

Fig. S1 Study design and experimental flow

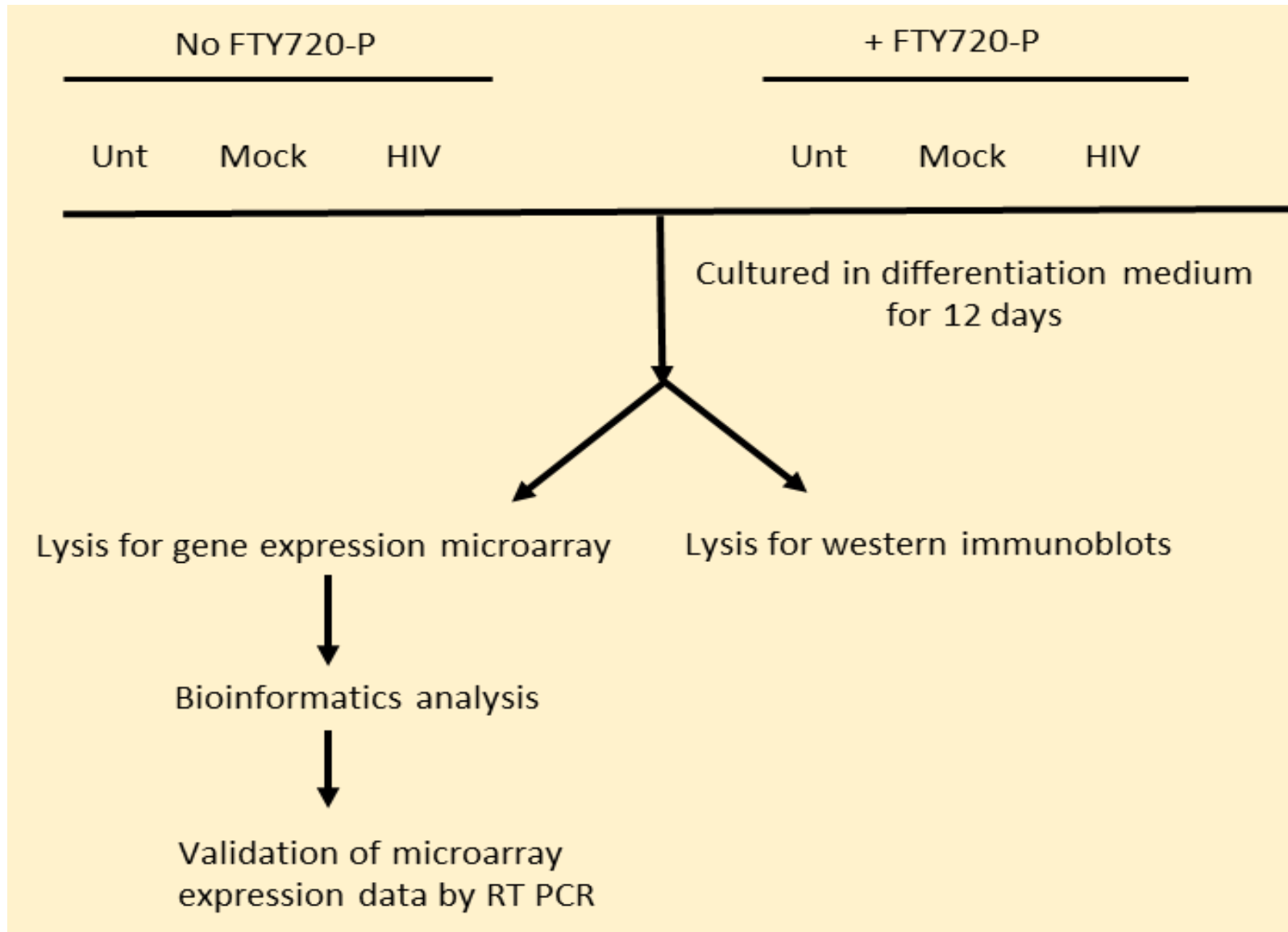


Table S1 Differentially expressed genes in pairwise comparisons of Mock vs Unt, HIV vs Unt and HIV vs Mock, in the absence of FTY720-P

NOTE: For all the analyses, repeated probes, non coding RNA, withdrawn genes and pseudogenes were removed

Expression values for antisense RNA, and for uncharacterized genes were kept

FC absolute value \geq 1.5 and nominal p value \leq 0.05

Mock vs Unt - No FTY720-P			HIV vs Unt - No FTY720-P			HIV vs Mock - No FTY720-P			Unique to	Unique to HIV vs	Common
Gene	Fold Change	Nominal p value	Gene	FC value	Nominal p value	Gene	FC value	Nominal p value	Mock vs Unt	Unt	to both
A2M	6.5396	0	A2M	6.7048	0.0105	B2M	1.7648	0.0101	ADA	BHLHE22	A2M
ADA	1.5569	0.0037	AGTPBP1	1.5352	0.0485	HLA-A	1.8762	0.0008	ADM	CNTNAP1	AGTPBP1
ADM	3.2333	0.011	ALPK2	5.849	0.0052	HLA-A29.1	1.5317	0.0138	ALDOC	D4S234E	ALPK2
AGTPBP1	1.573	0.0061	ARHGEF6	-1.5094	0.0334	HLA-B	2.3674	0.0008	ANGPT1	ELAVL2	ARHGEF6
ALDOC	2.1583	0.0442	B2M	7.1211	0.0002	HLA-E	1.577	0.022	ANKRD20A1	HLA-F	B2M
ALPK2	5.0277	0.0011	BCAT1	1.73	0.0003	HLA-F	1.6636	0.0045	ANKRD37	HS.551307	BCAT1
ANGPT1	-1.6337	0.0015	BCL6	1.5148	0.0078	PSMB8	1.5266	0.0061	ARL16	JAG1	BCL6
ANKRD20A1	-1.6495	0.0113	BHLHE22	-1.7009	0.0328	PSMB9	2.1464	0.0491	ASGR1	LOC100008589	C1QTNF6
ANKRD37	1.5049	0.027	C1QTNF6	1.763	0.0006	TAP1	3.146	0.0161	BAALC	LOC645323	C21ORF62
ARHGEF6	-1.6235	0.0303	C21ORF62	1.5419	0.0022				BCL3	LOC653111	CAPN5
ARL16	-1.5803	0.0193	CAPN5	1.5516	0.002				BHLHB2	NBPF20	COL1A2
ASGR1	1.6872	0.0088	CNTNAP1	1.5086	0.0152				BLZF1	PCDH18	CXCR7
B2M	4.0348	0.0001	COL1A2	1.511	0.0099				C21ORF24	PSMB8	EFR3A
BAALC	1.5232	0	CXCR7	1.6421	0.0136				C2ORF80	PSMB9	ELMOD1
BCAT1	1.5627	0.0004	D4S234E	-1.5103	0.0266				C9ORF80	PSME1	EPHA4
BCL3	1.6435	0.0011	EFR3A	1.5448	0.0282				CCDC125	PTRF	FAM167A
BCL6	1.6557	0.0001	ELAVL2	-1.6194	0.0252				CCND1	SOX9	FAM46A
BHLHB2	2.0881	0.0176	ELMOD1	2.9402	0.0014				CD44	SP8	FLRT3
BLZF1	-1.5698	0.0067	EPHA4	-1.6583	0.0081				CDK6	TNFRSF1A	FMN2
C1QTNF6	2.1006	0.0002	FAM167A	3.563	0.0001				CDKN1A		FXYD5
C21ORF24	-1.6234	0.0236	FAM46A	3.0055	0.0073				CEBPD		GYG2
C21ORF62	1.5688	0.0172	FLRT3	-1.9597	0.0243				CRCP		HLA-A
C2ORF80	1.6621	0.0058	FMN2	1.5284	0.0004				CRY1		HLA-A29.1
C9ORF80	-1.5568	0.0182	FXYD5	1.5858	0.0009				CSF2RA		HLA-B
CAPN5	1.5823	0.0055	GYG2	2.2503	0.0142				DACT2		HLA-E
CCDC125	-1.5449	0.025	HLA-A	3.2445	0.0001				DDIT4		HS.489254
CCND1	-1.6254	0.0055	HLA-A29.1	2.5003	0.002				DEM1		HS3ST3A1
CD44	1.5417	0.0122	HLA-B	3.6293	0.0001				DMC1		HSPE1
CDK6	-1.5816	0.0035	HLA-E	2.501	0.0045				EID2B		HTRA1
CDKN1A	-1.5259	0.0256	HLA-F	2.4328	0.0006				ENO1		IFI6
CEBPD	1.5086	0.0466	HS.489254	1.7366	0.0131				FABP5		IFITM1
COL1A2	1.5923	0.0163	HS.551307	-1.581	0.0228				FAM162A		IFITM2
CRCP	-2.024	0.0165	HS3ST3A1	1.8762	0.0089				FLJ44124		IFITM3
CRY1	1.5564	0.0033	HSPE1	1.8864	0.0465				FRAS1		IGFBP5
CSF2RA	-1.6185	0.0059	HTRA1	2.2216	0.001				GJA1		IL13RA1
CXCR7	1.8378	0.0002	IFI6	1.5658	0.0162				GRM3		IRF1

