotein C-II	1	copper	n.a.	n.a.
224	PRKCZ	Protein kinase C zeta type	1	tamoxifen	n.a.	n.a.
225	PRKCQ	Protein kinase C theta type	2	tamoxifen	fostamatinib	n.a.
226	EBP	3-beta-hydroxysteroid-Delta(8),Delta(7)-isomerase	1	tamoxifen	n.a.	n.a.
227	PHB2	Prohibitin-2	1	capsaicin	n.a.	n.a.
228	NIM1K	Serine/threonine-protein kinase NIM1	1	n.a.	fostamatinib	n.a.
229	APCS	Serum amyloid P-component	2	zinc, copper	n.a.	n.a.
230	RIC3	Protein RIC-3	1	theophylline	n.a.	n.a.
231	NQO2	Ribosyldihyronicotinamide dehydrogenase [quinone]	3	quercetin, resveratrol	n.a.	melatonin
232	PDE3A	cGMP-inhibited 3',5'-cyclic phosphodiesterase A	3	theophylline, cilostazol, levosimendan	n.a.	n.a.
233	AFM	Afamin	1	copper	n.a.	n.a.
234	TLR9	Toll-like receptor 9	2	hydroxychloroquine	chloroquine	n.a.

235	CPNE1	Copine-1	1	theophylline	n.a.	n.a.
236	ZYX	Zyxin	1	artemimol	n.a.	n.a.
237	SRSF4	Serine/arginine-rich splicing factor 4	1	artemimol	n.a.	n.a.
238	CP	Ceruloplasmin	2	zinc	n.a.	calcium
239	RPS28	40S ribosomal protein S28	1	artemimol	n.a.	n.a.
240	RPS19	40S ribosomal protein S19	1	artemimol	n.a.	n.a.
241	PSMB8	Proteasome subunit beta type-8	1	carfilzomib	n.a.	n.a.
242	HSPA5	78 kDa glucose-regulated protein	2	copper, acetylsalicylic acid	n.a.	n.a.
243	RPS17	40S ribosomal protein S17	1	artemimol	n.a.	n.a.
244	RPL35	60S ribosomal protein L35	1	artemimol	n.a.	n.a.
245	PTK2B	Protein-tyrosine kinase 2-beta	2	genistein	fostamatinib	n.a.
246	CDK8	Cyclin-dependent kinase 8	1	alvocidib	n.a.	n.a.
247	NR4A3	Nuclear receptor subfamily 4 group A member 3	1	dasatinib	n.a.	n.a.
248	IQGAP1	Ras GTPase-activating-like protein IQGAP1	1	artemimol	n.a.	n.a.
249	PRKAA1	5'-AMP-activated protein kinase catalytic subunit alpha-1	2	acetylsalicylic acid	fostamatinib	n.a.
250	HP1BP3	Heterochromatin protein 1-binding protein 3	1	artemimol	n.a.	n.a.
251	HNRNPD	Heterogeneous nuclear ribonucleoprotein D0	1	artemimol	n.a.	n.a.
252	RPS2	40S ribosomal protein S2	1	copper	n.a.	n.a.
253	MTNR1A	Melatonin receptor type 1A	2	resveratrol	n.a.	melatonin
254	CSRP1	Cysteine and glycine-rich protein 1	1	artemimol	n.a.	n.a.
255	KRT5	Keratin, type II cytoskeletal 5	1	zinc	n.a.	n.a.
256	KCNH6	Potassium voltage-gated channel subfamily H member 6	2	prazosin, doxazosin	n.a.	n.a.
257	MAP4K4	Mitogen-activated protein kinase kinase kinase 4	1	n.a.	fostamatinib	n.a.
258	EIF2AK2	Interferon-induced, double-stranded RNA-activated protein kinase	1	n.a.	fostamatinib	n.a.
259	SIK2	Serine/threonine-protein kinase SIK2	1	n.a.	fostamatinib	n.a.
260	ABL2	Abelson tyrosine-protein kinase 2	2	dasatinib	fostamatinib	n.a.
261	SEMG1	Semenogelin-1	1	zinc	n.a.	n.a.
262	ACAA1	3-ketoacyl-CoA thiolase, peroxisomal	1	trimetazidine	n.a.	n.a.
263	LUM	Lumican	1	copper	n.a.	n.a.
264	ESR1	Estrogen receptor	10	tamoxifen, zinc, genistein, resveratrol, fulvestrant, quercetin, raloxifene, afimoxifene	estradiol	melatonin
265	ADORA3	Adenosine receptor A3	2	n.a.	fostamatinib	adenosine
266	LRG1	Leucine-rich alpha-2-glycoprotein	1	copper	n.a.	n.a.
267	PEBP1	Phosphatidylethanolamine-binding protein 1	1	copper	n.a.	n.a.
268	MTNR1B	Melatonin receptor type 1B	2	resveratrol	n.a.	melatonin
269	C9	Complement component C9	1	copper	n.a.	n.a.
270	NT5E	5'-nucleotidase	1	pentoxifylline	n.a.	n.a.
271	PLCL1	Inactive phospholipase C-like protein 1	1	n.a.	quinacrine	n.a.
272	ADORA2B	Adenosine receptor A2b	2	theophylline	n.a.	adenosine
273	PLA2G6	85/88 kDa calcium-independent phospholipase A2	1	n.a.	quinacrine	n.a.
274	ITGB2	Integrin beta-2	1	simvastatin	n.a.	n.a.
275	PARK7	Protein deglycase DJ-1	1	copper	n.a.	n.a.
276	PDE1A	Calcium/calmodulin-dependent 3',5'-cyclic nucleotide phosphodiesterase 1A	2	felodipine, nicardipine	n.a.	n.a.
277	IMPA2	Inositol monophosphatase 2	1	n.a.	n.a.	lithium
278	IAPP	Islet amyloid polypeptide	1	copper	n.a.	n.a.
279	SNRK	SNF-related serine/threonine-protein kinase	1	n.a.	fostamatinib	n.a.

280	COMP	Cartilage oligomeric matrix protein	1	n.a.	n.a.	calcium
281	SF3B3	Splicing factor 3B subunit 3	1	quercetin	n.a.	n.a.
282	STAT5B	Signal transducer and activator of transcription 5B	1	dasatinib	n.a.	n.a.
283	HBA1	Hemoglobin subunit alpha	3	zinc, copper	mefloquine	n.a.
284	STK17A	Serine/threonine-protein kinase 17A	1	n.a.	fostamatinib	n.a.
285	STK16	Serine/threonine-protein kinase 16	1	n.a.	fostamatinib	n.a.
286	SRMS	Tyrosine-protein kinase Srms	1	n.a.	fostamatinib	n.a.
287	SGK3	Serine/threonine-protein kinase Sgk3	1	n.a.	fostamatinib	n.a.
288	SBK3	Uncharacterized serine/threonine-protein kinase SBK3	1	n.a.	fostamatinib	n.a.
289	SBK1	Serine/threonine-protein kinase SBK1	1	n.a.	fostamatinib	n.a.
290	ROS1	Proto-oncogene tyrosine-protein kinase ROS	1	n.a.	fostamatinib	n.a.
291	RIPK4	Receptor-interacting serine/threonine-protein kinase 4	1	n.a.	fostamatinib	n.a.
292	RIPK1	Receptor-interacting serine/threonine-protein kinase 1	1	n.a.	fostamatinib	n.a.
293	RIOK3	Serine/threonine-protein kinase RIO3	1	n.a.	fostamatinib	n.a.
294	RIOK1	Serine/threonine-protein kinase RIO1	1	n.a.	fostamatinib	n.a.
295	PRPF4B	Serine/threonine-protein kinase PRP4 homolog	1	n.a.	fostamatinib	n.a.
296	NR1I3	Nuclear receptor subfamily 1 group I member 3	3	loperamide, resveratrol	clotrimazole	n.a.
297	PRKG2	cGMP-dependent protein kinase 2	1	n.a.	fostamatinib	n.a.
298	PLK3	Serine/threonine-protein kinase PLK3	1	n.a.	fostamatinib	n.a.
299	PLK2	Serine/threonine-protein kinase PLK2	1	n.a.	fostamatinib	n.a.
300	PKN1	Serine/threonine-protein kinase N1	1	n.a.	fostamatinib	n.a.
301	PKMYT1	Membrane-associated tyrosine- and threonine-specific cdc2-inhibitory kinase	1	n.a.	fostamatinib	n.a.
302	PIP4K2C	Phosphatidylinositol 5-phosphate 4-kinase type-2 gamma	1	n.a.	fostamatinib	n.a.
303	PIP4K2B	Phosphatidylinositol 5-phosphate 4-kinase type-2 beta	1	n.a.	fostamatinib	n.a.
304	PIM3	Serine/threonine-protein kinase pim-3	1	n.a.	fostamatinib	n.a.
305	PIK3C2G	Phosphatidylinositol 4-phosphate 3-kinase C2 domain-containing subunit gamma	1	n.a.	fostamatinib	n.a.
306	PAK5	Serine/threonine-protein kinase PAK 5	1	n.a.	fostamatinib	n.a.
307	PAK6	Serine/threonine-protein kinase PAK 6	1	n.a.	fostamatinib	n.a.
308	PAK4	Serine/threonine-protein kinase PAK 4	1	n.a.	fostamatinib	n.a.
309	PAK3	Serine/threonine-protein kinase PAK 3	1	n.a.	fostamatinib	n.a.
310	PAK2	Serine/threonine-protein kinase PAK 2	1	n.a.	fostamatinib	n.a.
311	PAK1	Serine/threonine-protein kinase PAK 1	1	n.a.	fostamatinib	n.a.
312	OXR1	Serine/threonine-protein kinase OSR1	1	n.a.	fostamatinib	n.a.
313	NUAK2	NUAK family SNF1-like kinase 2	1	n.a.	fostamatinib	n.a.
314	NUAK1	NUAK family SNF1-like kinase 1	1	n.a.	fostamatinib	n.a.
315	JAK2	Tyrosine-protein kinase JAK2	2	ruxolitinib	fostamatinib	n.a.
316	PTGDR2	Prostaglandin D2 receptor 2	2	sulindac	n.a.	indomethacin
317	NTRK3	NT-3 growth factor receptor	1	n.a.	fostamatinib	n.a.
318	SERPINE1	Plasminogen activator inhibitor 1	2	copper, troglitazone	n.a.	n.a.
319	NEK9	Serine/threonine-protein kinase Nek9	1	n.a.	fostamatinib	n.a.
320	CALR	Calreticulin	2	copper	n.a.	melatonin
321	NEK5	Serine/threonine-protein kinase Nek5	1	n.a.	fostamatinib	n.a.
322	TUBA1A	Tubulin alpha-1A chain	2	vinblastine, arteminol	n.a.	n.a.
323	NEK4	Serine/threonine-protein kinase Nek4	1	n.a.	fostamatinib	n.a.
324	HSP90B1	Endoplasmic	2	geldanamycin, copper	n.a.	n.a.

