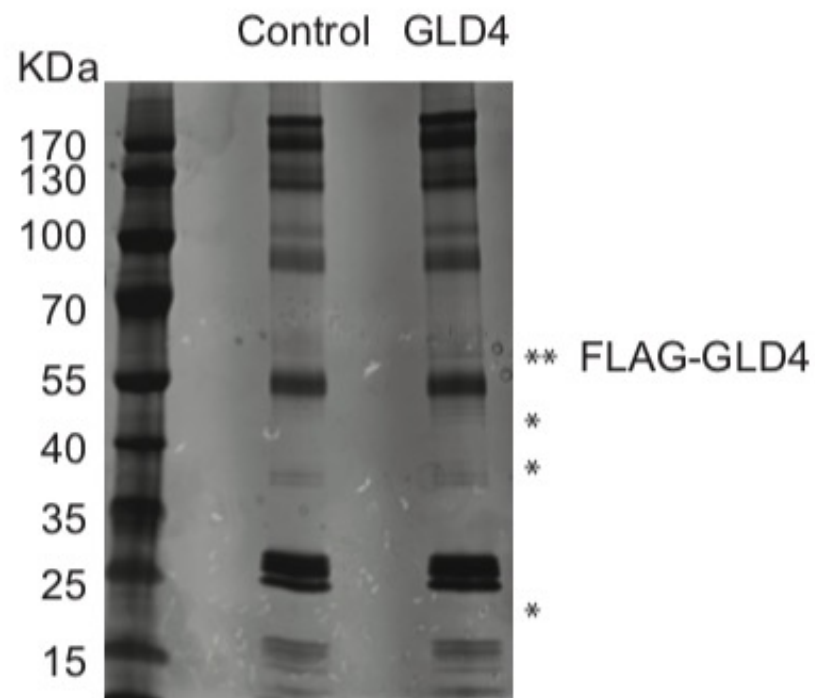


A



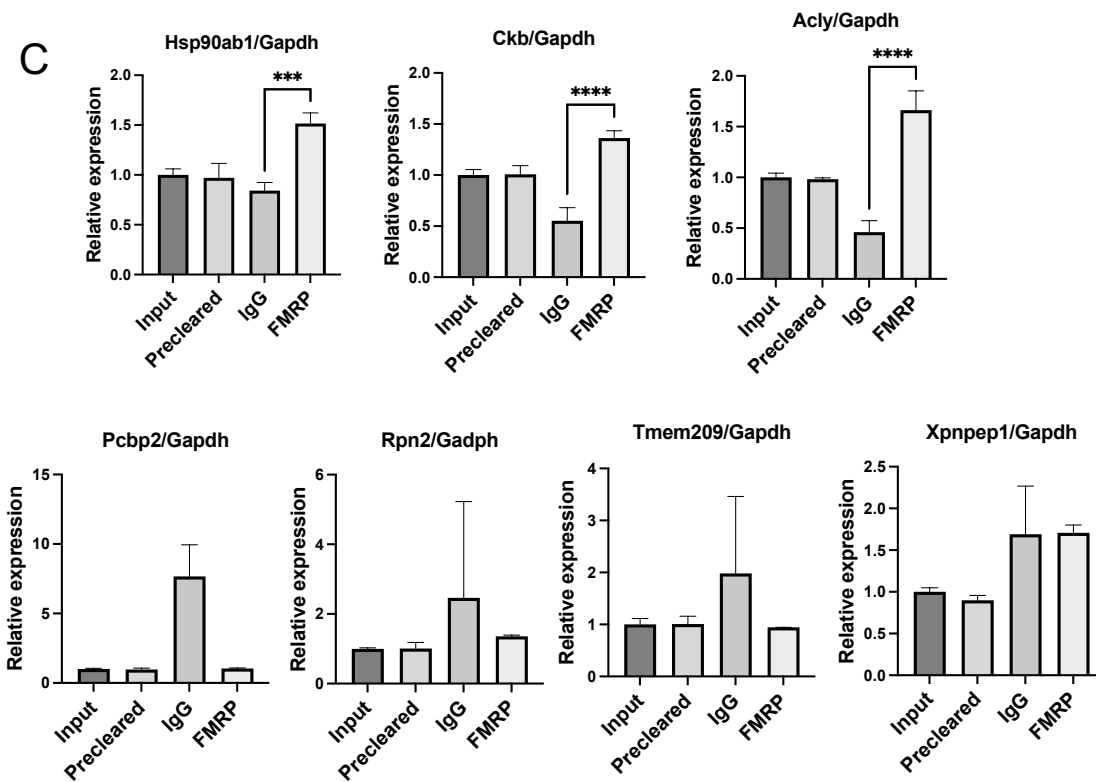
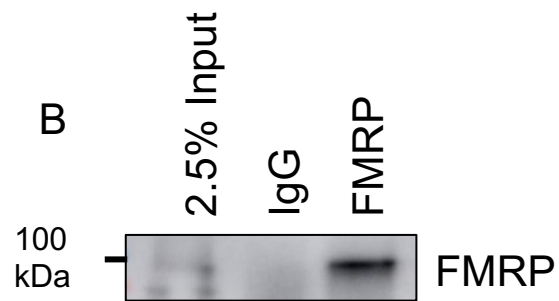
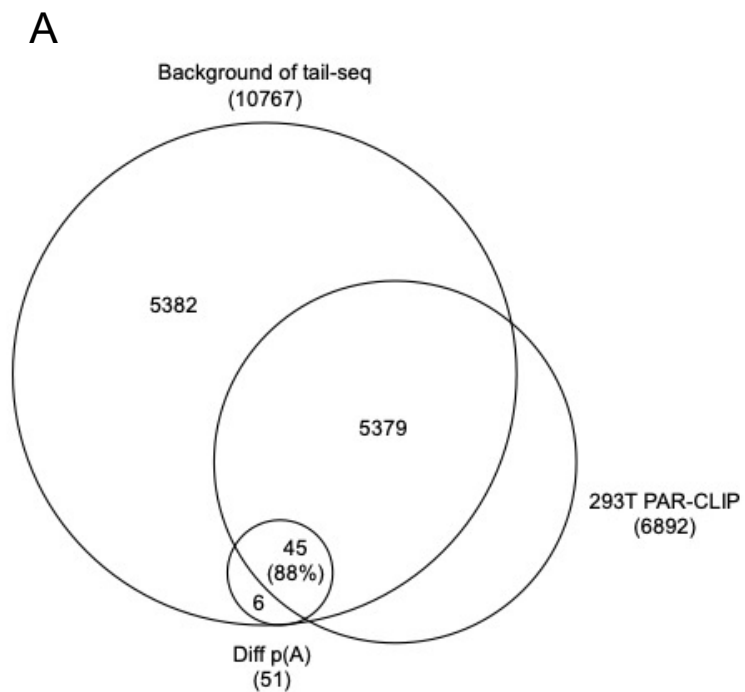
B