DACT2	1.5502	0.0013	IFITM1	4.1549	0.0032	HK2	IRF9
DDIT4	1.6928	0.0319	IFITM2	2.6421	0.0002	HRASLS3	ISG15
DEM1	-1.5079	0.0198	IFITM3	3.5539	0.0031	HSPB1	KBTBD8
DMC1	-1.5026	0.038	IGFBP5	1.8596	0.0084	ID3	KCNIP4
EFR3A	1.5259	0.0368	IL13RA1	1.828	0.0015	IDH1	LARGE
EID2B	-1.7017	0.0326	IRF1	2.5481	0.0126	IFI16	LEF1
ELMOD1	3.5279	0.0006	IRF9	3.2923	0.001	IGDCC4	LGALS3BP
ENO1	1.6816	0.0361	ISG15	2.749	0.005	IGFBP2	LOC100134006
EPHA4	-1.5661	0.0101	JAG1	-1.5323	0.0333	LDHA	LOC399939
FABP5	1.6688	0.0137	KBTBD8	1.7438	0.0001	LILRB1	LOC729384
FAM162A	1.6151	0.0098	KCNIP4	5.4885	0	LOC100132727	MEGF10
FAM167A	3.6045	0	LARGE	-1.5354	0.0087	LOC100190938	NCAM1
FAM46A	2.1784	0.004	LEF1	-1.5422	0.0212	LOC255783	NEUROG2
FLJ44124	-1.5686	0.016	LGALS3BP	1.8874	0.0152	LOC392437	NPPC
FLRT3	-1.6956	0.0068	LOC100008589	-1.895	0.0389	LOC440934	PARP9
FMN2	1.6251	0.017	LOC100134006	-1.9366	0.0002	LOC642362	PCDH17
FRAS1	-1.5146	0.0273	LOC399939	-1.7606	0.0013	MAB21L2	PDE1A
FXYD5	1.7013	0.001	LOC645323	-1.6191	0.0214	MIF	PEG10
GJA1	1.5888	0.0275	LOC653111	-1.6347	0.0148	MOBKL2B	PFKP
GRM3	-1.6711	0.0006	LOC729384	-1.8293	0.0039	MTP18	PHCA
GYG2	1.92	0.0041	MEGF10	-1.7874	0.0054	MYCN	PLEKHA2
HK2	1.9563	0.0312	NBPF20	-1.6205	0.0261	NKX6-2	PPP1R14C
HLA-A	1.7293	0.001	NCAM1	-1.5629	0.0367	OLFM1	PRSS23
HLA-A29.1	1.6324	0.0015	NEUROG2	-1.6035	0.0016	P4HA1	PSRC1
HLA-B	1.533	0.0031	NPPC	-1.7888	0.004	PCDH19	RALYL
HLA-E	1.5859	0	PARP9	2.1567	0.0229	PFKFB3	RBMS1
HRASLS3	1.5252	0.0042	PCDH17	-1.6178	0.0245	PGAM1	RHOBTB3
HS.489254	1.6389	0.0228	PCDH18	-1.5651	0.0341	PGAM4	RND3
HS3ST3A1	2.2142	0.0089	PDE1A	-1.6125	0.0119	PGK1	SERPINB6
HSPB1	1.5511	0.0054	PEG10	1.6396	0.0269	PHYHIPL	SERPING1
HSPE1	1.6807	0.0378	PFKP	1.8191	0.0024	PI15	SHISA2
HTRA1	2.6796	0.0002	PHCA	1.7252	0.0071	PLOD2	SLC2A3
ID3	1.689	0.0164	PLEKHA2	1.9844	0.0007	PLXDC2	SMAD6
IDH1	1.6271	0.0181	PPP1R14C	1.8848	0.0007	PPP1R3C	SNCAIP
IFI16	1.5495	0.0029	PRSS23	1.9409	0.0022	PPP2R2B	SOCS3
IFI6	1.5634	0.023	PSMB8	1.7666	0.0056	PRPH	SOSTDC1
IFITM1	4.7562	0.0002	PSMB9	2.4671	0.0367	PTPRD	SPAG16
IFITM2	2.8637	0.0009	PSME1	1.5176	0.0172	RARRES2	SPRYD5
IFITM3	3.7441	0.0053	PSRC1	2.0754	0.0144	RAXL1	SRGAP3
IGDCC4	1.5495	0.0011	PTRF	1.8483	0.0393	SFRP1	STAT1
IGFBP2	1.654	0.0084	RALYL	1.5671	0.0009	SORT1	SULF1
IGFBP5	1.9491	0.0014	RBMS1	1.8964	0.0028	SOX3	TAP1
IL13RA1	2.0309	0.0001	RHOBTB3	1.8253	0.0018	SYT7	TMEM158
IRF1	1.693	0.0012	RND3	-1.6701	0.0004	TMEFF2	TPST2

IRF9	2.2178	0.0011	SERPINB6	2.0581	0.0001	TPI1	TRIM48
ISG15	2.1556	0.0034	SERPING1	1.5913	0.011	VGLL3	TSPO
KBTBD8	1.9122	0.0041	SHISA2	-1.6341	0.0259	ZNF738	VGF
KCNIP4	7.1305	0.0003	SLC2A3	2.4483	0.0443		ZC3HAV1
LARGE	-1.5554	0.0045	SMAD6	1.687	0.0016		
LDHA	1.6507	0.0246	SNCAIP	-1.8056	0.0003		
LEF1	-1.5494	0.0335	SOCS3	1.8648	0.0072		
LGALS3BP	1.8316	0.0024	SOSTDC1	1.6706	0.0085		
LILRB1	-1.5039	0.0106	SOX9	-1.591	0.0105		
LOC100132727	-1.5189	0.0483	SP8	-1.5219	0.017		
LOC100134006	-1.8955	0.0044	SPAG16	-1.6269	0.0128		
LOC100190938	-1.5672	0.0128	SPRYD5	-2.0677	0.0085		
LOC255783	1.584	0.0004	SRGAP3	-1.5117	0.0215		
LOC392437	1.6667	0.0076	STAT1	3.624	0.024		
LOC399939	-1.6837	0.0036	SULF1	1.7949	0.0128		
LOC440934	-1.6835	0.0098	TAP1	6.6548	0.0067		
LOC642362	-1.6812	0.005	TMEM158	3.8987	0.0096		
LOC729384	-1.5939	0.0019	TNFRSF1A	1.5	0.0003		
MAB21L2	-1.6019	0.0236	TPST2	1.5372	0.004		
MEGF10	-1.7371	0.0024	TRIM48	-2.3047	0.0069		
MIF	1.7649	0.0076	TSPO	1.5605	0.015		
MOBK2B	1.654	0.0004	VGF	2.2278	0.0319		
MTP18	1.884	0.0005	ZC3HAV1	2.2043	0.0005		
MYCN	1.5914	0.0056					
NCAM1	-1.5475	0.0105					
NEUROG2	-1.6098	0.0031					
NKX6-2	2.4054	0.001					
NPPC	-2.0614	0.0024					
OLFM1	-1.5055	0.0331					
P4HA1	1.9163	0.0362					
PARP9	1.7401	0.0042					
PCDH17	-1.8137	0.0018					
PCDH19	-1.6199	0.0058					
PDE1A	-1.6874	0.0302					
PEG10	1.7976	0.0139					
PFKFB3	1.5656	0.0169					
PFKP	1.5641	0.0091					
PGAM1	2.1598	0.0152					
PGAM4	1.6115	0.0149					
PGK1	1.6237	0.0242					
PHCA	1.5845	0.012					
PHYHIPL	-1.5425	0.002					
PI15	-1.5808	0.0015					
PLEKHA2	2.3799	0.0033					

PLOD2	1.9843	0.0334
PLXDC2	1.6449	0.0004
PPP1R14C	2.2475	0.0136
PPP1R3C	1.5195	0.0101
PPP2R2B	1.5236	0.0048
PRPH	2.0654	0.047
PRSS23	2.3574	0.0051
PSRC1	2.191	0.0099
PTPRD	-1.6159	0.0141
RALYL	1.8613	0.003
RARRES2	1.538	0.0034
RAXL1	-1.5017	0.0312
RBMS1	1.9471	0.0004
RHOBTB3	1.5868	0.0014
RND3	-2.0557	0.0013
SERPINB6	2.3447	0.0001
SERPING1	1.7213	0.0016
SFRP1	1.5198	0.0057
SHISA2	-1.6113	0.0028
SLC2A3	3.3889	0.0019
SMAD6	1.6698	0.0074
SNCAIP	-1.8788	0.0039
SOCS3	1.9355	0.0001
SORT1	1.5491	0.001
SOSTDC1	1.8693	0.0007
SOX3	-1.5166	0.0227
SPAG16	-1.591	0.0046
SPRYD5	-1.8818	0.0075
SRGAP3	-1.5008	0.0238
STAT1	2.0168	0.0004
SULF1	2.0796	0.0016
SYT7	1.5429	0.0188
TAP1	2.1155	0
TMEFF2	-1.5376	0.0015
TMEM158	3.4331	0.0001
TPI1	1.5307	0.0182
TPST2	1.8181	0.0049
TRIM48	-1.8975	0.0006
TSPO	1.5288	0.0073
VGf	1.5804	0.0265
VGLL3	-1.7053	0.0125
ZC3HAV1	2.0697	0.0007
ZNF738	-1.5013	0.0403

Table S2 Differentially expressed genes in pairwise comparisons of Mock vs Unt and HIV vs Unt in the absence of FTY720-P

NOTE: For all the analyses, repeated probes, non coding RNA, withdrawn genes and pseudogenes were removed

Expression values for antisense RNA, and for uncharacterized genes were kept

FC absolute value \geq 2.0 and nominal p value \leq 0.05

Mock vs Unt no FTY720-P			HIV vs Unt no FTY720-P			Unique to Mock	Unique to HIV	Common to both
Gene	FC value	Nominal p value	Gene	FC value	Nominal p value			
KCNIP4	7.1305	0.0003	B2M	7.1211	0.0002	ADM	HLA-B	KCNIP4
A2M	6.5396	0	A2M	6.7048	0.0105	NKX6-2	HLA-A	A2M
ALPK2	5.0277	0.0011	TAP1	6.6548	0.0067	PLEKHA2	IRF1	ALPK2
IFITM1	4.7562	0.0002	ALPK2	5.849	0.0052	PRSS23	HLA-E	IFITM1
B2M	4.0348	0.0001	KCNIP4	5.4885	0	PPP1R14C	HLA-A29.1	B2M
IFITM3	3.7441	0.0053	IFITM1	4.1549	0.0032	HS3ST3A1	PSMB9	IFITM3
FAM167A	3.6045	0	TMEM158	3.8987	0.0096	PGAM1	HLA-F	FAM167A
ELMOD1	3.5279	0.0006	HLA-B	3.6293	0.0001	ALDOC	GYG2	ELMOD1
TMEM158	3.4331	0.0001	STAT1	3.624	0.024	C1QTNF6	VGf	TMEM158
SLC2A3	3.3889	0.0019	FAM167A	3.563	0.0001	BHLHB2	PARP9	SLC2A3
ADM	3.2333	0.011	IFITM3	3.5539	0.0031	SULF1	SPRYD5	IFITM2
IFITM2	2.8637	0.0009	IRF9	3.2923	0.001	PRPH	TRIM48	HTRA1
HTRA1	2.6796	0.0002	HLA-A	3.2445	0.0001	IL13RA1		SERPINB6
NKX6-2	2.4054	0.001	FAM46A	3.0055	0.0073	CRCP		IRF9
PLEKHA2	2.3799	0.0033	ELMOD1	2.9402	0.0014	RND3		PSRC1
PRSS23	2.3574	0.0051	ISG15	2.749	0.005	NPPC		FAM46A
SERPINB6	2.3447	0.0001	IFITM2	2.6421	0.0002			ISG15
PPP1R14C	2.2475	0.0136	IRF1	2.5481	0.0126			TAP1
IRF9	2.2178	0.0011	HLA-E	2.501	0.0045			ZC3HAV1
HS3ST3A1	2.2142	0.0089	HLA-A29.1	2.5003	0.002			STAT1
PSRC1	2.191	0.0099	PSMB9	2.4671	0.0367			
FAM46A	2.1784	0.004	SLC2A3	2.4483	0.0443			
PGAM1	2.1598	0.0152	HLA-F	2.4328	0.0006			
ALDOC	2.1583	0.0442	GYG2	2.2503	0.0142			
ISG15	2.1556	0.0034	VGf	2.2278	0.0319			
TAP1	2.1155	0	HTRA1	2.2216	0.001			