325	CDK1	Cyclin-dependent kinase 1	2	alvocidib	fostamatinib	n.a.
326	NEK3	Serine/threonine-protein kinase Nek3	1	n.a.	fostamatinib	n.a.
327	AKR1C3	Aldo-keto reductase family 1 member C3	2	n.a.	rutin	indomethacin
328	NEK1	Serine/threonine-protein kinase Nek1	1	n.a.	fostamatinib	n.a.
329	MYO3A	Myosin-IIIa	1	n.a.	fostamatinib	n.a.
330	MYLK4	Myosin light chain kinase family member 4	1	n.a.	fostamatinib	n.a.
331	MYLK3	Myosin light chain kinase 3	1	n.a.	fostamatinib	n.a.
332	MYLK	Myosin light chain kinase, smooth muscle	1	n.a.	fostamatinib	n.a.
333	MUSK	Muscle, skeletal receptor tyrosine-protein kinase	1	n.a.	fostamatinib	n.a.
334	MST1R	Macrophage-stimulating protein receptor	1	n.a.	fostamatinib	n.a.
335	MKNK2	MAP kinase-interacting serine/threonine-protein kinase 2	1	n.a.	fostamatinib	n.a.
336	MKNK1	MAP kinase-interacting serine/threonine-protein kinase 1	1	n.a.	fostamatinib	n.a.
337	MINK1	Misshapen-like kinase 1	1	n.a.	fostamatinib	n.a.
338	MATK	Megakaryocyte-associated tyrosine-protein kinase	1	n.a.	fostamatinib	n.a.
339	MAST1	Microtubule-associated serine/threonine-protein kinase 1	1	n.a.	fostamatinib	n.a.
340	CLASP1	CLIP-associating protein 1	1	n.a.	fostamatinib	n.a.
341	MARK4	MAP/microtubule affinity-regulating kinase 4	1	n.a.	fostamatinib	n.a.
342	MARK3	MAP/microtubule affinity-regulating kinase 3	1	n.a.	fostamatinib	n.a.
343	MARK2	Serine/threonine-protein kinase MARK2	1	n.a.	fostamatinib	n.a.
344	MARK1	Serine/threonine-protein kinase MARK1	1	n.a.	fostamatinib	n.a.
345	NPC1L1	Niemann-Pick C1-like protein 1	1	ezetimibe	n.a.	n.a.
346	MAPK7	Mitogen-activated protein kinase 7	1	n.a.	fostamatinib	n.a.
347	MAPK15	Mitogen-activated protein kinase 15	1	n.a.	fostamatinib	n.a.
348	MAP4K5	Mitogen-activated protein kinase kinase kinase 5	1	n.a.	fostamatinib	n.a.
349	MAP4K3	Mitogen-activated protein kinase kinase kinase 3	1	n.a.	fostamatinib	n.a.
350	MAP4K2	Mitogen-activated protein kinase kinase kinase 2	1	n.a.	fostamatinib	n.a.
351	MAP4K1	Mitogen-activated protein kinase kinase kinase 1	1	n.a.	fostamatinib	n.a.
352	MAP3K6	Mitogen-activated protein kinase kinase kinase 6	1	n.a.	fostamatinib	n.a.
353	DRD5	D(1B) dopamine receptor	4	chlorpromazine, olanzapine, lamotrigine, cabergoline	n.a.	n.a.
354	ADRB3	Beta-3 adrenergic receptor	4	salbutamol, olanzapine, nortriptyline	propranolol	n.a.
355	MAP3K4	Mitogen-activated protein kinase kinase kinase 4	1	n.a.	fostamatinib	n.a.
356	MAP3K3	Mitogen-activated protein kinase kinase kinase 3	1	n.a.	fostamatinib	n.a.
357	MAP3K15	Mitogen-activated protein kinase kinase kinase 15	1	n.a.	fostamatinib	n.a.
358	MAP3K13	Mitogen-activated protein kinase kinase kinase 13	1	n.a.	fostamatinib	n.a.
359	MAP3K12	Mitogen-activated protein kinase kinase kinase 12	1	n.a.	fostamatinib	n.a.
360	MAP3K11	Mitogen-activated protein kinase kinase kinase 11	1	n.a.	fostamatinib	n.a.
361	MAP3K10	Mitogen-activated protein kinase kinase kinase 10	1	n.a.	fostamatinib	n.a.
362	MAP2K6	Dual specificity mitogen-activated protein kinase kinase 6	1	n.a.	fostamatinib	n.a.
363	MAP2K5	Dual specificity mitogen-activated protein kinase kinase 5	1	n.a.	fostamatinib	n.a.
364	LTK	Leukocyte tyrosine kinase receptor	1	n.a.	fostamatinib	n.a.
365	LIMK2	LIM domain kinase 2	1	n.a.	fostamatinib	n.a.
366	LATS1	Serine/threonine-protein kinase LATS1	1	n.a.	fostamatinib	n.a.
367	CSNK2A1	Casein kinase II subunit alpha	4	quercetin, resveratrol	fostamatinib	emodin
368	SIK3	Serine/threonine-protein kinase SIK3	1	n.a.	fostamatinib	n.a.
369	IRAK3	Interleukin-1 receptor-associated kinase 3	1	n.a.	fostamatinib	n.a.

370	IRAK1	Interleukin-1 receptor-associated kinase 1	1	n.a.	fostamatinib	n.a.
371	INSRR	Insulin receptor-related protein	1	n.a.	fostamatinib	n.a.
372	IKBKE	Inhibitor of nuclear factor kappa-B kinase subunit epsilon	1	n.a.	fostamatinib	n.a.
373	ICK	Serine/threonine-protein kinase ICK	1	n.a.	fostamatinib	n.a.
374	HIPK3	Homeodomain-interacting protein kinase 3	1	n.a.	fostamatinib	n.a.
375	HIPK2	Homeodomain-interacting protein kinase 2	1	n.a.	fostamatinib	n.a.
376	GSK3A	Glycogen synthase kinase-3 alpha	1	n.a.	fostamatinib	n.a.
377	GAK	Cyclin-G-associated kinase	1	n.a.	fostamatinib	n.a.
378	FES	Tyrosine-protein kinase Fes/Fps	1	n.a.	fostamatinib	n.a.
379	FER	Tyrosine-protein kinase Fer	1	n.a.	fostamatinib	n.a.
380	EPHB6	Ephrin type-B receptor 6	1	n.a.	fostamatinib	n.a.
381	EPHB1	Ephrin type-B receptor 1	1	n.a.	fostamatinib	n.a.
382	EPHA8	Ephrin type-A receptor 8	1	n.a.	fostamatinib	n.a.
383	EPHA6	Ephrin type-A receptor 6	1	n.a.	fostamatinib	n.a.
384	EPHA4	Ephrin type-A receptor 4	1	n.a.	fostamatinib	n.a.
385	PLK1	Serine/threonine-protein kinase PLK1	2	n.a.	fostamatinib, wortmannin	n.a.
386	ATP5B	ATP synthase subunit beta, mitochondrial	2	piceatannol, quercetin	n.a.	n.a.
387	EPHA3	Ephrin type-A receptor 3	1	n.a.	fostamatinib	n.a.
388	EPHA1	Ephrin type-A receptor 1	1	n.a.	fostamatinib	n.a.
389	JAK1	Tyrosine-protein kinase JAK1	2	ruxolitinib	fostamatinib	n.a.
390	EIF2AK4	eIF-2-alpha kinase GCN2	1	n.a.	fostamatinib	n.a.
391	HDAC4	Histone deacetylase 4	2	zinc, panobinostat	n.a.	n.a.
392	EIF2AK1	Eukaryotic translation initiation factor 2-alpha kinase 1	1	n.a.	fostamatinib	n.a.
393	DYRK1B	Dual specificity tyrosine-phosphorylation-regulated kinase 1B	1	n.a.	fostamatinib	n.a.
394	GAPDHS	Glyceraldehyde-3-phosphate dehydrogenase, testis-specific	2	zinc, arteminol	n.a.	n.a.
395	DCLK3	Serine/threonine-protein kinase DCLK3	1	n.a.	fostamatinib	n.a.
396	DCLK2	Serine/threonine-protein kinase DCLK2	1	n.a.	fostamatinib	n.a.
397	PDE1B	Calcium/calmodulin-dependent 3',5'-cyclic nucleotide phosphodiesterase 1B	2	felodipine, nicardipine	n.a.	n.a.
398	DCLK1	Serine/threonine-protein kinase DCLK1	1	n.a.	fostamatinib	n.a.
399	LCK	Tyrosine-protein kinase Lck	3	ponatinib, dasatinib	fostamatinib	n.a.
400	DAPK2	Death-associated protein kinase 2	1	n.a.	fostamatinib	n.a.
401	PIK3CD	Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit delta isoform	2	xl765	fostamatinib	n.a.
402	CSNK1A1	Casein kinase I isoform alpha	1	n.a.	fostamatinib	n.a.
403	CLK4	Dual specificity protein kinase CLK4	1	n.a.	fostamatinib	n.a.
404	PIK3CA	Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform	2	xl765	wortmannin	n.a.
405	CLK2	Dual specificity protein kinase CLK2	1	n.a.	fostamatinib	n.a.
406	CIT	Citron Rho-interacting kinase	1	n.a.	fostamatinib	n.a.
407	HDAC6	Histone deacetylase 6	2	panobinostat	n.a.	vorinostat
408	CDKL2	Cyclin-dependent kinase-like 2	1	n.a.	fostamatinib	n.a.
409	CDK4	Cyclin-dependent kinase 4	2	alvocidib	fostamatinib	n.a.
410	CDKL1	Cyclin-dependent kinase-like 1	1	n.a.	fostamatinib	n.a.
411	CDC42BP G	Serine/threonine-protein kinase MRCK gamma	1	n.a.	fostamatinib	n.a.
412	ALDOA	Fructose-bisphosphate aldolase A	2	zinc, arteminol	n.a.	n.a.
413	CSN3	Kappa-casein	1	n.a.	fostamatinib	n.a.
414	CAMKK2	Calcium/calmodulin-dependent protein kinase kinase 2	1	n.a.	fostamatinib	n.a.

