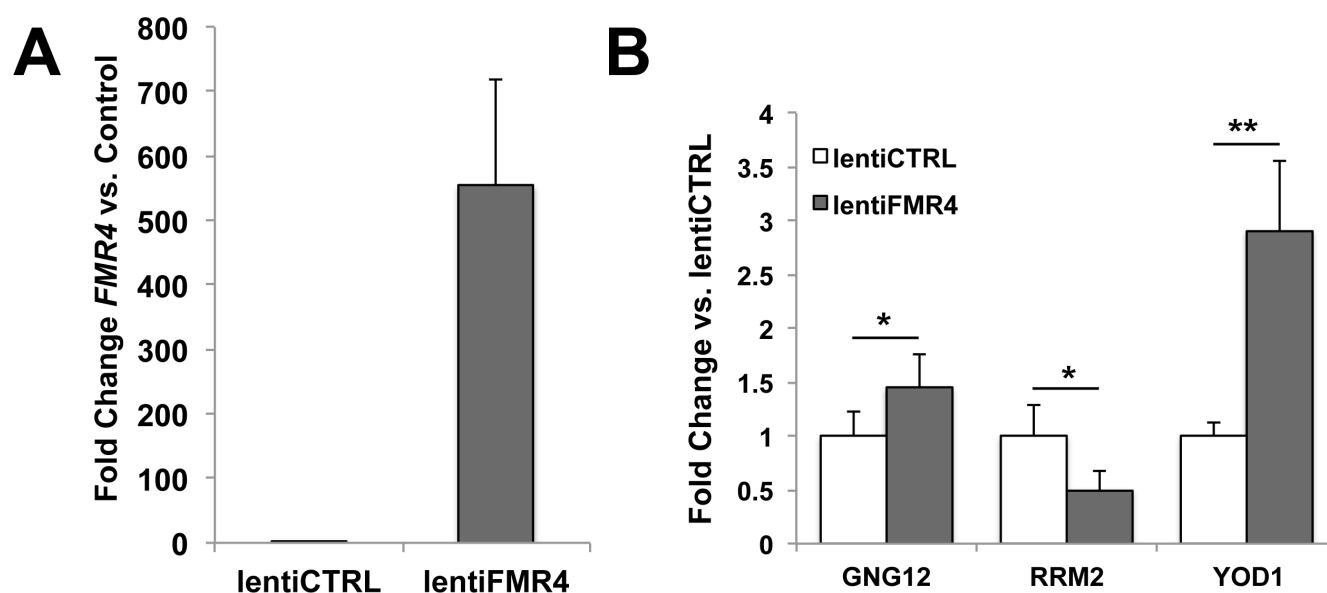


Supplementary Figure 1. List of genes with differential expression in response to both *FMR4* upregulation and down regulation, ordered as presented in main Figure 1.

Concordant to *FMR4*

CASQ2	DGKI	SLC32A1	LSP1
CLEC18B	TF	UNQ6975	KPNA6
FAM183B	PSMB8	VCX3A	SDHAF2
SOCS2	LMOD1	ZNF366	ACTN4
HES3	GUCA2A	LOC347549	ZNF703
INSC	AMPD3	TMEM72	PLXNA1
KRTAP4-2	PDX1	AVP	MANF
CCDC15	LCE5A	CCR6	METTL4
FAAH2	GPR6	JPH4	GNA11
TRIM49	PLEKHO2	UCN	DYNC1LI2
CDKN1C	TBC1D29	GJA10	TGIF1
ANGPT1	TMEM195	LPAR5	RNF11
PLIN4	MYOZ1	DPY19L2P4	ATMIN
OR2T1	CHRNE	GLIS1	KCTD11
WNT10A	TCHH	EGR4	MLEC
CLEC18A	KLKBL4	KRTAP4-4	TUB
C19orf30	MIR34A	DAZL	C19orf56
F2RL3	DNAJC5G	TAS1R3	UTS2
ZNF575	GSG1	FLJ31713	COMMD1
GTSF1	SLC5A2	MC4R	UBE2Z
MS4A6A	ANKRD33	C21orf128	SGK269
PALM3	FIGNL2	PRAMEF20	CCNL2
PNLIPRP1	KPNA7	SBSN	CRISP3
FSCN2	GPX7	BMP3	RNF6
KCNJ9	OR4K1	C9orf169	TUSC2
SASH3	HCST	CREB3L3	RRM2
TPPP3	OR52L1	APOBEC1	DCBLD2
A4GALT	NPTXR	USHBP1	MBD4
ZNF467	LAT2	ZNRF2	SLC26A9
ASB16	HHATL	NDUFS7	SELT
ARIH2	OK/SW-CL.36	SPRR2F	SRPX
OTOP3	RNF212	SLC7A4	SH3BP4
CYP3A5	TMEM61	SST	SNX12
LOC389493	TMEM90B	IL25	SNX4
SCGB1D4	GOLGA7B	IL2RA	YOD1
KRTAP5-2	MMEL1		ALG2
OR6B1	OR10H1	<u>Discordant to <i>FMR4</i></u>	C16orf70
C3	FAM54B	VPS37A	UHMK1
DEFB108B	LOC79999	UPF1	INPP1
INMT	PCP4	THAP3	DCP1A
CD70	F10	ATG4B	EPB41L4B
HBZ	MUC19	ARSA	OR52E8
ITGA10	PI16	CCDC137	PGM2L1
SSX2	LOC100129484	MKRN1	IER3IP1
MIA	CEACAM21	TTPAL	FUT11
CXCL5	ADAMTSL2	NAGK	GNG12
TNS1	C8G	FAM89B	NRIP3
RASGRF1	FLJ45832	C6orf64	RAB22A
LOC284751	IMP5	PLEKHA3	ZNF143
FOXN4	H1FOO	TWF1	C17orf51
TNF	SV2B	ATP6V0E1	KIAA0226
ITGAD	VCX2	TNPO2	LAMP3
MGC39372	MAGEA2	ZMYND11	LOC387763
VAX1	OR1I1	FAM84B	SYPL1
GSDMD	C1orf92	TAF8	CCND2
RIMS2	SCN3A	GPX1	SLC40A1
XAGE2	MADCAM1	C7orf43	ZBTB9
TBR1	FMN1	SERF1A	BTG3
ODZ4	SLC16A8	INHBA	MAPK1
	NRN1L	RNF38	POM121
	VCX3B		

Supplementary Figure 2. Overexpression of *FMR4* in human neurospheres causes downstream gene expression changes. (A) Human neurospheres were transduced with an mCherry-tagged lentivirus resulting in *FMR4* overexpression. (B) Overexpression of *FMR4* in undifferentiated hNPCs results in differential expression of the genes *GNG12*, *RRM2* and *YOD1* (n=6, *= $p<0.05$, **= $p<0.01$).



Supplementary Figure 3. FMR4 is polyadenylated. Reverse transcription of total RNA from hNPCs using oligodT primers revealed detectable levels of polyadenylated *FMR4* RNA, in addition to the polyadenylated mRNAs *FMR1* and *GAPDH*.