C1QTNF6	2.1006	0.0002	ZC3HAV1	2.2043	0.0005
BHLHB2	2.0881	0.0176	PARP9	2.1567	0.0229
SULF1	2.0796	0.0016	PSRC1	2.0754	0.0144
ZC3HAV1	2.0697	0.0007	SERPINB6	2.0581	0.0001
PRPH	2.0654	0.047	SPRYD5	-2.0677	0.0085
IL13RA1	2.0309	0.0001	TRIM48	-2.3047	0.0069
STAT1	2.0168	0.0004			
CRCP	-2.024	0.0165			
RND3	-2.0557	0.0013			
NPPC	-2.0614	0.0024			

Table S3 Differentially expressed genes in pairwise comparisons of HIV vs Unt: hNP1 cells compared to other published studies of neural cells or brain tissues
FC absolute value ≥ 2.0 and nominal p value ≤ 0.05

Genes differentially expressed in hNP1	FC value	Name	Function	Geffin et. al, NEP		Roberts et. al.	Masliah et.al.	Borjabad et. al.	Gelman et. al.		
				ApoE3/E3	ApoE3/E3 and ApoE3/E4				Neo-striatum	Frontal lobe	White matter
B2M	7.12	beta-2-microglobulin	Immune response	U, FC= 1.65, p=0.003	U, FC=1.67, p=0.00			U	U	U	
A2M	6.7	alpha-2-macroglobulin	Metabolism	NS, FC 1.15, p=0.428	NS, FC=-1.02, p=0.93	U					
TAP1	6.65	transporter 1, ATP Binding Cassette	Immune response	U, FC= 2.55, p=0.004	U, FC=2.37, p=0.00			U	U	U	
ALPK2	5.85	alpha kinase 2	Enzyme	NS, FC=1.45, p=0.061	U, FC=1.42, p=0.012						
KCNIP4	5.49	potassium voltage-gated channel interacting protein 4	Neuronal function	NS, FC=1.50, p=0.092	U, FC=1.51, p=0.007			D			
IFITM1	4.15	interferon induced transmembrane protein 1	Immune response	U, FC=3.66, p=0.014	U, FC=3.49, p=0.0006		U	U	U		
TMEM158	3.9	transmembrane protein 158	Unknown	NS, F=1.22, p=0.172	U, FC=1.18, p=0.034						
HLA-B	3.63	Major Histocompatibility Complex, Class I, B	Immune response	U, F=4.27, p=0.000	U, FC=3.79, p=0.000			U	U	U	
STAT1	3.62	Signal transducer and activator of transcription 1	Immune response	U, F=2.34, p=0.025	U, FC=2.0, p=0.0011		U	U	U	U	
FAM167A	3.56	Family with sequence similarity 167 Member A	Cell signaling	NS, FC=-1.07, p=0.126	NS, FC=1.00, p=0.9773						
IFITM3	3.55	interferon induced transmembrane protein 3	Immune response	U, FC=2.36, p=0.016	U, FC=2.57, p=0.0001		U	U	U		

IRF9	3.29	interferon regulatory factor 9	Immune response	U, FC=1.62, p=0.013	U, FC=1.78, p=0.0001				U	
HLA-A	3.24	Major Histocompatibility Complex, Class I, A	Immune response	U, FC=2.06, p=0.022	U, FC=1.82, p=0.0060				U	U
FAM46A	3.01	Family with sequence similarity 46 Member A	Enzyme	NS, FC=1.14, p=0.116	U, FC 1.13, p=0.0100				U	
ELMOD1	2.94	ELMO domain containing 1	Cell signaling	NS, FC=1.14, p=0.116	NS, FC=1.12, p=0.1415				D	D
ISG15	2.75	ISG15 ubiquitin-like modifier	Immune response	NS, FC=2.94, p=0.064	U, FC=3.66, p=0.0002			U	U	U
IFITM2	2.64	interferon induced transmembrane protein 2	Immune response	U, FC=2.51, p=0.016	U, FC=2.47, p=0.0003				U	
IRF1	2.55	interferon regulatory factor 1	Immune response	U, FC=1.68, p=0.019	U, FC=1.42, p=0.0111				U	
HLA-E	2.5	Major Histocompatibility Complex, Class I, E	Immune response	U, FC=2.34, p=0.002	U, FC=2.43, p=0.000			U	U	U
HLA-A29.1	2.5	Major Histocompatibility Complex, Class I, A	Immune response	U, FC=2.17, p=0.050	U, FC=1.70, p=0.0418					
PSMB9	2.47	Proteasome subunit Beta 9	Immune response	U, FC=3.32, p=0.00	U, FC=1.62, p=0.0002				U	U
SLC2A3	2.45	Solute Carrier Family 2 Member 3	Metabolism	NS, FC=1.14, p=0.084	NS, FC=1.08, FC=0.13					D
HLA-F	2.43	Major Histocompatibility Complex, Class I, F	Immune response	U, FC=2.28, p=0.001	U, FS=2.19, p=0.0001			U	U	U
GYG2	2.25	Glycogenin 2	Enzyme	NS, FC=1.10, p=0.251	NS, FC=1.03, p=0.69				U	
VGF	2.23	VGF Nerve Growth Factor Inducible	Neuronal function	NS, FC=-1.25, p=0.219	NS, FC=1.02, p=0.86					
HTRA1	2.22	HtrA serine peptidase 1	Enzyme	NS, FC=1.06, p=0.306	NS, FC=1.04, p=0.57					

ZC3HAV1	2.2	Zinc Finger CCCH-Type Containing, Antiviral 1	Immune response	NS, FC=1.18, p=0.093	U, FC=1.16, p=0.037	U	U	U	
PARP9	2.16	Poly(ADP-Ribose) Polymerase Family Member 9	Immune response	U, FC=1.68, p=0.019	U, FC=1.81, p=0.0002	U	U	U	U
PSRC1	2.08	Proline and Serine Rich Coiled-Coil 1	Metabolism	NS, FC=1.15, p=0.358	NS, FC=1.15, p=0.13	U	U		
SERPINB6	2.06	Serpin Family B Member 6	Metabolism	NC, FC=1.07, p=0.036	U, FC=1.26, p=0.0035	U			
SPRYD5	-2.07	Tripartite Motif-Containing (TRIM) 51	TRIM protein	NS, FC=-1.04, p=0.37	NS, FC=-1.33, p=0.90				
TRIM48	-2.3	Tripartite Motif-Containing (TRIM) 48	TRIM protein	NS, FC=-1.01, p=0.92	NS, FC=-1.0, p=0.39				

Genes differentially expressed in HIV-exposed hNP1 cultures and with |FC| values of 2.0 or more were compared to gene expression data from five published studies that investigated HIV exposure and infection of neural cells and tissues. The genes that are differentially expressed in the other studies but not in the hNP1-derived gene list are not included. In the data listed under Geffin et. al., are changes in gene expression that result from HIV exposure of differentiating human neuroepithelial progenitor cells (NEP) compared to untreated NEP. The gene expression data is stratified according to NEP that had only the apolipoprotein E (ApoE) E3/E3 genotype versus NEP that included both ApoE3/E3 and ApoE3/E4 genotypes. The data that is presented is from the microarray-generated data base of the Geffin et al, 2013 study; these are gene expression values that were analyzed but not published. Data under Roberts et. al., are genes differentially regulated in the frontal lobe of SIV-infected macaques with encephalitis as compared to uninfected macaques. Masliah et al describes differences of gene expression in autopsied brains of infected vs non-infected individuals. Borbajabad et. al. studied gene expression in brains of individuals treated and not treated with anti-retroviral therapy. Listed are the comparisons of gene expression in brains tissues of untreated individuals with HAND as compared to uninfected controls. Data under Gelman et. al., are the genes differentially expressed in tissues from 3 brain regions in HIV-infected individuals with neurocognitive impairment and HIV encephalitis as compared to tissues from the same brain regions from uninfected individuals

U upregulated in this study, D downregulated in this study

Yellow highlight: Differentially regulated with |FC|>1.5 P<0.05

Blue highlight: Differentially regulated with |FC|>1.2 P<0.05

Table S4 Differentially expressed genes in pairwise comparisons of Mock vs Unt, HIV vs Unt and HIV vs Mock, in the presence of 10nM FTY720-P

Differentially expressed genes in pairwise comparisons of Mock vs Unt, HIV vs Unt and HIV vs Mock, in the presence of FTY720-P

NOTE: For all the analyses, repeated probes, non coding RNA, withdrawn genes and pseudogenes were removed