415	BTK	Tyrosine-protein kinase BTK	2	dasatinib	fostamatinib	n.a.
416	CAMKK1	Calcium/calmodulin-dependent protein kinase kinase 1	1	n.a.	fostamatinib	n.a.
417	CAMK1	Calcium/calmodulin-dependent protein kinase type 1	1	n.a.	fostamatinib	n.a.
418	SERPINA1	Alpha-1-antitrypsin	2	zinc, copper	n.a.	n.a.
419	BMX	Cytoplasmic tyrosine-protein kinase BMX	1	n.a.	fostamatinib	n.a.
420	BMPR1B	Bone morphogenetic protein receptor type-1B	1	n.a.	fostamatinib	n.a.
421	ALK	ALK tyrosine kinase receptor	2	crizotinib	fostamatinib	n.a.
422	BMP2K	BMP-2-inducible protein kinase	1	n.a.	fostamatinib	n.a.
423	BLK	Tyrosine-protein kinase Blk	1	n.a.	fostamatinib	n.a.
424	TLR7	Toll-like receptor 7	2	imiquimod, hydroxychloroquine	n.a.	n.a.
425	GPI	Glucose-6-phosphate isomerase	2	copper, arteminol	n.a.	n.a.
426	RXRG	Retinoic acid receptor RXR-gamma	2	bexarotene	n.a.	rosiglitazone
427	PRKCA	Protein kinase C alpha type	2	perifosine, tamoxifen	n.a.	n.a.
428	AXL	Tyrosine-protein kinase receptor UFO	1	n.a.	fostamatinib	n.a.
429	ESR2	Estrogen receptor beta	6	genistein, afimoxifene, quercetin, raloxifene, tamoxifen	estradiol	n.a.
430	HRH4	Histamine H4 receptor	2	chlorpromazine, olanzapine	n.a.	n.a.
431	ANKK1	Ankyrin repeat and protein kinase domain-containing protein 1	1	n.a.	fostamatinib	n.a.
432	COQ8B	Atypical kinase COQ8B, mitochondrial	1	n.a.	fostamatinib	n.a.
433	AAK1	AP2-associated protein kinase 1	1	n.a.	fostamatinib	n.a.
434	MAP3K19	Mitogen-activated protein kinase kinase kinase 19	1	n.a.	fostamatinib	n.a.
435	ULK3	Serine/threonine-protein kinase ULK3	1	n.a.	fostamatinib	n.a.
436	ULK2	Serine/threonine-protein kinase ULK2	1	n.a.	fostamatinib	n.a.
437	ULK1	Serine/threonine-protein kinase ULK1	1	n.a.	fostamatinib	n.a.
438	TYRO3	Tyrosine-protein kinase receptor TYRO3	1	n.a.	fostamatinib	n.a.
439	TXK	Tyrosine-protein kinase TXK	1	n.a.	fostamatinib	n.a.
440	TSSK1B	Testis-specific serine/threonine-protein kinase 1	1	n.a.	fostamatinib	n.a.
441	TNNI3K	Serine/threonine-protein kinase TNNI3K	1	n.a.	fostamatinib	n.a.
442	TNK1	Non-receptor tyrosine-protein kinase TNK1	1	n.a.	fostamatinib	n.a.
443	TNIK	TRAF2 and NCK-interacting protein kinase	1	n.a.	fostamatinib	n.a.
444	TLK2	Serine/threonine-protein kinase tousled-like 2	1	n.a.	fostamatinib	n.a.
445	HTR7	5-hydroxytryptamine receptor 7	4	chlorpromazine, olanzapine, maprotiline, cabergoline	n.a.	n.a.
446	TLK1	Serine/threonine-protein kinase tousled-like 1	1	n.a.	fostamatinib	n.a.
447	TIE1	Tyrosine-protein kinase receptor Tie-1	1	n.a.	fostamatinib	n.a.
448	TESK1	Dual specificity testis-specific protein kinase 1	1	n.a.	fostamatinib	n.a.
449	TBK1	Serine/threonine-protein kinase TBK1	1	n.a.	fostamatinib	n.a.
450	TAOK3	Serine/threonine-protein kinase TAO3	1	n.a.	fostamatinib	n.a.
451	TAOK1	Serine/threonine-protein kinase TAO1	1	n.a.	fostamatinib	n.a.
452	STK39	STE20/SPS1-related proline-alanine-rich protein kinase	1	n.a.	fostamatinib	n.a.
453	STK38L	Serine/threonine-protein kinase 38-like	1	n.a.	fostamatinib	n.a.
454	STK38	Serine/threonine-protein kinase 38	1	n.a.	fostamatinib	n.a.
455	STK36	Serine/threonine-protein kinase 36	1	n.a.	fostamatinib	n.a.
456	AURKA	Aurora kinase A	3	alisertib, at9283	fostamatinib	n.a.
457	STK35	Serine/threonine-protein kinase 35	1	n.a.	fostamatinib	n.a.
458	STK33	Serine/threonine-protein kinase 33	1	n.a.	fostamatinib	n.a.
459	HRH1	Histamine H1 receptor	9	flunarizine, lamotrigine, chlorpromazine, clemastine, citalopram, olanzapine, nortriptyline, maprotiline	rupatadine	n.a.

460	HTR6	5-hydroxytryptamine receptor 6	4	sertindole, chlorpromazine, olanzapine, nortriptyline	n.a.	n.a.
461	TEC	Tyrosine-protein kinase Tec	1	n.a.	fostamatinib	n.a.
462	STK3	Serine/threonine-protein kinase 3	1	n.a.	fostamatinib	n.a.
463	STK24	Serine/threonine-protein kinase 24	1	n.a.	fostamatinib	n.a.
464	PIM1	Serine/threonine-protein kinase pim-1	3	quercetin	ly-294002, fostamatinib	n.a.
465	COQ8A	Atypical kinase COQ8A, mitochondrial	1	n.a.	fostamatinib	n.a.
466	RPS6KA6	Ribosomal protein S6 kinase alpha-6	1	n.a.	fostamatinib	n.a.
467	CACNA1E	Voltage-dependent R-type calcium channel subunit alpha-1E	1	lamotrigine	n.a.	n.a.
468	DDX5	Probable ATP-dependent RNA helicase DDX5	1	artemimol	n.a.	n.a.
469	MYH9	Myosin-9	1	artemimol	n.a.	n.a.
470	SRSF1	Serine/arginine-rich splicing factor 1	1	copper	n.a.	n.a.
471	TAGLN2	Transgelin-2	1	artemimol	n.a.	n.a.
472	SNRPD2	Small nuclear ribonucleoprotein Sm D2	1	artemimol	n.a.	n.a.
473	SF1	Splicing factor 1	1	artemimol	n.a.	n.a.
474	RPS9	40S ribosomal protein S9	1	artemimol	n.a.	n.a.
475	RPS8	40S ribosomal protein S8	1	artemimol	n.a.	n.a.
476	ADRA2C	Alpha-2C adrenergic receptor	7	chlorpromazine, clonidine, cabergoline, olanzapine, dronedarone, nortriptyline, maprotiline	n.a.	n.a.
477	RPS6	40S ribosomal protein S6	1	artemimol	n.a.	n.a.
478	RPS5	40S ribosomal protein S5	1	artemimol	n.a.	n.a.
479	RPS18	40S ribosomal protein S18	1	artemimol	n.a.	n.a.
480	RPS13	40S ribosomal protein S13	1	artemimol	n.a.	n.a.
481	RPL4	60S ribosomal protein L4	1	artemimol	n.a.	n.a.
482	ALPP	Alkaline phosphatase, placental type	1	n.a.	n.a.	calcium
483	CAMK1D	Calcium/calmodulin-dependent protein kinase type 1D	1	n.a.	fostamatinib	n.a.
484	RPL18	60S ribosomal protein L18	1	artemimol	n.a.	n.a.
485	MERTK	Tyrosine-protein kinase Mer	1	n.a.	fostamatinib	n.a.
486	CAMK1G	Calcium/calmodulin-dependent protein kinase type 1G	1	n.a.	fostamatinib	n.a.
487	RPL14	60S ribosomal protein L14	1	artemimol	n.a.	n.a.
488	EPHA7	Ephrin type-A receptor 7	1	n.a.	fostamatinib	n.a.
489	PFN1	Profilin-1	1	artemimol	n.a.	n.a.
490	RPL10	60S ribosomal protein L10	1	artemimol	n.a.	n.a.
491	STK26	Serine/threonine-protein kinase 26	1	n.a.	fostamatinib	n.a.
492	CDK16	Cyclin-dependent kinase 16	1	n.a.	fostamatinib	n.a.
493	FLNA	Filamin-A	1	artemimol	n.a.	n.a.
494	DYRK1A	Dual specificity tyrosine-phosphorylation-regulated kinase 1A	1	n.a.	fostamatinib	n.a.
495	CSNK2A2	Casein kinase II subunit alpha'	1	n.a.	fostamatinib	n.a.
496	ATP5O	ATP synthase subunit O, mitochondrial	1	artemimol	n.a.	n.a.
497	ERN1	Serine/threonine-protein kinase/endoribonuclease IRE1	1	n.a.	fostamatinib	n.a.
498	CCT3	T-complex protein 1 subunit gamma	1	artemimol	n.a.	n.a.
499	APLP2	Amyloid-like protein 2	1	zinc	n.a.	n.a.
500	CAMK2B	Calcium/calmodulin-dependent protein kinase type II subunit beta	1	n.a.	fostamatinib	n.a.
501	TTK	Dual specificity protein kinase TTK	1	n.a.	fostamatinib	n.a.
502	SERPINA3	Alpha-1-antichymotrypsin	1	zinc	n.a.	n.a.
503	S100A7	Protein S100-A7	1	zinc	n.a.	n.a.
504	NTRK2	BDNF/NT-3 growth factors receptor	1	n.a.	fostamatinib	n.a.