Expression values for antisense RNA, and for uncharacterized genes were kept

FC absolute value ≥ 1.5 and nominal p value ≤ 0.05

Mock vs Unt - with FTY720-P			HIV vs Unt - with FTY720-P			HIV vs Mock - with FTY720-P			Unique to Mock vs Unt	Unique to HIV vs Unt	Common to both
Gene	Fold Change	Nominal p value	Gene	FC value	Nominal p value	Gene	FC value	Nominal p value			
A2M	7.2657	0	A2M	4.7322	0.4072	C21ORF24	1.5485	0.0481	ADA	AP2B1	A2M
ADA	1.5241	0.0008	ADM	3.5551	0.7388	CAPZB	-1.5783	0.0094	AK3L1	ARHGFE6	ADM
ADM	3.9414	0.0115	ALDOA	2.1877	0.4449	CATSPER2	1.5024	0.0442	ALPP	BCKDHA	ALDOA
AK3L1	1.6711	0.006	ALDOC	2.998	0.38	HLA-A	1.6016	0.0133	ANKRD20A1	C8ORF13	ALDOC
ALDOA	2.0984	0.0013	ALPK2	5.2758	0.3542	HLA-B	1.8217	0.0048	ARRDC4	CAPZB	ALPK2
ALDOC	3.0076	0.0001	ANKRD37	1.7188	0.5287	OCIAD1	1.5899	0.0115	BAALC	DTD1	ANKRD37
ALPK2	5.5056	0	AP2B1	-1.5313	0.7425	PALM	1.9108	0.001	BCL3	ERH	B2M
ALPP	-1.653	0.0025	ARHGFE6	-1.5183	0.6351	SLC39A1	-1.6235	0.0013	BHLHB2	FLJ35801	BCAT1
ANKRD20A1	-1.6778	0.0053	B2M	4.9031	0.2422	STAT1	1.756	0.0457	BLZF1	HLA-A29.1	BCL6
ANKRD37	1.7605	0.0007	BCAT1	1.6865	0.5813	TAF15	-1.848	0.0132	C14ORF153	HLA-B	BNIP3
ARRDC4	1.6262	0.0059	BCKDHA	1.5396	0.7831	TAP1	2.9136	0.0217	C14ORF85	HLA-F	C12ORF69
B2M	3.6721	0.0001	BCL6	1.6202	0.2362	WDR5	1.5041	0.0033	C15ORF63	KIFC1	C1QTNF6
BAALC	1.589	0.0109	BNIP3	3.9014	0.2422	ZNF629	1.6209	0.0028	C21ORF62	LEF1	C2ORF80
BCAT1	1.663	0.0029	C12ORF69	-1.8115	0.5796	ZNF682	1.5068	0.0321	C8ORF45	LMNB1	CAPN5
BCL3	1.7433	0.0021	C1QTNF6	2.0108	0.4072				C9ORF80	LOC100008589	CDK6
BCL6	1.7452	0	C2ORF80	1.6548	0.2362				CA2	LOC338758	CRY1
BHLHB2	2.1962	0.0063	C8ORF13	3.2673	0.3423				CDKN2AIPNL	PALM	CXCR7
BLZF1	-1.6522	0.0117	CAPN5	1.7692	0.5228				CEBPD	PSMB8	DDIT4
BNIP3	4.123	0.0002	CAPZB	-1.5847	0.5606				CHRNAS	PSMD3	ELMOD1
C12ORF69	-1.5674	0.032	CDK6	-1.7457	0.6103				CNTNAP1	PTRF	ENC1
C14ORF153	-1.5319	0.0015	CRY1	1.6903	0.6383				COL1A2	RBM39	ENO1
C14ORF85	-1.5116	0.0299	CXCR7	1.9945	0.5489				CREB1	SPAG16	ENO2
C15ORF63	-1.6295	0.0034	DDIT4	1.8296	0.662				CSF2RA	TAF15	FAM162A
C1QTNF6	2.2352	0.0005	DTD1	1.684	0.5776				CTDSP2		FAM46A
C21ORF62	1.5448	0.0024	ELMOD1	2.7494	0.3423				CYR61		FLRT3
C2ORF80	1.9976	0.0001	ENC1	-1.5213	0.5287				DACT2		FXYD5
C8ORF45	-1.6612	0.0225	ENO1	1.8474	0.2362				DDX51		GYG2
C9ORF80	-1.5296	0.0374	ENO2	1.7725	0.5083				DEM1		HK1
CA2	1.6528	0.0067	ERH	-1.5219	0.7113				DMC1		HK2
CAPN5	1.7316	0.0022	FAM162A	1.7706	0.5324				DOK5		HLA-A
CDK6	-2.0527	0.009	FAM46A	2.5217	0.2422				DPY19L1		HLA-E
CDKN2AIPNL	-1.6529	0.0257	FLJ35801	-1.5282	0.6851				DUSP19		HS.489254
CEBPD	1.5309	0.0044	FLRT3	-1.601	0.7831				DUXAP3		HS3ST3A1
CHRNAS	-1.6407	0.0021	FXYD5	1.6876	0.5083				EBPL		HSPB1
									EFNA1		HTRA1

CNTNAP1	1.5263	0.0165	GYG2	1.6306	0.3202	EID2B	ID3
COL1A2	1.621	0.003	HK1	1.5117	0.6567	EPHA4	IDH1
CREB1	-1.5849	0.0118	HK2	2.0146	0.4723	FABP5	IFI6
CRY1	1.7975	0.0008	HLA-A	2.6952	0.5207	FABP5L2	IFITM1
CSF2RA	-1.5267	0.0054	HLA-A29.1	2.1404	0.6351	FAM115A	IFITM2
CTDSP2	1.6178	0.0173	HLA-B	2.4434	0.4723	FAM167A	IFITM3
CXCR7	2.1824	0	HLA-E	2.2059	0.5813	FAM175A	IGDCC4
CYR61	-1.6944	0.0145	HLA-F	2.3966	0.5796	FBXO32	IGFBP2
DACT2	1.6502	0.007	HS.489254	1.7608	0.5134	FKBP14	IGFBP5
DDIT4	1.9579	0.0201	HS3ST3A1	1.5619	0.6334	FLJ44124	IL13RA1
DDX51	-1.7448	0.0034	HSPB1	1.6079	0.4723	FLJ46309	INSIG2
DEM1	-1.5023	0.0182	HTRA1	2.7397	0.3542	FMN2	IRF1
DMC1	-1.5591	0.0038	ID3	2.8935	0.3542	FRAS1	IRF9
DOK5	-1.5493	0.0006	IDH1	1.6352	0.6103	GAS2L3	ISG15
DPY19L1	1.5808	0.0022	IFI6	1.7802	0.2362	GRIPAP1	KBTBD8
DUSP19	-1.6888	0.0081	IFITM1	3.8248	0.5184	GRM3	KCNIP4
DUXAP3	-1.5709	0.0235	IFITM2	2.4071	0.4327	HCG2P7	LARGE
EBPL	1.5552	0.0049	IFITM3	3.5633	0.2422	HIATL2	LDHA
EFNA1	1.6075	0.0005	IGDCC4	1.5342	0.5861	HNRNPU	LGALS3BP
EID2B	-1.5698	0.0045	IGFBP2	1.533	0.794	HRASLS3	LOC100134006
ELMOD1	3.8597	0.0001	IGFBP5	1.954	0.5364	HRC	LOC399939
ENC1	-1.5496	0.0013	IL13RA1	1.9477	0.4072	HS.10862	LOC653111
ENO1	1.584	0.0121	INSIG2	1.5181	0.2362	HS.544637	LOC729384
ENO2	1.6421	0.0355	IRF1	1.9721	0.6705	HS.551847	MEGF10
EPHA4	-1.6332	0.0127	IRF9	3.0936	0.5207	HSD17B11	MGC4677
FABP5	1.543	0.0077	ISG15	2.3579	0.6959	HSPC268	MIF
FABP5L2	1.5454	0.0025	KBTBD8	1.8573	0.4449	IFI16	MOBKL2B
FAM115A	-1.6009	0.0101	KCNIP4	5.849	0.2422	INSM2	MTP18
FAM162A	1.9557	0.0191	KIFC1	-1.5218	0.4449	JMJD1A	NEUROG2
FAM167A	3.8058	0.0005	LARGE	-1.5117	0.4723	KCNH6	NKX6-2
FAM175A	-1.6283	0.0216	LDHA	2.1265	0.6013	LGI2	NPPC
FAM46A	2.2072	0.0022	LEF1	-1.5049	0.4723	LIMCH1	P4HA1
FBXO32	1.6354	0.0069	LGALS3BP	1.8479	0.2422	LOC100128098	PARP9
FKBP14	-1.5969	0.0243	LMNB1	-1.5705	0.4327	LOC100128505	PDE1A
FLJ44124	-1.6102	0.0287	LOC10000851	-2.781	0.5083	LOC100190938	PEG10
FLJ46309	-1.5248	0.0161	LOC10013401	-1.8275	0.6567	LOC202781	PFKFB3
FLRT3	-1.5228	0.0399	LOC338758	-1.5133	0.7644	LOC255783	PFKFB4
FMN2	1.5847	0.0008	LOC399939	-1.9858	0.3202	LOC399900	PFKP
FRAS1	-1.5404	0.0001	LOC653111	-1.7108	0.4984	LOC401098	PGAM1
FXYD5	1.5469	0.0018	LOC729384	-1.54	0.3423	LOC440934	PGAM4
GAS2L3	1.5649	0.0102	MEGF10	-1.794	0.589	LOC642362	PGK1
GRIPAP1	-1.6711	0.0242	MGC4677	1.7292	0.7459	LOC645895	PHCA
GRM3	-1.5477	0.0232	MIF	1.63	0.7117	LOX	PLEKHA2
GYG2	1.6726	0.0088	MOBKL2B	1.6791	0.5083	LRAP	PLOD2
HCG2P7	-1.5824	0.0069	MTP18	2.0099	0.6351	MCART1	PON2
HIATL2	-1.6117	0.0429	NEUROG2	-1.7712	0.6088	MCM8	PPP1R14C
HK1	1.5034	0.0331	NKX6-2	2.141	0.2834	NCRNA00219	PRPH

HK2	2.4524	0.0046	NPPC	-1.6308	0.7212	NET1	PRSS23
HLA-A	1.6828	0.0016	P4HA1	2.4626	0.4072	OCIAD1	PRSS35
HLA-E	1.5359	0.0018	PALM	1.9292	0.402	P4HA2	PSME1
HNRNPU	-1.6631	0.0169	PARP9	1.9444	0.5684	PDE4C	PSRC1
HRASLS3	1.8689	0.0048	PDE1A	-1.5121	0.5489	PGM1	RALYL
HRC	1.6828	0.0061	PEG10	1.5192	0.7055	PI15	RBMS1
HS.10862	1.5849	0.0095	PFKFB3	1.9163	0.6351	PIP5K2B	RHOBTB3
HS.489254	1.5289	0.0045	PFKFB4	2.514	0.6355	PLAGL1	RND3
HS.544637	-1.6535	0.0342	PFKP	1.8586	0.38	PLK2	RNU6-15
HS.551847	1.5895	0.0272	PGAM1	1.9184	0.2362	PLOD1	RPL12P6
HS3ST3A1	1.8431	0.0142	PGAM4	1.8269	0.5548	PNPT1	RPS29
HSD17B11	1.848	0.0009	PGK1	2.0037	0.5207	PPP1R3C	SERPINB6
HSPB1	1.9047	0	PHCA	1.7905	0.4156	PPP2R2B	SERPING1
HSPC268	-1.5497	0.0227	PLEKHA2	1.926	0.4072	PROS1	SLC16A3
HTRA1	3.3168	0.0005	PLOD2	2.698	0.535	PSMD12	SLC2A14
ID3	2.3943	0.0049	PON2	1.6232	0.5083	QRFPR	SLC2A3
IDH1	1.799	0.0021	PPP1R14C	1.999	0	S1PR3	SMAD6
IFI16	1.5574	0.0257	PRPH	1.643	0.2362	SFRP1	SNCAIP
IFI6	1.7423	0.0026	PRSS23	2.161	0.3202	SFRP2	SOCS3
IFITM1	5.0905	0.0001	PRSS35	-1.5207	0.4894	SH3BP4	SORT1
IFITM2	2.4929	0.0041	PSMB8	1.5325	0.6647	SHRM	SOSTDC1
IFITM3	3.9743	0.0008	PSMD3	1.5014	0.4449	SHROOM4	SPRYD5
IGDCC4	2.0386	0.0001	PSME1	1.5678	0.6632	SLC35E1	STAT1
IGFBP2	1.9123	0.0124	PSRC1	2.1505	0.2362	SLC44A4	STC1
IGFBP5	2.0441	0.0004	PTRF	1.7351	0.7551	SNORD13	SULF1
IL13RA1	2.0657	0.0011	RALYL	1.5339	0.4723	STAG3L2	TAP1
INSIG2	1.6591	0.0001	RBM39	-1.6305	0.6532	SULT1A1	TMEM158
INSM2	1.5623	0.0199	RBMS1	1.8447	0.6567	SYT7	TPI1
IRF1	1.6791	0	RHOBTB3	1.6031	0.7517	TIAM2	TPST2
IRF9	2.3075	0.001	RND3	-1.5604	0.7057	TIGA1	TRIM48
ISG15	1.8498	0.0001	RNU6-15	-1.5543	0.4156	TMEFF2	VKORC1
JMJD1A	1.5161	0.0045	RPL12P6	1.5846	0.7352	TNFRSF1A	ZC3HAV1
KBTBD8	2.2963	0.0003	RPS29	1.6164	0.7478	TSPO	
KCNH6	-1.6624	0.0046	SERPINB6	2.0819	0	UBE2L6	
KCNIP4	8.0289	0	SERPING1	1.5609	0.5427	VGLL3	
LARGE	-1.7306	0.0012	SLC16A3	1.9673	0.6632	XPNPEP3	
LDHA	2.4813	0.0138	SLC2A14	1.5765	0.2422	ZNF483	
LGALS3BP	1.7516	0.0001	SLC2A3	3.7218	0.2362	ZNF652	
LGI2	-1.5764	0	SMAD6	1.8051	0.2834	ZNF69	
LIMCH1	-1.6881	0.0186	SNCAIP	-1.5246	0.535		
LOC100128098	-1.5528	0.0289	SOCS3	2.0694	0.7425		
LOC100128505	-1.6507	0.0183	SORT1	1.6998	0.6088		
LOC100134006	-1.9003	0.0004	SOSTDC1	1.5215	0.5629		
LOC100190938	-1.7066	0.0079	SPAG16	-1.5168	0.6334		
LOC202781	-1.5904	0.0204	SPRYD5	-1.8457	0.6596		
LOC255783	1.6628	0.0024	STAT1	2.8999	0.583		
LOC399900	-1.6092	0.0076	STC1	1.71	0.4449		

LOC399939	-1.8869	0.0003	SULF1	1.5801	0.6148
LOC401098	-1.5614	0.0373	TAF15	-1.924	0.5861
LOC440934	-1.7339	0.0014	TAP1	5.0343	0.6334
LOC642362	-1.6598	0.0025	TMEM158	3.3193	0.6052
LOC645895	-1.5644	0.0001	TP1	1.5958	0.6286
LOC653111	-1.8181	0.0003	TPST2	1.5709	0.6594
LOC729384	-1.846	0.0021	TRIM48	-2.071	0.3542
LOX	1.5471	0.0151	VKORC1	1.6016	0.6632
LRAP	-1.6261	0.0039	ZC3HAV1	1.996	0.4723
MCART1	-1.787	0.0188			
MCM8	-1.6856	0.0074			
MEGF10	-1.7751	0.0012			
MGC4677	1.5038	0.0002			
MIF	2.0347	0.0051			
MOBKL2B	1.8753	0.0043			
MTP18	1.9788	0.0004			
NCRNA00219	1.5574	0.0006			
NET1	1.842	0			
NEUROG2	-1.9586	0.0072			
NKX6-2	2.506	0.0001			
NPPC	-2.0823	0.0035			
OCIAD1	-1.7011	0.0451			
P4HA1	2.8741	0.0051			
P4HA2	1.5452	0.0361			
PARP9	1.6915	0.0004			
PDE1A	-1.6571	0.0028			
PDE4C	-1.6298	0.006			
PEG10	1.7509	0.006			
PFKFB3	1.6569	0.0005			
PFKFB4	2.6541	0.0005			
PFKP	1.6261	0.0131			
PGAM1	2.0047	0.0001			
PGAM4	1.782	0.0078			
PGK1	2.2185	0.0008			
PGM1	1.503	0.0122			
PHCA	1.7202	0.0035			
PI15	-1.8066	0.0038			
PIP5K2B	-1.5247	0.0328			
PLAGL1	-1.5814	0.0085			
PLEKHA2	2.2026	0.0028			
PLK2	1.5303	0.0026			
PLOD1	1.5757	0.0026			
PLOD2	2.5403	0.0023			
PNPT1	-1.7258	0.0084			
PON2	1.6422	0.0068			
PPP1R14C	2.566	0			
PPP1R3C	1.558	0.0012			

PPP2R2B	1.5289	0.0005
PROS1	1.761	0.0063
PRPH	2.3095	0
PRSS23	2.8574	0.0001
PRSS35	-1.5344	0.0001
PSMD12	-1.5215	0.0109
PSME1	1.5188	0.0192
PSRC1	2.2651	0.0004
QRFPR	-1.6904	0.015
RALYL	1.9465	0
RBMS1	2.0369	0.0004
RHOBTB3	1.617	0.0173
RND3	-1.6314	0.0017
RNU6-15	-1.5816	0.0062
RPL12P6	1.6248	0.0125
RPS29	1.6434	0.0098
S1PR3	-1.6063	0.0126
SERPINB6	2.2812	0
SERPING1	1.7698	0.008
SFRP1	1.5313	0.0002
SFRP2	-1.5815	0.0025
SH3BP4	1.5662	0.0018
SHRM	-1.5088	0.0386
SHROOM4	-1.6443	0.0164
SLC16A3	2.2052	0.0208
SLC2A14	1.7717	0.0011
SLC2A3	4.4463	0.0004
SLC35E1	-1.5866	0.0396
SLC44A4	-1.5333	0.049
SMAD6	1.981	0.0002
SNCAIP	-1.6223	0.0025
SNORD13	1.7369	0.0076
SOCS3	2.0159	0.0016
SORT1	1.6236	0.003
SOSTDC1	1.6669	0.001
SPRYD5	-1.9378	0.0003
STAG3L2	-1.506	0.0149
STAT1	2.1656	0.0018
STC1	1.8459	0.0022
SULF1	1.9506	0
SULT1A1	-1.617	0.0448
SYT7	1.7476	0.0059
TAP1	1.7279	0.001
TIAM2	-1.528	0.0018
TIGA1	1.5106	0.0009
TMEFF2	-1.7552	0.0146
TMEM158	2.8843	0

TNFRSF1A	1.5709	0.0055
TP11	1.8287	0.0017
TPST2	1.8203	0.0055
TRIM48	-2.0973	0
TSPO	1.5183	0.0026
UBE2L6	1.5206	0.0034
VGLL3	-1.5109	0.0044
VKORC1	1.5687	0.0024
XPNPEP3	-1.6739	0.0006
ZC3HAV1	1.8523	0
ZNF483	-1.5463	0.0185
ZNF652	-1.537	0.0397
ZNF69	-1.5759	0.0087

Table S5 Differentially expressed genes in pairwise comparisons of Mock vs Unt, and HIV vs Unt, in the presence of 10nM FTY720-P

NOTE: For all the analyses, repeated probes, non coding RNA, withdrawn genes and pseudogenes were removed

Expression values for antisense RNA, and for uncharacterized genes were kept

FC absolute value ≥ 2.0 and nominal p value ≤ 0.05

HIV vs Unt +FTY720-P			Mock vs Unt +FTY720			Unique to HIV	Unique to Mock	Common to both
Gene	FC value	Nominal p value	Gene	FC value	Nominal p value			
A2M	4.7322	0.001	A2M	7.2657	0	TAP1	PPP1R14C	KCNIP4
ADM	3.5551	0.0264	ADM	3.9414	0.0115	HLA-A	PRPH	ALPK2
ALDOA	2.1877	0.0013	ALDOA	2.0984	0.0013	HLA-B	KBTBD8	B2M
ALDOC	2.998	0.0007	ALDOC	3.0076	0.0001	HLA-F	SLC16A3	A2M
ALPK2	5.2758	0.0006	ALPK2	5.5056	0	ISG15	PLEKHA2	BNIP3
B2M	4.9031	0.0002	B2M	3.6721	0.0001	HLA-E	BHLHB2	IFITM1
BNIP3	3.9014	0.0002	BHLHB2	2.1962	0.0063	HLA-A29.1	CXCR7	SLC2A3
C1QTNF6	2.0108	0.0009	BNIP3	4.123	0.0002	MTP18	IL13RA1	IFITM3
ELMOD1	2.7494	0.0005	C1QTNF6	2.2352	0.0005	LOC100008589	IGFBP5	ADM
FAM167A	3.1516	0.0005	CDK6	-2.0527	0.009		IGDCC4	TMEM158
FAM46A	2.5217	0.0002	CXCR7	2.1824	0		RBMS1	FAM167A
HK2	2.0146	0.0016	ELMOD1	3.8597	0.0001		MIF	IRF9
HLA-A	2.6952	0.0028	FAM167A	3.8058	0.0005		PGAM1	ALDOC
HLA-A29.1	2.1404	0.0085	FAM46A	2.2072	0.0022		CDK6	STAT1
HLA-B	2.4434	0.0018	HK2	2.4524	0.0046		NPPC	ID3
HLA-E	2.2059	0.0048	HTRA1	3.3168	0.0005			ELMOD1
HLA-F	2.3966	0.0047	ID3	2.3943	0.0049			HTRA1
HTRA1	2.7397	0.0006	IFITM1	5.0905	0.0001			PLOD2
ID3	2.8935	0.0006	IFITM2	2.4929	0.0041			FAM46A
IFITM1	3.8248	0.0027	IFITM3	3.9743	0.0008			PFKFB4
IFITM2	2.4071	0.0012	IGDCC4	2.0386	0.0001			P4HA1
IFITM3	3.5633	0.0002	IGFBP5	2.0441	0.0004			IFITM2
IRF9	3.0936	0.0028	IL13RA1	2.0657	0.0011			ALDOA
ISG15	2.3579	0.016	IRF9	2.3075	0.001			PRSS23
KCNIP4	5.849	0.0002	KBTBD8	2.2963	0.0003			PSRC1