505	KRT6A	Keratin, type II cytoskeletal 6A	1	zinc	n.a.	n.a.
506	PTGR2	Prostaglandin reductase 2	1	n.a.	n.a.	indomethacin
507	PDE6H	Retinal cone rhodopsin-sensitive cGMP 3',5'-cyclic phosphodiesterase subunit gamma	1	n.a.	sildenafil	n.a.
508	KRT16	Keratin, type I cytoskeletal 16	1	zinc	n.a.	n.a.
509	CYP1A1	Cytochrome P450 1A1	1	n.a.	n.a.	2-methoxyestradiol
510	CYP2C19	Cytochrome P450 2C19	1	isoniazid	n.a.	n.a.
511	KRT14	Keratin, type I cytoskeletal 14	1	zinc	n.a.	n.a.
512	MLNR	Motilin receptor	1	n.a.	erythromycin	n.a.
513	TLR8	Toll-like receptor 8	1	imiquimod	n.a.	n.a.
514	JUP	Junction plakoglobin	1	zinc	n.a.	n.a.
515	NEK2	Serine/threonine-protein kinase Nek2	1	n.a.	fostamatinib	n.a.
516	NPEPPS	Puromycin-sensitive aminopeptidase	1	artemimol	n.a.	n.a.
517	JCHAIN	Immunoglobulin J chain	1	zinc	n.a.	n.a.
518	TUBB6	Tubulin beta-6 chain	1	artemimol	n.a.	n.a.
519	MAPK13	Mitogen-activated protein kinase 13	1	n.a.	fostamatinib	n.a.
520	ITIH4	Inter-alpha-trypsin inhibitor heavy chain H4	1	zinc	n.a.	n.a.
521	MAPK11	Mitogen-activated protein kinase 11	1	regorafenib	n.a.	n.a.
522	ITIH3	Inter-alpha-trypsin inhibitor heavy chain H3	1	zinc	n.a.	n.a.
523	AZGP1	Zinc-alpha-2-glycoprotein	1	copper	n.a.	n.a.
524	APOH	Beta-2-glycoprotein 1	1	copper	n.a.	n.a.
525	ITIH1	Inter-alpha-trypsin inhibitor heavy chain H1	1	zinc	n.a.	n.a.
526	HCAR3	Hydroxycarboxylic acid receptor 3	1	niacin	n.a.	n.a.
527	CYP19A1	Aromatase	2	nicotine	n.a.	2-methoxyestradiol
528	FGF1	Fibroblast growth factor 1	2	pazopanib	heparin	n.a.
529	ALDH7A1	Alpha-aminoadipic semialdehyde dehydrogenase	1	artemimol	n.a.	n.a.
530	NFKB2	Nuclear factor NF-kappa-B p100 subunit	2	glucosamine, acetylsalicylic acid	n.a.	n.a.
531	EPHB4	Ephrin type-B receptor 4	2	dasatinib	fostamatinib	n.a.
532	ALB	Serum albumin	2	artemimol	erythromycin	n.a.
533	IGLV3-21	Immunoglobulin lambda variable 3-21	1	zinc	n.a.	n.a.
534	CASK	Peripheral plasma membrane protein CASK	1	n.a.	fostamatinib	n.a.
535	SCN1A	Sodium channel protein type 1 subunit alpha	2	valproic acid, dronedarone	n.a.	n.a.
536	CACNA1B	Voltage-dependent N-type calcium channel subunit alpha-1B	2	spironolactone, verapamil	n.a.	n.a.
537	PTGES3	Prostaglandin E synthase 3	1	copper	n.a.	n.a.
538	IGKV1-17	Immunoglobulin kappa variable 1-17	1	zinc	n.a.	n.a.
539	CDK9	Cyclin-dependent kinase 9	1	alvocidib	n.a.	n.a.
540	HDAC5	Histone deacetylase 5	1	panobinostat	n.a.	n.a.
541	HRNR	Hornerin	1	zinc	n.a.	n.a.
542	PIK3CB	Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit beta isoform	1	x1765	n.a.	n.a.
543	RPSA	40S ribosomal protein SA	1	copper	n.a.	n.a.
544	FCN3	Ficolin-3	1	zinc	n.a.	n.a.
545	PSMB2	Proteasome subunit beta type-2	1	carfilzomib	n.a.	n.a.
546	PTK6	Protein-tyrosine kinase 6	1	n.a.	fostamatinib	n.a.
547	DCD	Dermcidin	1	zinc	n.a.	n.a.
548	KCNJ5	G protein-activated inward rectifier potassium channel 4	1	glyburide	n.a.	n.a.
549	GSTA2	Glutathione S-transferase A2	1	n.a.	chloroquine	n.a.
550	C8A	Complement component C8 alpha chain	1	zinc	n.a.	n.a.

551	PYGB	Glycogen phosphorylase, brain form	1	alvocidib	n.a.	n.a.
552	ZAP70	Tyrosine-protein kinase ZAP-70	1	n.a.	fostamatinib	n.a.
553	BRCC3	Lys-63-specific deubiquitinase BRCC36	1	zinc	n.a.	n.a.
554	IMPA1	Inositol monophosphatase 1	1	n.a.	n.a.	lithium
555	PF4	Platelet factor 4	1	n.a.	heparin	n.a.
556	C4BPB	C4b-binding protein beta chain	1	zinc	n.a.	n.a.
557	SERPINF2	Alpha-2-antiplasmin	1	copper	n.a.	n.a.
558	AURKC	Aurora kinase C	1	n.a.	fostamatinib	n.a.
559	APOL1	Apolipoprotein L1	1	zinc	n.a.	n.a.
560	DDX39B	Spliceosome RNA helicase DDX39B	1	artemimol	n.a.	n.a.
561	RET	RET proto-oncogene	1	imatinib	n.a.	n.a.
562	SERPINF1	Pigment epithelium-derived factor	1	copper	n.a.	n.a.
563	ANPEP	Aminopeptidase N	1	ezetimibe	n.a.	n.a.
564	SLC2A1	Solute carrier family 2, facilitated glucose transporter member 1	1	resveratrol	n.a.	n.a.
565	IGLL1	Immunoglobulin lambda-like polypeptide 1	1	copper	n.a.	n.a.
566	mmp20	Matrix metalloproteinase-25	1	fenofibrate	n.a.	n.a.
567	LDHA	L-lactate dehydrogenase A chain	2	copper, artemimol	n.a.	n.a.
568	PPIA	Peptidyl-prolyl cis-trans isomerase A	2	copper, artemimol	n.a.	n.a.
569	TPM1	Tropomyosin alpha-1 chain	1	artemimol	n.a.	n.a.
570	CBX5	Chromobox protein homolog 5	1	copper	n.a.	n.a.
571	PPBP	Platelet basic protein	1	copper	n.a.	n.a.
572	ATP5L	ATP synthase subunit g, mitochondrial	1	artemimol	n.a.	n.a.
573	ORM1	Alpha-1-acid glycoprotein 1	2	chlorpromazine, thalidomide	n.a.	n.a.
574	TAC3	Tachykinin-3	1	copper	n.a.	n.a.
575	CHRNA2	Neuronal acetylcholine receptor subunit beta-2	3	carbamazepine, nicotine	atropine	n.a.
576	CACNA1G	Voltage-dependent T-type calcium channel subunit alpha-1G	3	spironolactone, flunarizine, verapamil	n.a.	n.a.
577	BMP2	Bone morphogenetic protein receptor type-2	1	n.a.	fostamatinib	n.a.
578	ACVR1B	Activin receptor type-1B	1	n.a.	fostamatinib	n.a.
579	SERPINA7	Thyroxine-binding globulin	1	copper	n.a.	n.a.
580	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	2	copper, artemimol	n.a.	n.a.
581	UGDH	UDP-glucose 6-dehydrogenase	1	copper	n.a.	n.a.
582	CACNA1I	Voltage-dependent T-type calcium channel subunit alpha-1I	3	spironolactone, flunarizine, verapamil	n.a.	n.a.
583	HCA2	Hydroxycarboxylic acid receptor 2	1	niacin	n.a.	n.a.
584	RUVBL2	RuvB-like 2	1	quercetin	n.a.	n.a.
585	ACADSB	Short/branched chain specific acyl-CoA dehydrogenase, mitochondrial	1	valproic acid	n.a.	n.a.
586	TF	Serotransferrin	2	zinc, copper	n.a.	n.a.
587	HNRNP	Heterogeneous nuclear ribonucleoprotein K	1	artemimol	n.a.	n.a.
588	EIF3F	Eukaryotic translation initiation factor 3 subunit F	1	quercetin	n.a.	n.a.
589	KLK3	Prostate-specific antigen	1	mifepristone	n.a.	n.a.
590	RANBP1	Ran-specific GTPase-activating protein	1	copper	n.a.	n.a.
591	QPRT	Nicotinate-nucleotide pyrophosphorylase [carboxylating]	1	niacin	n.a.	n.a.
592	YWHAB	14-3-3 protein beta/alpha	1	copper	n.a.	n.a.
593	ACTN1	Alpha-actinin-1	1	copper	n.a.	n.a.
594	TTL3	Tubulin monoglycylase TTL3	1	theophylline	n.a.	n.a.
595	MPG	DNA-3-methyladenine glycosylase	1	zinc	n.a.	n.a.
596	MT3	Metallothionein-3	1	zinc	n.a.	n.a.

597	CHAT	Choline O-acetyltransferase	1	nicotine	n.a.	n.a.
598	CSNK2B	Casein kinase II subunit beta	1	quercetin	n.a.	n.a.
599	APOD	Apolipoprotein D	1	copper	n.a.	n.a.
600	NOMO1	Nodal modulator 1	1	theophylline	n.a.	n.a.
601	ACTB	Actin, cytoplasmic 1	1	quercetin	n.a.	n.a.
602	MYLK2	Myosin light chain kinase 2, skeletal/cardiac muscle	1	n.a.	fostamatinib	n.a.
603	HM13	Minor histocompatibility antigen H13	1	theophylline	n.a.	n.a.
604	C1QBP	Complement component 1 Q subcomponent-binding protein, mitochondrial	1	copper	n.a.	n.a.
605	HDAC11	Histone deacetylase 11	1	panobinostat	n.a.	n.a.
606	STK32A	Serine/threonine-protein kinase 32A	1	n.a.	fostamatinib	n.a.
607	ALOX15	Arachidonate 15-lipoxygenase	1	resveratrol	n.a.	n.a.
608	MT2A	Metallothionein-2	1	zinc	n.a.	n.a.
609	BMP4	Bone morphogenetic protein 4	1	n.a.	n.a.	calcium
610	LIMK1	LIM domain kinase 1	1	n.a.	fostamatinib	n.a.
611	AR	Androgen receptor	6	spironolactone, tamoxifen, bicalutamide, fluphenazine, dienogest, enzalutamide	n.a.	n.a.
612	HTT	Huntingtin	1	copper	n.a.	n.a.
613	NEK11	Serine/threonine-protein kinase Nek11	1	n.a.	fostamatinib	n.a.
614	SIK1	Serine/threonine-protein kinase SIK1	1	n.a.	fostamatinib	n.a.
615	TP73	Tumor protein p73	1	zinc	n.a.	n.a.
616	MAP3K2	Mitogen-activated protein kinase kinase kinase 2	1	n.a.	fostamatinib	n.a.
617	KCNK2	Potassium channel subfamily K member 2	1	dronedarone	n.a.	n.a.
618	PRNP	Alternative prion protein	1	copper	n.a.	n.a.
619	TAOK2	Serine/threonine-protein kinase TAO2	1	n.a.	fostamatinib	n.a.
620	MAPK9	Mitogen-activated protein kinase 9	1	n.a.	fostamatinib	n.a.
621	HTR2B	5-hydroxytryptamine receptor 2B	4	chlorpromazine, olanzapine, triflupromazine, cabergoline	n.a.	n.a.
622	ITGA5	Integrin alpha-5	1	resveratrol	n.a.	n.a.
623	ASPA	Aspartoacylase	1	zinc	n.a.	n.a.
624	SPTBN1	Spectrin beta chain, non-erythrocytic 1	1	n.a.	n.a.	calcium
625	PI4K2B	Phosphatidylinositol 4-kinase type 2-beta	1	resveratrol	n.a.	n.a.
626	PSPH	Phosphoserine phosphatase	1	zinc	n.a.	n.a.
627	NEIL2	Endonuclease 8-like 2	1	copper	n.a.	n.a.
628	STK10	Serine/threonine-protein kinase 10	1	n.a.	fostamatinib	n.a.
629	UBA1	Ubiquitin-like modifier-activating enzyme 1	1	quercetin	n.a.	n.a.
630	CKS1B	Cyclin-dependent kinases regulatory subunit 1	1	fluoxetine	n.a.	n.a.
631	SERPINB9	Serpin B9	1	raloxifene	n.a.	n.a.
632	EPHB2	Ephrin type-B receptor 2	1	n.a.	fostamatinib	n.a.
633	TUFM	Elongation factor Tu, mitochondrial	1	zinc	n.a.	n.a.
634	PSME1	Proteasome activator complex subunit 1	1	copper	n.a.	n.a.
635	SOAT1	Sterol O-acyltransferase 1	1	ezetimibe	n.a.	n.a.
636	CHRNA4	Neuronal acetylcholine receptor subunit alpha-4	4	carbamazepine, nicotine	estradiol, atropine	n.a.
637	NR0B1	Nuclear receptor subfamily 0 group B member 1	1	dexamethasone	n.a.	n.a.
638	HDGF	Hepatoma-derived growth factor	1	copper	n.a.	n.a.
639	PRKACB	cAMP-dependent protein kinase catalytic subunit beta	1	n.a.	fostamatinib	n.a.
640	VIM	Vimentin	1	artenimol	n.a.	n.a.
641	EIF4A1	Eukaryotic initiation factor 4A-I	1	copper	n.a.	n.a.
642	MAP3K9	Mitogen-activated protein kinase kinase kinase 9	1	n.a.	fostamatinib	n.a.