LDHA	2.1265	0.0055	KCNIP4	8.0289	0	NKX6-2
LOC100008589	-2.781	0.0024	LDHA	2.4813	0.0138	LDHA
MTP18	2.0099	0.0086	MIF	2.0347	0.0051	SERPINB6
NKX6-2	2.141	0.0003	NKX6-2	2.506	0.0001	SOCS3
P4HA1	2.4626	0.0009	NPPC	-2.0823	0.0035	HK2
PFKFB4	2.514	0.0088	P4HA1	2.8741	0.0051	C1QTNF6
PGK1	2.0037	0.0028	PFKFB4	2.6541	0.0005	PGK1
PLOD2	2.698	0.0035	PGAM1	2.0047	0.0001	TRIM48
PRSS23	2.161	0.0004	PGK1	2.2185	0.0008	
PSRC1	2.1505	0.0001	PLEKHA2	2.2026	0.0028	
SERPINB6	2.0819	0	PLOD2	2.5403	0.0023	
SLC2A3	3.7218	0.0001	PPP1R14C	2.566	0	
SOCS3	2.0694	0.0275	PRPH	2.3095	0	
STAT1	2.8999	0.0049	PRSS23	2.8574	0.0001	
TAP1	5.0343	0.0076	PSRC1	2.2651	0.0004	
TMEM158	3.3193	0.0056	RBMS1	2.0369	0.0004	
TRIM48	-2.071	0.0006	SERPINB6	2.2812	0	
			SLC16A3	2.2052	0.0208	
			SLC2A3	4.4463	0.0004	
			SOCS3	2.0159	0.0016	
			STAT1	2.1656	0.0018	
			TMEM158	2.8843	0	
			TRIM48	-2.0973	0	

Table S6 Differentially expressed genes in pairwise comparisons of Mock vs Unt in the presence and absence of 10nM FTY720-P
Mock versus Untreated with FC absolute value > 2.0 and nominal p value <0.05

Mock vs Unt no FTY720-P			Mock vs Unt +FTY720			Unique to no FTY720-P	Unique to FTY720-P	Common to both
Gene	FC value	Nominal p value	Gene	FC value	Nominal p value			
KCNIP4	7.1305	0.0003	A2M	7.2657	0	HS3ST3A1	BNIP3	KCNIP4
A2M	6.5396	0	ADM	3.9414	0.0115	ISG15	P4HA1	A2M
ALPK2	5.0277	0.0011	ALDOA	2.0984	0.0013	TAP1	PFKFB4	ALPK2
IFITM1	4.7562	0.0002	ALDOC	3.0076	0.0001	SULF1	PLOD2	IFITM1
B2M	4.0348	0.0001	ALPK2	5.5056	0	ZC3HAV1	LDHA	B2M
IFITM3	3.7441	0.0053	B2M	3.6721	0.0001	CRCP	HK2	IFITM3
FAM167A	3.6045	0	BHLHB2	2.1962	0.0063	RND3	ID3	FAM167A
ELMOD1	3.5279	0.0006	BNIP3	4.123	0.0002		KBTBD8	ELMOD1
TMEM158	3.4331	0.0001	C1QTNF6	2.2352	0.0005		PGK1	TMEM158
SLC2A3	3.3889	0.0019	CDK6	-2.0527	0.009		SLC16A3	SLC2A3
ADM	3.2333	0.011	CXCR7	2.1824	0		CXCR7	ADM
IFITM2	2.8637	0.0009	ELMOD1	3.8597	0.0001		ALDOA	IFITM2
HTRA1	2.6796	0.0002	FAM167A	3.8058	0.0005		IGFBP5	HTRA1
NKX6-2	2.4054	0.001	FAM46A	2.2072	0.0022		IGDCC4	NKX6-2
PLEKHA2	2.3799	0.0033	HK2	2.4524	0.0046		RBMS1	PLEKHA2
PRSS23	2.3574	0.0051	HTRA1	3.3168	0.0005		MIF	PRSS23
SERPINB6	2.3447	0.0001	ID3	2.3943	0.0049		SOCS3	SERPINB6
PPP1R14C	2.2475	0.0136	IFITM1	5.0905	0.0001		CDK6	PPP1R14C
IRF9	2.2178	0.0011	IFITM2	2.4929	0.0041		TRIM48	IRF9
HS3ST3A1	2.2142	0.0089	IFITM3	3.9743	0.0008			PSRC1
PSRC1	2.191	0.0099	IGDCC4	2.0386	0.0001			FAM46A
FAM46A	2.1784	0.004	IGFBP5	2.0441	0.0004			PGAM1
PGAM1	2.1598	0.0152	IL13RA1	2.0657	0.0011			ALDOC
ALDOC	2.1583	0.0442	IRF9	2.3075	0.001			C1QTNF6
ISG15	2.1556	0.0034	KBTBD8	2.2963	0.0003			BHLHB2
TAP1	2.1155	0	KCNIP4	8.0289	0			PRPH
C1QTNF6	2.1006	0.0002	LDHA	2.4813	0.0138			IL13RA1

BHLHB2	2.0881	0.0176	MIF	2.0347	0.0051	STAT1
SULF1	2.0796	0.0016	NKX6-2	2.506	0.0001	NPPC
ZC3HAV1	2.0697	0.0007	NPPC	-2.0823	0.0035	
PRPH	2.0654	0.047	P4HA1	2.8741	0.0051	
IL13RA1	2.0309	0.0001	PFKFB4	2.6541	0.0005	
STAT1	2.0168	0.0004	PGAM1	2.0047	0.0001	
CRCP	-2.024	0.0165	PGK1	2.2185	0.0008	
RND3	-2.0557	0.0013	PLEKHA2	2.2026	0.0028	
NPPC	-2.0614	0.0024	PLOD2	2.5403	0.0023	
			PPP1R14C	2.566	0	
			PRPH	2.3095	0	
			PRSS23	2.8574	0.0001	
			PSRC1	2.2651	0.0004	
			RBMS1	2.0369	0.0004	
			SERPINB6	2.2812	0	
			SLC16A3	2.2052	0.0208	
			SLC2A3	4.4463	0.0004	
			SOCS3	2.0159	0.0016	
			STAT1	2.1656	0.0018	
			TMEM158	2.8843	0	
			TRIM48	-2.0973	0	

**Table S7 Differentially expressed genes in pairwise comparisons of HIV vs Unt in the presence and absence of 10nM FTY720-P
HIV versus Untreated with FC absolute value > 2.0 and nominal p value <0.05**

HIV vs Unt no FTY720-P			HIV vs Unt +FTY720-P			Unique to no	Unique to	Common to both
Gene	FC value	Nominal p value	Gene	FC value	Nominal p value	FTY720-P	FTY720-P	
B2M	7.1211	0.0002	A2M	4.7322	0.001	IRF1	BNIP3	KCNIP4
A2M	6.7048	0.0105	ADM	3.5551	0.0264	PSMB9	ADM	ALPK2
TAP1	6.6548	0.0067	ALDOA	2.1877	0.0013	GYG2	ALDOC	TAP1
ALPK2	5.849	0.0052	ALDOC	2.998	0.0007	VGf	ID3	B2M
KCNIP4	5.4885	0	ALPK2	5.2758	0.0006	ZC3HAV1	PLOD2	A2M
IFITM1	4.1549	0.0032	B2M	4.9031	0.0002	PARP9	PFKFB4	IFITM1
TMEM158	3.8987	0.0096	BNIP3	3.9014	0.0002	SPRYD5	P4HA1	SLC2A3
HLA-B	3.6293	0.0001	C1QTNF6	2.0108	0.0009		ALDOA	IFITM3
STAT1	3.624	0.024	ELMOD1	2.7494	0.0005		PRSS23	TMEM158
FAM167A	3.563	0.0001	FAM167A	3.1516	0.0005		NKX6-2	FAM167A
IFITM3	3.5539	0.0031	FAM46A	2.5217	0.0002		LDHA	IRF9
IRF9	3.2923	0.001	HK2	2.0146	0.0016		SOCS3	STAT1
HLA-A	3.2445	0.0001	HLA-A	2.6952	0.0028		HK2	ELMOD1
FAM46A	3.0055	0.0073	HLA-A29.1	2.1404	0.0085		C1QTNF6	HTRA1
ELMOD1	2.9402	0.0014	HLA-B	2.4434	0.0018		MTP18	HLA-A
ISG15	2.749	0.005	HLA-E	2.2059	0.0048		PGK1	FAM46A
IFITM2	2.6421	0.0002	HLA-F	2.3966	0.0047		LOC100008589	HLA-B
IRF1	2.5481	0.0126	HTRA1	2.7397	0.0006			IFITM2
HLA-E	2.501	0.0045	ID3	2.8935	0.0006			HLA-F
HLA-A29.1	2.5003	0.002	IFITM1	3.8248	0.0027			ISG15
PSMB9	2.4671	0.0367	IFITM2	2.4071	0.0012			HLA-E
SLC2A3	2.4483	0.0443	IFITM3	3.5633	0.0002			PSRC1
HLA-F	2.4328	0.0006	IRF9	3.0936	0.0028			HLA-A29.1
GYG2	2.2503	0.0142	ISG15	2.3579	0.016			SERPINB6
VGf	2.2278	0.0319	KCNIP4	5.849	0.0002			TRIM48
HTRA1	2.2216	0.001	LDHA	2.1265	0.0055			
ZC3HAV1	2.2043	0.0005	LOC100008589	-2.781	0.0024			
PARP9	2.1567	0.0229	MTP18	2.0099	0.0086			

PSRC1	2.0754	0.0144	NKX6-2	2.141	0.0003
SERPINB6	2.0581	0.0001	P4HA1	2.4626	0.0009
SPRYD5	-2.0677	0.0085	PFKFB4	2.514	0.0088
TRIM48	-2.3047	0.0069	PGK1	2.0037	0.0028
			PLOD2	2.698	0.0035
			PRSS23	2.161	0.0004
			PSRC1	2.1505	0.0001
			SERPINB6	2.0819	0
			SLC2A3	3.7218	0.0001
			SOCS3	2.0694	0.0275
			STAT1	2.8999	0.0049
			TAP1	5.0343	0.0076
			TMEM158	3.3193	0.0056
			TRIM48	-2.071	0.0006