643	IRAK4	Interleukin-1 receptor-associated kinase 4	1	n.a.	fostamatinib	n.a.
644	EIF6	Eukaryotic translation initiation factor 6	1	copper	n.a.	n.a.
645	EEF1A1L14	Translation elongation factor 1 alpha 1-like 14	1	copper	n.a.	n.a.
646	STIP1	Stress-induced-phosphoprotein 1	1	copper	n.a.	n.a.
647	ANXA4	Annexin A4	1	copper	n.a.	n.a.
648	RACK1	Receptor of activated protein C kinase 1	1	copper	n.a.	n.a.
649	SF3A2	Splicing factor 3A subunit 2	1	copper	n.a.	n.a.
650	HNRNPL	Heterogeneous nuclear ribonucleoprotein L	1	copper	n.a.	n.a.
651	HNRNPH3	Heterogeneous nuclear ribonucleoprotein H3	1	copper	n.a.	n.a.
652	HNRNPH1	Heterogeneous nuclear ribonucleoprotein H	1	copper	n.a.	n.a.
653	NFKB1	Nuclear factor NF-kappa-B p105 subunit	2	thalidomide, acetylsalicylic acid	n.a.	n.a.
654	NME1	Nucleoside diphosphate kinase A	2	zinc, copper	n.a.	n.a.
655	HSPA13	Heat shock 70 kDa protein 13	1	copper	n.a.	n.a.
656	SIGMAR1	Sigma non-opioid intracellular receptor 1	2	noscipine, nortriptyline	n.a.	n.a.
657	MMP9	Matrix metalloproteinase-9	2	glucosamine, zinc	n.a.	n.a.
658	HSPD1	60 kDa heat shock protein, mitochondrial	1	copper	n.a.	n.a.
659	APOC3	Apolipoprotein C-III	1	copper	n.a.	n.a.
660	RIPK2	Receptor-interacting serine/threonine-protein kinase 2	1	n.a.	fostamatinib	n.a.
661	UTRN	Utrophin	1	zinc	n.a.	n.a.
662	SIVA1	Apoptosis regulatory protein Siva	1	zinc	n.a.	n.a.
663	FGF19	Fibroblast growth factor 19	1	n.a.	heparin	n.a.
664	CCS	Copper chaperone for superoxide dismutase	1	zinc	n.a.	n.a.
665	PCDH19	Protocadherin-19	1	n.a.	n.a.	calcium
666	MGP	Matrix Gla protein	1	n.a.	n.a.	calcium
667	ATP1A1	Sodium/potassium-transporting ATPase subunit alpha-1	3	diazoxide, ciclopirox, ouabain	n.a.	n.a.
668	DPYSL2	Dihydropyrimidinase-related protein 2	1	artemimol	n.a.	n.a.
669	FTO	Alpha-ketoglutarate-dependent dioxygenase FTO	1	artemimol	n.a.	n.a.
670	DAND5	DAN domain family member 5	1	zinc	n.a.	n.a.
671	SEPP1	Selenoprotein P	1	zinc	n.a.	n.a.
672	PRKD1	Serine/threonine-protein kinase D1	1	n.a.	fostamatinib	n.a.
673	CLEC14A	C-type lectin domain family 14 member A	1	resveratrol	n.a.	n.a.
674	PLK4	Serine/threonine-protein kinase PLK4	1	n.a.	fostamatinib	n.a.
675	RYR2	Ryanodine receptor 2	1	tetracaine	n.a.	n.a.
676	HIST1H2B C	Histone H2B type 1-C/E/F/G/I	1	copper	n.a.	n.a.
677	IGHM	Ig mu chain C region	1	zinc	n.a.	n.a.
678	IGHG4	Ig gamma-4 chain C region	1	copper	n.a.	n.a.
679	ATP1A3	Sodium/potassium-transporting ATPase subunit alpha-3	1	ouabain	n.a.	n.a.
680	PKN2	Serine/threonine-protein kinase N2	1	n.a.	fostamatinib	n.a.
681	PIK3C2B	Phosphatidylinositol 4-phosphate 3-kinase C2 domain-containing subunit beta	1	n.a.	fostamatinib	n.a.
682	PI4KB	Phosphatidylinositol 4-kinase beta	1	n.a.	fostamatinib	n.a.
683	PHKG1	Phosphorylase b kinase gamma catalytic chain, skeletal muscle/heart isoform	1	n.a.	fostamatinib	n.a.
684	CDK17	Cyclin-dependent kinase 17	1	n.a.	fostamatinib	n.a.
685	PSMB10	Proteasome subunit beta type-10	1	carfilzomib	n.a.	n.a.
686	PSMB9	Proteasome subunit beta type-9	1	carfilzomib	n.a.	n.a.
687	CAMK2D	Calcium/calmodulin-dependent protein kinase type II subunit delta	1	n.a.	fostamatinib	n.a.

688	TYK2	Non-receptor tyrosine-protein kinase TYK2	1	n.a.	fostamatinib	n.a.
689	SH2B3	SH2B adapter protein 3	1	pazopanib	n.a.	n.a.
690	CLK3	Dual specificity protein kinase CLK3	1	n.a.	fostamatinib	n.a.
691	SLK	STE20-like serine/threonine-protein kinase	1	n.a.	fostamatinib	n.a.
692	AOC1	Amiloride-sensitive amine oxidase [copper-containing]	1	n.a.	n.a.	calcium
693	NOLC1	Nucleolar and coiled-body phosphoprotein 1	1	doxorubicin	n.a.	n.a.
694	CA14	Carbonic anhydrase 14	1	acetazolamide	n.a.	n.a.
695	CYP11B1	Cytochrome P450 11B1, mitochondrial	1	metyrapone	n.a.	n.a.
696	CHRNA3	Neuronal acetylcholine receptor subunit beta-3	1	nicotine	n.a.	n.a.
697	SCO1	Protein SCO1 homolog, mitochondrial	1	copper	n.a.	n.a.
698	CHRNA5	Neuronal acetylcholine receptor subunit alpha-5	1	nicotine	n.a.	n.a.
699	CACNB1	Voltage-dependent L-type calcium channel subunit beta-1	1	spironolactone	n.a.	n.a.
700	PDE6G	Retinal rod rhodopsin-sensitive cGMP 3',5'-cyclic phosphodiesterase subunit gamma	1	n.a.	sildenafil	n.a.
701	HEPHL1	Hephaestin-like protein 1	1	copper	n.a.	n.a.
702	HDAC7	Histone deacetylase 7	1	panobinostat	n.a.	n.a.
703	INS	Insulin	1	zinc	n.a.	n.a.
704	NFKBIA	NF-kappa-B inhibitor alpha	1	acetylsalicylic acid	n.a.	n.a.
705	MELK	Maternal embryonic leucine zipper kinase	1	n.a.	fostamatinib	n.a.
706	HSPB1	Heat shock protein beta-1	1	artenimol	n.a.	n.a.
707	CHRNA3	Neuronal acetylcholine receptor subunit alpha-3	2	fluoxetine, nicotine	n.a.	n.a.
708	TPI1	Triosephosphate isomerase	2	zinc, artenimol	n.a.	n.a.
709	MAP3K1	Mitogen-activated protein kinase kinase kinase 1	1	n.a.	fostamatinib	n.a.
710	SERPINC1	Antithrombin-III	2	copper	heparin	n.a.
711	SRP14	Signal recognition particle 14 kDa protein	1	artenimol	n.a.	n.a.
712	GP1B1	G-protein coupled estrogen receptor 1	2	genistein	estradiol	n.a.
713	CHRNA4	Neuronal acetylcholine receptor subunit beta-4	2	fluoxetine, nicotine	n.a.	n.a.
714	SCN7A	Sodium channel protein type 7 subunit alpha	1	valproic acid	n.a.	n.a.
715	TOP1	DNA topoisomerase 1	2	topotecan	irinotecan	n.a.
716	BDNF	Brain-derived neurotrophic factor	1	copper	n.a.	n.a.
717	CHEK2	Serine/threonine-protein kinase Chk2	1	n.a.	fostamatinib	n.a.
718	MET	Hepatocyte growth factor receptor	2	crizotinib	fostamatinib	n.a.
719	ACAT1	Acetyl-CoA acetyltransferase, mitochondrial	1	sulfasalazine	n.a.	n.a.
720	KCNJ8	ATP-sensitive inward rectifier potassium channel 8	2	glyburide, levosimendan	n.a.	n.a.
721	C8G	Complement component C8 gamma chain	1	zinc	n.a.	n.a.
722	BCL2	Apoptosis regulator Bcl-2	2	obatoxax	n.a.	paclitaxel
723	NEIL1	Endonuclease 8-like 1	1	copper	n.a.	n.a.
724	PTK2	Focal adhesion kinase 1	1	n.a.	fostamatinib	n.a.
725	MAPKAPK5	MAP kinase-activated protein kinase 5	1	n.a.	fostamatinib	n.a.
726	TUBA4A	Tubulin alpha-4A chain	2	cabazitaxel	n.a.	vincristine
727	SERPINC1	Plasma protease C1 inhibitor	1	copper	n.a.	n.a.
728	CYP2C8	Cytochrome P450 2C8	1	isoniazid	n.a.	n.a.
729	CYP1A2	Cytochrome P450 1A2	1	isoniazid	n.a.	n.a.
730	MAPK4	Mitogen-activated protein kinase 4	1	n.a.	fostamatinib	n.a.
731	SCN9A	Sodium channel protein type 9 subunit alpha	2	valproic acid, ranolazine	n.a.	n.a.
732	ABCB11	Bile salt export pump	1	glyburide	n.a.	n.a.
733	CTSL	Cathepsin L1	1	n.a.	fostamatinib	n.a.

734	NR3C2	Mineralocorticoid receptor	3	spironolactone, felodipine	n.a.	nimodipine
735	KRT8	Keratin, type II cytoskeletal 8	1	copper	n.a.	n.a.
736	TKT	Transketolase	1	copper	n.a.	n.a.
737	FGF2	Fibroblast growth factor 2	2	sirolimus	heparin	n.a.
738	CLEC3B	Tetranectin	1	copper	n.a.	n.a.
739	PRDX2	Peroxiredoxin-2	1	copper	n.a.	n.a.
740	CFB	Complement factor B	1	zinc	n.a.	n.a.
741	HIBCH	3-hydroxyisobutyryl-CoA hydrolase, mitochondrial	1	quercetin	n.a.	n.a.
742	GLRA3	Glycine receptor subunit alpha-3	2	taurine, ivermectin	n.a.	n.a.
743	MDH1	Malate dehydrogenase, cytoplasmic	1	artenimol	n.a.	n.a.
744	FN1	Fibronectin	1	zinc	n.a.	n.a.
745	ANXA2	Annexin A2	1	artenimol	n.a.	n.a.
746	AKR1C1	Aldo-keto reductase family 1 member C1	2	acetylsalicylic acid, salicylic acid	n.a.	n.a.
747	MAP2	Microtubule-associated protein 2	1	n.a.	n.a.	paclitaxel
748	SLCO1B1	Solute carrier organic anion transporter family member 1B1	1	n.a.	clarithromycin	n.a.
749	RXRβ	Retinoic acid receptor RXR-beta	2	bexarotene	n.a.	rosiglitazone
750	C1s	Complement C1s subcomponent	2	zinc, copper	n.a.	n.a.
751	MDM2	E3 ubiquitin-protein ligase Mdm2	1	zinc	n.a.	n.a.
752	ADRB2	Beta-2 adrenergic receptor	6	salbutamol, olanzapine, nortriptyline, spermidine, cabergoline	propranolol	n.a.
753	PKM	Pyruvate kinase PKM	2	copper, artenimol	n.a.	n.a.
754	SMPD1	Sphingomyelin phosphodiesterase	1	chlorpromazine	n.a.	n.a.
755	POMC	Pro-opiomelanocortin	1	loperamide	n.a.	n.a.
756	GART	Trifunctional purine biosynthetic protein adenosine-3	1	pemetrexed	n.a.	n.a.
757	AQP1	Aquaporin-1	1	acetazolamide	n.a.	n.a.
758	TNK2	Activated CDC42 kinase 1	1	n.a.	fostamatinib	n.a.
759	ACY1	Aminoacylase-1	1	copper	n.a.	n.a.
760	CDK15	Cyclin-dependent kinase 15	1	n.a.	fostamatinib	n.a.
761	VMAT2	Vesicle monoamine transporter type 2	1	n.a.	fostamatinib	n.a.
762	ANXA1	Annexin A1	1	dexamethasone	n.a.	n.a.
763	CPT1A	Carnitine O-palmitoyltransferase 1, liver isoform	1	glyburide	n.a.	n.a.
764	PTAFR	Platelet-activating factor receptor	1	n.a.	rupatadine	n.a.
765	ESRRB	Steroid hormone receptor ERR2	1	genistein	n.a.	n.a.
766	SLC6A4	Sodium-dependent serotonin transporter	5	paroxetine, fluoxetine, citalopram, nortriptyline, verapamil	n.a.	n.a.
767	FGF4	Fibroblast growth factor 4	1	n.a.	heparin	n.a.
768	PGRMC1	Membrane-associated progesterone receptor component 1	1	nortriptyline	n.a.	n.a.
769	HDAC10	Histone deacetylase 10	1	panobinostat	n.a.	n.a.
770	MT1A	Metallothionein-1A	1	zinc	n.a.	n.a.
771	CRBN	Protein cereblon	1	thalidomide	n.a.	n.a.
772	ACVR1	Activin receptor type-1	1	n.a.	fostamatinib	n.a.
773	HTR5A	5-hydroxytryptamine receptor 5A	1	olanzapine	n.a.	n.a.
774	PRDX6	Peroxiredoxin-6	1	copper	n.a.	n.a.
775	ABCC9	ATP-binding cassette sub-family C member 9	1	glyburide	n.a.	n.a.
776	OGDH	2-oxoglutarate dehydrogenase, mitochondrial	1	valproic acid	n.a.	n.a.
777	CYB5R3	NADH-cytochrome b5 reductase 3	1	copper	n.a.	n.a.
778	CAMK2G	Calcium/calmodulin-dependent protein kinase type II subunit gamma	1	n.a.	fostamatinib	n.a.
779	IL3	Interleukin-3	1	zinc	n.a.	n.a.

780	ABCA1	ATP-binding cassette sub-family A member 1	1	glyburide	n.a.	n.a.
781	AKR1A1	Alcohol dehydrogenase [NADP(+)]	1	copper	n.a.	n.a.
782	SRC	Proto-oncogene tyrosine-protein kinase Src	4	ponatinib, dasatinib, purvalanol a	fostamatinib	n.a.
783	FKBP1A	Peptidyl-prolyl cis-trans isomerase FKBP1A	2	tacrolimus, sirolimus	n.a.	n.a.
784	DRD3	D(3) dopamine receptor	4	chlorpromazine, olanzapine, pimozide, cabergoline	n.a.	n.a.
785	CSNK1G3	Casein kinase I isoform gamma-3	1	purvalanol a	n.a.	n.a.
786	CAMK2A	Calcium/calmodulin-dependent protein kinase type II subunit alpha	1	n.a.	fostamatinib	n.a.
787	RPL23A	60S ribosomal protein L23a	1	artemimol	n.a.	n.a.
788	DAPK3	Death-associated protein kinase 3	1	n.a.	fostamatinib	n.a.
789	NR3C1	Glucocorticoid receptor	4	dexamethasone, spironolactone, mifepristone	methylprednisolone	n.a.
790	B2M	Beta-2-microglobulin	1	copper	n.a.	n.a.
791	MAPT	Microtubule-associated protein tau	1	n.a.	n.a.	paclitaxel
792	SCN4B	Sodium channel subunit beta-4	1	valproic acid	n.a.	n.a.
793	SCN3B	Sodium channel subunit beta-3	1	valproic acid	n.a.	n.a.
794	SCN2B	Sodium channel subunit beta-2	1	valproic acid	n.a.	n.a.
795	CHUK	Inhibitor of nuclear factor kappa-B kinase subunit alpha	1	sulfasalazine	n.a.	n.a.
796	JAK3	Tyrosine-protein kinase JAK3	1	n.a.	fostamatinib	n.a.
797	SMO	Smoothed homolog	1	vismodegib	n.a.	n.a.
798	SCN8A	Sodium channel protein type 8 subunit alpha	1	valproic acid	n.a.	n.a.
799	CDK7	Cyclin-dependent kinase 7	1	alvocidib	n.a.	n.a.
800	TBXAS1	Thromboxane-A synthase	1	sulfasalazine	n.a.	n.a.
801	TGFBR2	TGF-beta receptor type-2	1	n.a.	fostamatinib	n.a.
802	CLK1	Dual specificity protein kinase CLK1	1	n.a.	fostamatinib	n.a.
803	DAPK1	Death-associated protein kinase 1	1	n.a.	fostamatinib	n.a.
804	SULT2B1	Sulfotransferase family cytosolic 2B member 1	1	pregnenolone	n.a.	n.a.
805	SELP	P-selectin	1	n.a.	heparin	n.a.
806	G6PD	Glucose-6-phosphate 1-dehydrogenase	1	artemimol	n.a.	n.a.
807	PIK3R1	Phosphatidylinositol 3-kinase regulatory subunit alpha	1	n.a.	wortmannin	n.a.
808	HBB	Hemoglobin subunit beta	2	zinc, copper	n.a.	n.a.
809	PLA2G4A	Cytosolic phospholipase A2	1	n.a.	quinacrine	n.a.
810	SRD5A2	3-oxo-5-alpha-steroid 4-dehydrogenase 2	1	spironolactone	n.a.	n.a.
811	POLA1	DNA polymerase alpha catalytic subunit	1	clofarabine	n.a.	n.a.
812	SHMT2	Serine hydroxymethyltransferase, mitochondrial	1	artemimol	n.a.	n.a.
813	MAP2K2	Dual specificity mitogen-activated protein kinase 2	1	n.a.	fostamatinib	n.a.
814	ALDH5A1	Succinate-semialdehyde dehydrogenase, mitochondrial	1	valproic acid	n.a.	n.a.
815	POLB	DNA polymerase beta	1	cytarabine	n.a.	n.a.
816	LGALS1	Galectin-1	1	artemimol	n.a.	n.a.
817	IDH3A	Isocitrate dehydrogenase [NAD] subunit alpha, mitochondrial	1	copper	n.a.	n.a.
818	PGR	Progesterone receptor	3	spironolactone, mifepristone, dienogest	n.a.	n.a.
819	SCN10A	Sodium channel protein type 10 subunit alpha	2	valproic acid, levobupivacaine	n.a.	n.a.
820	DRD4	D(4) dopamine receptor	3	chlorpromazine, olanzapine, cabergoline	n.a.	n.a.
821	SCN1B	Sodium channel subunit beta-1	1	valproic acid	n.a.	n.a.
822	GLRA2	Glycine receptor subunit alpha-2	1	taurine	n.a.	n.a.
823	CHRNA6	Neuronal acetylcholine receptor subunit alpha-6	1	nicotine	n.a.	n.a.
824	ATP6V1A	V-type proton ATPase catalytic subunit A	1	n.a.	bafilomycin a1	n.a.