Table S8 Enrichment analysis report, canonical pathways- Mock vs Unt with and without FTY720-P

Enrichment by Pathway Maps					Mock vs Unt no FTY720-P				Mock vs Unt +10 nM FTY720-P			
#	Maps	Total	min p Value	Min FDR	p-value	FDR	In Data	Network Objects from Active Data	p-value	FDR	In Data	Network Objects from Active Data
1	Glycolysis and gluconeogenesis	86	4.987E-11	1.746E-08	2.503E-09	6.821E-07	13	G3P2, LDHA, TPI1, HXK2, ALDOC, PFKP, GLUT3, PGK1, ENO1, ALDOA, PGAM1, PGAM4, GPI	4.987E-11	1.746E-08	17	G3P2, LDHA, TPI1, HXK2, HXK1, ALDOC, ENO3, PFKP, GLUT3, PGK1, ENO1, PFKL, ALDOA, PGAM1, PGAM4, ENO2, GPI
2	Glycolysis and gluconeogenesis/ Human version	86	4.987E-11	1.746E-08	2.503E-09	6.821E-07	13	G3P2, LDHA, TPI1, HXK2, ALDOC, PFKP, GLUT3, PGK1, ENO1, ALDOA, PGAM1, PGAM4, GPI	4.987E-11	1.746E-08	17	G3P2, LDHA, TPI1, HXK2, HXK1, ALDOC, ENO3, PFKP, GLUT3, PGK1, ENO1, PFKL, ALDOA, PGAM1, PGAM4, ENO2, GPI
3	Immune response IFN alpha/beta signaling pathway	24	2.668E-06	4.720E-04	2.668E-06	4.720E-04	6	IRF1, IFI6, IRF9, STAT1, IFNAR2, ISG15	2.584E-05	1.809E-03	6	IRF1, IFI6, IRF9, STAT1, IFNAR2, ISG15
4	Cell cycle Regulation of G1/S transition (part 1)	38	3.464E-06	4.720E-04	3.464E-06	4.720E-04	7	p21, Cyclin D2, TGF-beta 2, PP2A regulatory, Cyclin D1, Cyclin D, CDK6	4.564E-05	2.904E-03	7	p21, TGF-beta 2, PP2A regulatory, Cyclin D1, SMAD3, Cyclin D, CDK6
5	Immune response Oncostatin M signaling via JAK-Stat in mouse cells	20	8.120E-06	1.137E-03	3.475E-04	1.457E-02	4	Cyclin D1, SOCS3, TIMP1, STAT1	8.120E-06	1.137E-03	6	STAT3, VEGF-A, Cyclin D1, SOCS3, TIMP1, STAT1
6	Development YAP/TAZ-mediated co-regulation of transcription	56	1.188E-05	1.164E-03	2.831E-03	5.510E-02	5	ID3, Cyclin D1, Lef-1, SOX9, CDK6	1.188E-05	1.164E-03	9	ID3, UFO, VEGF-A, Cyclin D1, Lef-1, SMAD3, CTGF, Cyr61, CDK6
7	Immune response IL-6 signaling pathway via JAK/STAT	72	1.482E-05	1.164E-03	2.459E-04	1.335E-02	7	p21, IRF1, p300, SOCS3, STAT1, C/EBPdelta, CDK6	1.482E-05	1.164E-03	10	p21, STAT3, IRF1, IRS-1, VEGF-A, SOCS3, STAT1, mTOR, C/EBPdelta, CDK6
8	Development Thrombopoietin signaling via JAK-STAT pathway	22	1.496E-05	1.164E-03	3.146E-05	2.644E-03	5	p21, TAP1 (PSF1), Cyclin D1, SOCS3, STAT1	1.496E-05	1.164E-03	6	p21, STAT3, TAP1 (PSF1), Cyclin D1, SOCS3, STAT1
9	Immune response Oncostatin M signaling via JAK-Stat in human cells	22	1.496E-05	1.164E-03	3.146E-05	2.644E-03	5	Cyclin D1, SOCS3, TIMP1, STAT1, LIFR	1.496E-05	1.164E-03	6	STAT3, VEGF-A, Cyclin D1, SOCS3, TIMP1, STAT1

10	Development_WNT signaling pathway. Part 2	53	3.396E-05	2.644E-03	3.396E-05	2.644E-03	7	CD44, Tcf(Lef), WNT, Cyclin D1, NRCAM, Lef-1, ENC1	4.005E-04	1.219E-02	7	CD44, Tcf(Lef), VEGF-A, Cyclin D1, NRCAM, Lef-1, ENC1
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Table S9 Enrichment analysis report canonical pathways- HIV vs Unt with and without FTY720-P

Enrichment by Pathway Maps

#	Maps	Total	min p Value	Min FDR	HIV vs Unt No FTY720-p				HIV vs Unt +10nM FTY720-P			
					p-value	FDR	In Data	Network Objects from Active Data	p-value	FDR	In Data	Network Objects from Active Data
1	Glycolysis and gluconeogenesis	86	1.201E-12	2.474E-10	6.940E-02	3.267E-01	3	PFKP, GLUT3, GPI	1.201E-12	2.474E-10	16	G3P2, PFKP, GLUT3, LDHA, PGK1, TPI1, ENO1, PFKL, ALDOA, PGAM1, HXK2, HXK1, ALDOC, PGAM4, ENO2, ENO3
2	Glycolysis and gluconeogenesis/ Human version	86	1.201E-12	2.474E-10	6.940E-02	3.267E-01	3	PFKP, GLUT3, GPI	1.201E-12	2.474E-10	16	G3P2, PFKP, GLUT3, LDHA, PGK1, TPI1, ENO1, PFKL, ALDOA, PGAM1, HXK2, HXK1, ALDOC, PGAM4, ENO2, ENO3
3	Immune response Antigen presentation by MHC class I, classical pathway	54	1.158E-07	4.851E-05	1.158E-07	4.851E-05	8	Tapasin, MHC Class I alpha chain, MHC class I, PSMB9, TAP1 (PSF1), PSME1, Beta-2-microglobulin, PSMB8(LMP7)	3.806E-06	3.136E-04	8	MHC Class I alpha chain, PSME2, MHC class I, PA28 (11S regulator), TAP1 (PSF1), PSME1, Beta-2-microglobulin, PSMB8(LMP7)
4	Immune response IFN alpha/beta signaling pathway	24	1.167E-07	1.603E-05	5.370E-06	7.500E-04	5	IRF9, IRF1, IFI6, STAT1, ISG15	1.167E-07	1.603E-05	7	IRF9, IRF1, IFI6, STAT1, IFNAR2, PRMT1, ISG15
5	Development WNT signaling pathway, Part 2	53	1.666E-06	3.489E-04	1.666E-06	3.489E-04	7	NRCAM, CD44, Lef-1, Frizzled, Tcf(Lef), WNT, Cyclin D1	2.218E-03	3.807E-02	5	NRCAM, Lef-1, ENC1, Tcf(Lef), Cyclin D1
6	IL-6 signaling in multiple myeloma	51	2.435E-06	2.508E-04	2.356E-03	4.935E-02	4	Cyclin D2, Bcl-6, STAT1, Cyclin D1	2.435E-06	2.508E-04	8	STAT3, Cyclin D2, Bcl-6, p53, STAT1, Mcl-1, Cyclin D1, CDK6
7	Fructose metabolism/ Rodent version	85	1.593E-05	1.094E-03	2.413E-01	5.282E-01	2	PFKP, GPI	1.593E-05	1.094E-03	9	PFKP, TPI1, PFKL, ALDOA, HXK2, F264, F263, HXK1, ALDOC
8	Immune response Oncostatin M signaling via JAK-Stat in mouse cells	20	1.905E-05	1.121E-03	1.301E-03	3.893E-02	3	SOCS3, STAT1, Cyclin D1	1.905E-05	1.121E-03	5	STAT3, SOCS3, TIMP1, STAT1, Cyclin D1
9	Development Thrombopoietin signaling via JAK-STAT pathway	22	3.146E-05	1.296E-03	8.813E-05	7.385E-03	4	TAP1 (PSF1), SOCS3, STAT1, Cyclin D1	3.146E-05	1.296E-03	5	STAT3, TAP1 (PSF1), SOCS3, STAT1, Cyclin D1
10	Immune response Oncostatin M signaling via JAK-Stat in human cells	22	3.146E-05	1.296E-03	1.729E-03	4.479E-02	3	SOCS3, STAT1, Cyclin D1	3.146E-05	1.296E-03	5	STAT3, SOCS3, TIMP1, STAT1, Cyclin D1

Table S10 FC values 10nM FTY720-P vs no FTY720-P in Untreated, Mock-treated and HIV- treated culturesFC absolute value ≥ 1.3 and nominal p value ≤ 0.05

FTY720-P vs no FTY720-P - Unt cultures			FTY720-P vs no FTY720-P - Mock exposed			FTY720-P vs no FTY720-P - HIV exposed		
Gene	Fold Change	Nominal p value	Gene	Fold Change	Nominal p value	Gene	Fold Change	Nominal p value
FANCG	1.4145	0.0039	RPL28	1.3389	0.0482	PALM	1.8913	0.0418
PAFAH1B3	1.3484	0.0179	RPS29	1.3152	0.0396	DTD1	1.4715	0.0317
LOC391532	1.3066	0.0162	ATPBD4	1.3041	0.0397	LOC401676	1.4537	0.0061
SLC6A8	-1.3042	0.0191	FST	-1.3081	0.0313	GM2A	1.4405	0.0324
LOC100008588	-1.3257	0.003	SPP1	-1.3109	0.0164	PAFAH1B3	1.4378	0.017
NRP1	-1.3316	0.0248	MCART1	-1.3125	0.0031	RPL14	1.3958	0.0308
C14ORF4	-1.3368	0.0082	TMEM158	-1.3182	0.0195	LOC654350	1.3941	0.035
SC5DL	-1.3428	0.0142	CYP26A1	-1.3211	0.0444	TST	1.3849	0.0216
IGFBP3	-1.3756	0.0075	LAMC1	-1.3373	0.01	PTK7	1.3804	0.0209
KIAA0182	-1.4044	0.0009	FKBP14	-1.3568	0.0291	PSMD3	1.3763	0.0341
TAGLN	-1.4163	0.0021	THBS1	-1.3568	0.0436	THOC5	1.3446	0.0279
ID2	-1.4213	0.0361	TAGLN	-1.3842	0.0038	LOC100132761	1.3442	0.0399
LOC100133565	-1.4369	0.0228	VGF	-1.4073	0.0354	LOC729500	1.3422	0.0382
TPI1	-1.4497	0.0333	CYP26A1	-1.4175	0.0181	SOCS2	1.3282	0.0343
ADM	-1.4861	0.0488	SNF8	-1.4486	0.019	LOC148430	1.3276	0.0473
C10RF61	-1.4915	0.0069	CYP26A1	-1.4546	0.0193	DRD1IP	1.3213	0.0498
ID3	-1.5007	0.0269	SPOCK1	-1.4547	0.0127	C17ORF61	1.3212	0.0218
ANXA1	-1.5092	0.004	ANXA1	-1.6331	0.0154	HS6ST1	1.3144	0.029
FST	-1.5264	0.0003				ATP1A1	-1.3008	0.0299
ID2	-1.555	0.0162				FST	-1.302	0.0147
ID1	-1.5668	0.0038				TKT	-1.3076	0.0233
LOC441763	-1.7835	0.0158				SF3B3	-1.3108	0.0366
						C22ORF27	-1.3189	0.0178
						SLC7A5	-1.3222	0.0059
						EML4	-1.3278	0.037
						RRAGD	-1.3299	0.0238
						FAM167A	-1.3329	0.0193
						PPP3R1	-1.3406	0.0047
						C19ORF60	-1.3445	0.0202
						ENC1	-1.3459	0.0118