825	HGF	Hepatocyte growth factor	1	n.a.	heparin	n.a.
826	PARP3	Poly [ADP-ribose] polymerase 3	1	olaparib	n.a.	n.a.
827	KLKB1	Plasma kallikrein	1	zinc	n.a.	n.a.
828	CMPK1	UMP-CMP kinase	1	gemcitabine	n.a.	n.a.
829	AHCY	Adenosylhomocysteinase	1	copper	n.a.	n.a.
830	CA12	Carbonic anhydrase 12	1	acetazolamide	n.a.	n.a.
831	TUBA3C	Tubulin alpha-3C/D chain	1	copper	n.a.	n.a.
832	TUBB4A	Tubulin beta-4A chain	1	artenimol	n.a.	n.a.
833	MGMT	Methylated-DNA--protein-cysteine methyltransferase	1	zinc	n.a.	n.a.
834	MPO	Myeloperoxidase	1	n.a.	n.a.	melatonin
835	JUN	Transcription factor AP-1	1	vinblastine	n.a.	n.a.
836	CALY	Neuron-specific vesicular protein calcyon	1	n.a.	n.a.	trifluoperazine
837	F13B	Coagulation factor XIII B chain	1	zinc	n.a.	n.a.
838	SRD5A1	3-oxo-5-alpha-steroid 4-dehydrogenase 1	1	spironolactone	n.a.	n.a.
839	SLC18A1	Chromaffin granule amine transporter	1	reserpine	n.a.	n.a.
840	F12	Coagulation factor XII	1	zinc	n.a.	n.a.
841	SCN11A	Sodium channel protein type 11 subunit alpha	1	valproic acid	n.a.	n.a.
842	LDHB	L-lactate dehydrogenase B chain	1	artenimol	n.a.	n.a.
843	PDE4A	cAMP-specific 3',5'-cyclic phosphodiesterase 4A	2	theophylline, pentoxifylline	n.a.	n.a.
844	C1QC	Complement C1q subcomponent subunit C	2	zinc, copper	n.a.	n.a.
845	RXRA	Retinoic acid receptor RXR-alpha	2	bexarotene	n.a.	rosiglitazone
846	GSK3B	Glycogen synthase kinase-3 beta	2	n.a.	fostamatinib	lithium
847	TNF	Tumor necrosis factor	3	glucosamine, thalidomide	chloroquine	n.a.
848	CA7	Carbonic anhydrase 7	1	acetazolamide	n.a.	n.a.
849	NR1H3	Oxysterols receptor LXR-alpha	1	n.a.	rhein	n.a.
850	GUCY1A2	Guanylate cyclase soluble subunit alpha-2	1	n.a.	isosorbide mononitrate	n.a.
851	CHRNA7	Alpha-7 nicotinic cholinergic receptor subunit	1	memantine	n.a.	n.a.
852	CYP3A4	Cytochrome P450 3A4	1	isoniazid	n.a.	n.a.
853	CDK6	Cyclin-dependent kinase 6	1	alvocidib	n.a.	n.a.
854	PADI4	Protein-arginine deiminase type-4	1	n.a.	azithromycin	n.a.
855	ROCK1	Rho-associated protein kinase 1	1	fasudil	n.a.	n.a.
856	NR1H2	Oxysterols receptor LXR-beta	1	n.a.	rhein	n.a.
857	A2M	Alpha-2-macroglobulin	1	zinc	n.a.	n.a.
858	DNMT1	DNA (cytosine-5)-methyltransferase 1	1	procainamide	n.a.	n.a.
859	S100A13	Protein S100-A13	1	n.a.	n.a.	calcium
860	CYP51A1	Lanosterol 14-alpha demethylase	1	itraconazole	n.a.	n.a.
861	GOT1	Aspartate aminotransferase, cytoplasmic	1	copper	n.a.	n.a.
862	BECN1	Beclin-1	1	n.a.	estradiol	n.a.
863	MT-ATP6	ATP synthase subunit a	1	n.a.	estradiol	n.a.
864	HPRT1	Hypoxanthine-guanine phosphoribosyltransferase	1	mercaptopurine	n.a.	n.a.
865	SLC7A11	Cystine/glutamate transporter	1	sulfasalazine	n.a.	n.a.
866	AKR1B10	Aldo-keto reductase family 1 member B10	1	sulindac	n.a.	n.a.
867	TYMS	Thymidylate synthase	2	gemcitabine, pemetrexed	n.a.	n.a.
868	GABRB3	Gamma-aminobutyric acid receptor subunit beta-3	4	olanzapine, taurine, ivermectin, lamotrigine	n.a.	n.a.
869	GRIN2B	Glutamate receptor ionotropic, NMDA 2B	2	memantine, taurine	n.a.	n.a.
870	CHRNA9	Neuronal acetylcholine receptor subunit alpha-9	1	nicotine	n.a.	n.a.
871	SOD1	Superoxide dismutase [Cu-Zn]	1	zinc	n.a.	n.a.

872	FAAH	Fatty-acid amide hydrolase 1	1	n.a.	fostamatinib	n.a.
873	SCN3A	Sodium channel protein type 3 subunit alpha	1	valproic acid	n.a.	n.a.
874	TXNRD1	Thioredoxin reductase 1, cytoplasmic	1	spermidine	n.a.	n.a.
875	SYK	Tyrosine-protein kinase SYK	1	n.a.	fostamatinib	n.a.
876	GRIA3	Glutamate receptor 3	1	n.a.	n.a.	lithium
877	ATIC	Bifunctional purine biosynthesis protein PURH	1	pemetrexed	n.a.	n.a.
878	MAPK3	Mitogen-activated protein kinase 3	1	sulindac	n.a.	n.a.
879	TGFBR1	TGF-beta receptor type-1	1	n.a.	fostamatinib	n.a.
880	IFNG	Interferon gamma	1	glucosamine	n.a.	n.a.
881	HTR1B	5-hydroxytryptamine receptor 1B	3	olanzapine, cabergoline	propranolol	n.a.
882	HTR3A	5-hydroxytryptamine receptor 3A	3	memantine, olanzapine, lamotrigine	n.a.	n.a.
883	CDK5	Cyclin-dependent-like kinase 5	1	alvocidib	n.a.	n.a.
884	ABCB1	Multidrug resistance protein 1	2	voacamine	concanamycin a	n.a.
885	NPR1	Atrial natriuretic peptide receptor 1	1	nitroprusside	n.a.	n.a.
886	KCNN4	Intermediate conductance calcium-activated potassium channel protein 4	1	n.a.	clotrimazole	n.a.
887	YARS	Tyrosine--tRNA ligase, cytoplasmic	1	resveratrol	n.a.	n.a.
888	ATP2C1	Calcium-transporting ATPase type 2C member 1	1	n.a.	n.a.	calcium
889	GSS	Glutathione synthetase	1	copper	n.a.	n.a.
890	HSD17B2	Estradiol 17-beta-dehydrogenase 2	1	n.a.	estradiol	n.a.
891	GSTP1	Glutathione S-transferase P	2	troglitazone, curcumin	n.a.	n.a.
892	CHRNA2	Neuronal acetylcholine receptor subunit alpha-2	2	fluoxetine, nicotine	n.a.	n.a.
893	IMPDH1	Inosine-5'-monophosphate dehydrogenase 1	1	mercaptopurine	n.a.	n.a.
894	ANXA5	Annexin A5	1	copper	n.a.	n.a.
895	WEE1	Wee1-like protein kinase	1	n.a.	fostamatinib	n.a.
896	THRA	Thyroid hormone receptor alpha	1	amiodarone	n.a.	n.a.
897	S100B	Protein S100-B	1	n.a.	n.a.	calcium
898	ITGB3	Integrin beta-3	1	resveratrol	n.a.	n.a.
899	CYCS	Cytochrome c	1	artenimol	n.a.	n.a.
900	GLO1	Lactoylglutathione lyase	1	n.a.	n.a.	indomethacin
901	EPHX2	Bifunctional epoxide hydrolase 2	1	n.a.	ebiselen	n.a.
902	PRKCB	Protein kinase C beta type	1	tamoxifen	n.a.	n.a.
903	AVPR2	Vasopressin V2 receptor	1	tolvaptan	n.a.	n.a.
904	ALAD	Delta-aminolevulinic acid dehydratase	1	aminolevulinic acid	n.a.	n.a.
905	HTR1A	5-hydroxytryptamine receptor 1A	5	chlorpromazine, olanzapine, nortriptyline, cabergoline	propranolol	n.a.
906	CA1	Carbonic anhydrase 1	2	diazoxide, acetazolamide	n.a.	n.a.
907	SCN4A	Sodium channel protein type 4 subunit alpha	1	valproic acid	n.a.	n.a.
908	KCNJ1	ATP-sensitive inward rectifier potassium channel 1	1	minoxidil	n.a.	n.a.
909	IMPDH2	Inosine-5'-monophosphate dehydrogenase 2	1	mercaptopurine	n.a.	n.a.
910	ABAT	4-aminobutyrate aminotransferase, mitochondrial	1	valproic acid	n.a.	n.a.
911	AVPR1A	Vasopressin V1a receptor	1	tolvaptan	n.a.	n.a.
912	PDE4B	cAMP-specific 3',5'-cyclic phosphodiesterase 4B	2	theophylline, pentoxifylline	n.a.	n.a.
913	HSP90AA1	Heat shock protein HSP 90-alpha	3	quercetin, geldanamycin, copper	n.a.	n.a.
914	GABRQ	Gamma-aminobutyric acid receptor subunit theta	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
915	ITGAL	Integrin alpha-L	1	simvastatin	n.a.	n.a.
916	KCNA1	Potassium voltage-gated channel subfamily A member 1	1	nifedipine	n.a.	n.a.
917	SLC12A3	Solute carrier family 12 member 3	1	diazoxide	n.a.	n.a.

918	GABBR1	Gamma-aminobutyric acid type B receptor subunit 1	1	taurine	n.a.	n.a.
919	NCOA2	Nuclear receptor coactivator 2	2	genistein	estradiol	n.a.
920	KCNMA1	Calcium-activated potassium channel subunit alpha-1	1	diazoxide	n.a.	n.a.
921	COMT	Catechol O-methyltransferase	1	n.a.	n.a.	2-methoxyestradiol
922	CHRNA10	Neuronal acetylcholine receptor subunit alpha-10	1	nicotine	n.a.	n.a.
923	GABRP	Gamma-aminobutyric acid receptor subunit pi	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
924	GABRE	Gamma-aminobutyric acid receptor subunit epsilon	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
925	GABRD	Gamma-aminobutyric acid receptor subunit delta	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
926	GABRG3	Gamma-aminobutyric acid receptor subunit gamma-3	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
927	PLA2G1B	Phospholipase A2	1	sulfasalazine	n.a.	n.a.
928	FDPS	Farnesyl pyrophosphate synthase	1	zoledronic acid	n.a.	n.a.
929	GABRB2	Gamma-aminobutyric acid receptor subunit beta-2	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
930	GABRG1	Gamma-aminobutyric acid receptor subunit gamma-1	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
931	GABRB1	Gamma-aminobutyric acid receptor subunit beta-1	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
932	GGPS1	Geranylgeranyl pyrophosphate synthase	1	zoledronic acid	n.a.	n.a.
933	CA3	Carbonic anhydrase 3	1	acetazolamide	n.a.	n.a.
934	CTSS	Cathepsin S	1	n.a.	fostamatinib	n.a.
935	CFTR	Cystic fibrosis transmembrane conductance regulator	1	glyburide	n.a.	n.a.
936	HPGDS	Hematopoietic prostaglandin D synthase	1	n.a.	nocodazole	n.a.
937	GSR	Glutathione reductase, mitochondrial	1	copper	n.a.	n.a.
938	PLG	Plasminogen	1	copper	n.a.	n.a.
939	ABCC8	ATP-binding cassette sub-family C member 8	1	glyburide	n.a.	n.a.
940	PDPK1	3-phosphoinositide-dependent protein kinase 1	1	n.a.	fostamatinib	n.a.
941	EDNRA	Endothelin-1 receptor	1	acetylsalicylic acid	n.a.	n.a.
942	THRB	Thyroid hormone receptor beta	1	amiodarone	n.a.	n.a.
943	HTR1D	5-hydroxytryptamine receptor 1D	2	olanzapine, cabergoline	n.a.	n.a.
944	CHRNA7	Neuronal acetylcholine receptor subunit alpha-7	2	acetylcholine, nicotine	n.a.	n.a.
945	GABRG2	Gamma-aminobutyric acid receptor subunit gamma-2	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
946	HSP90AB1	Heat shock protein HSP 90-beta	1	geldanamycin	n.a.	n.a.
947	HTR1E	5-hydroxytryptamine receptor 1E	1	olanzapine	n.a.	n.a.
948	FGA	Fibrinogen alpha chain	1	zinc	n.a.	n.a.
949	AGTR1	Type-1 angiotensin II receptor	1	telmisartan	n.a.	n.a.
950	PYGL	Glycogen phosphorylase, liver form	1	alvocidib	n.a.	n.a.
951	GABRA4	Gamma-aminobutyric acid receptor subunit alpha-4	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
952	GABRA6	Gamma-aminobutyric acid receptor subunit alpha-6	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
953	INSR	Insulin receptor	1	n.a.	fostamatinib	n.a.
954	CA4	Carbonic anhydrase 4	1	acetazolamide	n.a.	n.a.
955	TRPV1	Transient receptor potential cation channel subfamily V member 1	1	capsaicin	n.a.	n.a.
956	PLA2G2A	Phospholipase A2, membrane associated	1	n.a.	n.a.	indomethacin
957	SLC6A2	Sodium-dependent noradrenaline transporter	3	paroxetine, nortriptyline, maprotiline	n.a.	n.a.
958	MAPK10	Mitogen-activated protein kinase 10	1	n.a.	fostamatinib	n.a.
959	METAP2	Methionine aminopeptidase 2	1	nitroxoline	n.a.	n.a.
960	MAPK1	Mitogen-activated protein kinase 1	1	perifosine	n.a.	n.a.
961	HRH2	Histamine H2 receptor	1	olanzapine	n.a.	n.a.

962	GABRA5	Gamma-aminobutyric acid receptor subunit alpha-5	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
963	PRKACA	cAMP-dependent protein kinase catalytic subunit alpha	2	fasudil	fostamatinib	n.a.
964	C1QB	Complement C1q subcomponent subunit B	1	zinc	n.a.	n.a.
965	ACE	Angiotensin-converting enzyme	1	n.a.	enalaprilat	n.a.
966	REN	Renin	1	minoxidil	n.a.	n.a.
967	GABRA3	Gamma-aminobutyric acid receptor subunit alpha-3	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
968	GRIN2A	Glutamate receptor ionotropic, NMDA 2A	1	memantine	n.a.	n.a.
969	VDR	Vitamin D3 receptor	1	curcumin	n.a.	n.a.
970	NCOA1	Nuclear receptor coactivator 1	1	genistein	n.a.	n.a.
971	C1R	Complement C1r subcomponent	1	zinc	n.a.	n.a.
972	GABRA2	Gamma-aminobutyric acid receptor subunit alpha-2	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
973	OPRK1	Kappa-type opioid receptor	2	loperamide, lamotrigine	n.a.	n.a.
974	SLC18A2	Synaptic vesicular amine transporter	1	reserpine	n.a.	n.a.
975	GRIN1	Glutamate receptor ionotropic, NMDA 1	1	memantine	n.a.	n.a.
976	IGHG1	Ig gamma-1 chain C region	1	copper	n.a.	n.a.
977	DPP4	Dipeptidyl peptidase 4	2	atorvastatin	n.a.	sitagliptin
978	MAPK14	Mitogen-activated protein kinase 14	2	dasatinib	fostamatinib	n.a.
979	GABRA1	Gamma-aminobutyric acid receptor subunit alpha-1	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
980	DHFR	Dihydrofolate reductase	1	pemetrexed	n.a.	n.a.
981	PKIA	cAMP-dependent protein kinase inhibitor alpha	1	fasudil	n.a.	n.a.
982	GRIN3A	Glutamate receptor ionotropic, NMDA 3A	1	memantine	n.a.	n.a.
983	AKR1B1	Aldose reductase	1	sulindac	n.a.	n.a.
984	CHEK1	Serine/threonine-protein kinase Chk1	1	n.a.	fostamatinib	n.a.
985	NOS2	Nitric oxide synthase, inducible	1	dexamethasone	n.a.	n.a.
986	OPRD1	Delta-type opioid receptor	1	loperamide	n.a.	n.a.
987	F2	Prothrombin	3	zinc, copper, proflavine	n.a.	n.a.
988	PYGM	Glycogen phosphorylase, muscle form	1	alvocidib	n.a.	n.a.
989	ACHE	Acetylcholinesterase	1	acetylcholine	n.a.	n.a.
990	F10	Coagulation factor X	1	n.a.	heparin	n.a.
991	OPRM1	Mu-type opioid receptor	1	loperamide	n.a.	n.a.
992	CA2	Carbonic anhydrase 2	2	diazoxide, acetazolamide	n.a.	n.a.
993	CDK2	Cyclin-dependent kinase 2	1	alvocidib	n.a.	n.a.
predicted targets						
1	SLC6A3	Sodium-dependent dopamine transporter	9	verapamil, maprotiline, olanzapine, lamotrigine, nortriptyline, chlorpromazine, paroxetine, fluoxetine, citalopram	n.a.	n.a.
2	HTR3B	5-hydroxytryptamine receptor 3B	1	olanzapine	n.a.	n.a.
3	HTR1F	5-hydroxytryptamine receptor 1F	3	olanzapine, cabergoline, nortriptyline	n.a.	n.a.
4	GABRR1	Gamma-aminobutyric acid receptor subunit rho-1	3	taurine, olanzapine, lamotrigine	n.a.	n.a.
5	GRIK2	Glutamate receptor ionotropic, kainate 2	1	taurine	n.a.	n.a.
6	GRIA2	Glutamate receptor 2	1	taurine	n.a.	n.a.
7	TSPO	Translocator protein	3	lamotrigine, taurine, olanzapine	n.a.	n.a.
8	GABRR2	Gamma-aminobutyric acid receptor subunit rho-2	3	taurine, lamotrigine, olanzapine	n.a.	n.a.
9	GABRR3	Gamma-aminobutyric acid receptor subunit rho-3	3	olanzapine, taurine, lamotrigine	n.a.	n.a.
10	GRIN2C	Glutamate receptor ionotropic, NMDA 2C	2	taurine, memantine	n.a.	n.a.
11	GRIN3B	Glutamate receptor ionotropic, NMDA 3B	2	memantine, taurine	n.a.	n.a.
12	GRIN2D	Glutamate receptor ionotropic, NMDA 2D	2	memantine, taurine	n.a.	n.a.

Genes with Elevated mRNA expression levels in Brain (> 5-fold higher than other tissues)

GRIN1; GABRD; HTR1A; GABRA6; GABRA1; CAMK2A; GABRA5; HTR2C; GRIN2B; GLRA2; DRD1; MT3; PRKCG; TTR; CACNA1A; GLRA1; CALY; CHRNA2; GABRG1; HTR6; CHRM1; CHRN2; DRD2; GABRB2; MAP2; NTRK1; SCN2A; ADORA2A; CACNA1E; HTR2A; SBK1; ATP1A2; ATP1A3; DRD5; GABRA3; GABRG2; KCNA1; PAK5; SCN2B; SCN3B; APLP1; CACNA1B; CAMKK2; CHAT; FGF1; GABRQ; GRIN2A; HTR5A; MAST1; NIM1K; OPRM1; SCN1A; SCN1B; SCN3A; SNCA; ACHE; ADORA3; CAMK1G; CHRM5; CHRNA4; DCLK1; DCLK2; EPHA8; EPHB1; GABRA2; GABRA4; GABRB1; GLRA3; GRIN3A; MAPT; PAK3; PCDH19; PDE1B; RXRG; S100B; SCN8A; TUBB4A; ABCC8; ADORA1; ADRA1B; ADRA1D; ALK; ASMT; ASPA; BDNF; CA14; CACNA1G; CACNA1I; CACNA2D3; CACNB3; CACNB4; CALM1; CAMK2B; CAMKK1; CDK5; CHRM4; CHRNA6; CHRNA9; CHRN3; CIT; DCLK3; DPYSL2; DRD3; EPHA4; EPHA5; EPHA6; EPHB6; ESRRG; FGF4; FGFR2; FLT3; GABBR1; GABRB3; GABRG3; GRIA3; HIPK2; HSPA2; HTR1B; HTR1D; HTR1E; INSRR; KCNH7; LIMK1; MAP3K10; MAP3K12; MAP3K15; MAP3K19; MAP3K9; MAP4; MAP4K4; MAPK1; MAPK10; MAPK15; MAPK4; MAPK9; MATK; MTNR1A; MTNR1B; NEK5; NTRK2; NTRK3; NUAK1; OPRD1; OPRK1; PAK1; PDE1A; PDE4A; PLCL1; POLB; PRKACB; PRKCB; PRKCE; PRKCZ; PTK2B; RORB; SCN4B; SLC18A2; SLC7A11; STK32A; THRA; TLR7; TNK1; TP73; TUBA1A; TYRO3