EEF1B2	-1.3478	0.003
KIFC1	-1.356	0.0036
CHD8	-1.394	0.043
FLJ35801	-1.4083	0.019
HLA-B	-1.4488	0.0226
LMNB1	-1.4908	0.0009
TAF15	-1.5012	0.0333
APP	-1.532	0.0047
AP2B1	-1.5379	0.0243
RBM39	-1.5647	0.0371
TAF15	-1.5945	0.0313
AP2B1	-1.6203	0.0116
LOC100133565	-2.193	0.0363
LOC100008589	-2.9392	0.0227

Table S11 Enrichment analysis report, canonical pathways- 10nM FTY720-P vs no FTY720-P in Untreated, Mock-treated and HIV- treated cultures

Enrichment by Pathway Maps

Enrichment by Pathway Maps					HIV +10nM FTY720-P vs no FTY720-P				Mock +10nM FTY720-P vs no FTY720-P				Unt +10nM FTY720-P vs no FTY720-P			
#	Maps	Total	min p Value	Min FDR	p-value	FDR	In Data	Network Objects from Active Data	p-value	FDR	In Data	Network Objects from Active Data	p-value	FDR	In Data	Network Objects from Active Data
1	Development_Transcription factors in segregation of hepatocytic lineage	30	2.450E-02	5.777E-02	6.890E-02	1.549E-01	1	Follistatin	2.450E-02	5.777E-02	1	Follistatin	3.654E-02	9.594E-02	1	Follistatin
2	Development_BMP signaling	33	2.693E-02	5.777E-02	7.553E-02	1.549E-01	1	Follistatin	2.693E-02	5.777E-02	1	Follistatin	4.012E-02	9.594E-02	1	Follistatin
3	Signal transduction_Activin A signaling regulation	33	2.693E-02	5.777E-02	7.553E-02	1.549E-01	1	Follistatin	2.693E-02	5.777E-02	1	Follistatin	4.012E-02	9.594E-02	1	Follistatin
4	Reproduction_Gonadotropin-releasing hormone (GnRH) signaling	72	5.793E-02	6.758E-02	1.578E-01	1.726E-01	1	Follistatin	5.793E-02	6.758E-02	1	Follistatin	8.564E-02	1.080E-01	1	Follistatin

Table S12 Enrichment by GO Processes- 10nM FTY720-P vs no FTY720-P in Untreated, Mock-treated and HIV- treated cultures

Enrichment by GO Processes					HIV +10nM FTY720-P vs no FTY720-P				Mock +10nM FTY720-P vs no FTY720-P				Unt +10nM FTY720-P vs no FTY720-P			
#	Processes	Total	min(pValue)	Min FDR	p-value	FDR	In Data	Network Objects from Active Data	p-value	FDR	In Data	Network Objects from Active Data	p-value	FDR	In Data	Network Objects from Active Data
1	innate immune response	956	1.371E-25	1.456E-23	1.371E-25	1.456E-23	31	HLA-B14, HLA-B40, HLA-B49, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, HLA-B8, HLA-B81, HLA-B, HLA-B54, HLA-B15, HLA-B52, HLA-B41, HLA-B35, 1B73, APP, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	5.203E-01	5.675E-01	1	Annexin I	5.203E-01	5.419E-01	1	Annexin I
2	response to cytokine	1222	6.733E-25	6.752E-23	6.733E-25	6.752E-23	33	HLA-B14, HLA-B40, SOCS2, HLA-B49, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, TAFs, HLA-B8, HLA-B81, HLA-B, HLA-B54, HLA-B15, HLA-B52, PSMD3, HLA-B41, HLA-B35, 1B73, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	2.334E-01	3.200E-01	2	Annexin I, Thrombospondin 1	6.112E-01	6.260E-01	1	Annexin I
3	regulation of immune response	1346	1.421E-23	1.116E-21	1.421E-23	1.116E-21	33	HLA-B14, HLA-B40, HLA-B49, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, HLA-B8, HLA-B81, Calcineurin B (regulatory), HLA-B, HLA-B54, HLA-B15, Calcineurin B1, HLA-B52, PSMD3, HLA-B41, HLA-B35, 1B73, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	6.478E-01	6.780E-01	1	Annexin I	6.478E-01	6.595E-01	1	Annexin I
4	cell surface receptor signaling pathway	2970	8.652E-21	6.507E-19	8.652E-21	6.507E-19	41	HLA-B14, PTK7, HLA-B40, SOCS2, HLA-B49, HLA-B38, HLA-B42, DDR2, HLA-B55, HLA-B37, HLA-B46, HLA-B58, Follistatin, HLA-B8, HLA-B81, Calcineurin B (regulatory), HLA-B, HLA-B54, HLA-B15, Calcineurin B1, HLA-B52, PSMD3, HLA-B41, HLA-B35, 1B73, Beta-adaptin 2, APP, ATP1A3, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, CHD8, HLA-B7, HLA-B13, HLA-B18	3.902E-01	4.562E-01	3	SGPP1, Annexin I, Follistatin	6.198E-02	1.180E-01	5	Neuropilin-1, Annexin I, ID1, Follistatin, IBP

5	cellular response to organic substance	3023	1.686E-20	1.217E-18	1.686E-20	1.217E-18	41	HLA-B14, PTK7, HLA-B40, SOCS2, HLA-B49, RagD, Lamin B1, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, TAFs, Follistatin, HLA-B8, HLA-B81, HLA-B, HLA-B54, HLA-B15, HLA-B52, Lamin B, PSMD3, HLA-B41, HLA-B35, 1B73, APP, ATP1A3, ATP1A1, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	1.886E-02	9.967E-02	6	CYP26A1, CXXC1, Annexin I, Thrombospondin 1, FKBP14, Follistatin	1.886E-02	6.390E-02	6	Neuropilin-1, Annexin I, ID3, ID1, Follistatin, IBP
6	regulation of immune system process	2131	1.712E-19	1.189E-17	1.712E-19	1.189E-17	35	HLA-B14, HLA-B40, HLA-B49, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, HLA-B8, HLA-B81, Calcineurin B (regulatory), HLA-B, HLA-B54, HLA-B15, Calcineurin B1, HLA-B52, PSMD3, FMIP, HLA-B41, HLA-B35, 1B73, Beta-adaptin 2, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	4.854E-01	5.381E-01	2	Annexin I, Thrombospondin 1	2.116E-01	2.579E-01	3	Annexin I, ID2, IBP
7	immune response	1680	2.165E-18	1.447E-16	2.165E-18	1.447E-16	31	HLA-B14, HLA-B40, HLA-B49, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, HLA-B8, HLA-B81, HLA-B, HLA-B54, HLA-B15, HLA-B52, HLA-B41, HLA-B35, 1B73, APP, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	3.636E-01	4.336E-01	2	Annexin I, Thrombospondin 1	3.636E-01	3.979E-01	2	Annexin I, Adrenomedullin
8	defense response	1948	1.422E-17	9.169E-16	1.422E-17	9.169E-16	32	HLA-B14, HLA-B40, HLA-B49, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, HLA-B8, HLA-B81, Calcineurin B (regulatory), HLA-B, HLA-B54, HLA-B15, HLA-B52, HLA-B41, HLA-B35, 1B73, APP, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	5.271E-02	1.480E-01	4	VGF, Osteopontin, Annexin I, Thrombospondin 1	1.759E-01	2.241E-01	3	Annexin I, Adrenomedullin, IBP

9	cellular response to chemical stimulus	3629	1.521E-17	9.470E-16	1.521E-17	9.470E-16	41	HLA-B14, PTK7, HLA-B40, SOCS2, HLA-B49, RagD, Lamin B1, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, TAFs, Follistatin, HLA-B8, HLA-B81, HLA-B, HLA-B54, HLA-B15, HLA-B52, Lamin B, PSMD3, HLA-B41, HLA-B35, 1B73, APP, ATP1A3, ATP1A1, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	1.195E-02	9.061E-02	7	CYP26A1, Osteopontin, CXXC1, Annexin I, Thrombospondin 1, FKBP14, Follistatin	1.195E-02	5.179E-02	7	Neuropilin-1, Annexin I, ID3, ID2, ID1, Follistatin, IBP
10	response to organic substance	4151	2.554E-16	1.537E-14	2.554E-16	1.537E-14	42	HLA-B14, PTK7, HLA-B40, SOCS2, HLA-B49, RagD, Lamin B1, HLA-B38, HLA-B42, HLA-B55, HLA-B37, HLA-B46, HLA-B58, TAFs, Follistatin, HLA-B8, HLA-B81, HLA-B, eEF1B, HLA-B54, HLA-B15, HLA-B52, Lamin B, PSMD3, HLA-B41, HLA-B35, 1B73, APP, ATP1A3, ATP1A1, HLA-B39, MHC Class I alpha chain, HLA-B57, HLA-B44, HLA-B27, HLA-B51, HLA-B53, HLA-B Cw-5, HLA-B78, HLA-B7, HLA-B13, HLA-B18	6.403E-03	8.033E-02	8	VGF, CYP26A1, Osteopontin, CXXC1, Annexin I, Thrombospondin 1, FKBP14, Follistatin	2.435E-02	7.124E-02	7	Neuropilin-1, Annexin I, ID3, ID1, Adrenomedullin, Follistatin, IBP