Gld4-interacting RNA binding proteins

| Accession Number | Protein Name | Localization | RNA binding specificity | Coverage |
|------------------|------------------|--------------|-------------------------|----------|
| <i>Q8NDF8</i> | <i>GLD4</i> | <i>N, C</i> | <i>NS</i> | 23% |
| <i>P07910</i> | <i>HNRNPC</i> | <i>N, C</i> | <i>poly U</i> | 24% |
| <i>O60506</i> | <i>SYNCRIP</i> | <i>N, C</i> | <i>poly A</i> | 9% |
| <i>Q08211</i> | <i>DHX9</i> | <i>N, C</i> | <i>DR</i> | 8% |
| <i>Q8NC51</i> | <i>SERBP1</i> | <i>N, C</i> | <i>ND</i> | 8% |
| <i>O14979</i> | <i>HNRNPDL</i> | <i>N, C</i> | <i>AU rich</i> | 6% |
| <i>P51114</i> | <i>FXR1</i> | <i>N, C</i> | <i>poly G, U</i> | 6% |
| <i>O00148</i> | <i>DDX39A</i> | <i>N, C</i> | <i>ND</i> | 5% |
| <i>Q13283</i> | <i>G3BP1</i> | <i>N, C</i> | <i>ND</i> | 5% |
| <i>Q04637</i> | <i>EIF4G1</i> | <i>C</i> | <i>NS</i> | 4% |
| <i>Q06787</i> | <i>FMR1</i> | <i>N, C</i> | <i>poly G, U</i> | 2% |
| <i>P60842</i> | <i>EIF4A1</i> | <i>C</i> | <i>NS</i> | 2% |
| <i>Q92841</i> | <i>DDX17</i> | <i>N</i> | | 12% |
| <i>Q86U42</i> | <i>PABPN1</i> | <i>N</i> | | 12% |
| <i>Q1KMD3</i> | <i>HNRNPUL2</i> | <i>N</i> | | 11% |
| <i>Q13151</i> | <i>HNRNPA0</i> | <i>N</i> | | 11% |
| <i>Q12906</i> | <i>ILF3</i> | <i>N</i> | | 10% |
| <i>Q00839</i> | <i>HNRNPU</i> | <i>N</i> | | 9% |
| <i>P52272</i> | <i>HNRNPM</i> | <i>N</i> | | 6% |
| <i>P51991</i> | <i>HNRNPA3</i> | <i>N</i> | | 6% |
| <i>P22626</i> | <i>HNRNPA2B1</i> | <i>N</i> | | 5% |
| <i>P17844</i> | <i>DDX5</i> | <i>N</i> | | 4% |
| <i>P09651</i> | <i>HNRNPA1</i> | <i>N</i> | | 3% |
| <i>O75533</i> | <i>SF3B1</i> | <i>N</i> | | 3% |
| <i>O75526</i> | <i>RBMXL2</i> | <i>N</i> | | 2% |
| <i>O43390</i> | <i>HNRNPR</i> | <i>N</i> | | 2% |
| <i>O00571</i> | <i>DDX3X</i> | <i>N</i> | | 1% |

NS: Non specific; DR: Double stranded RNA; ND: Not determined

Supplemental Fig 1



| Rank | Motif | Name | P-value | log P-pvalue | q-value (Benjamini) | # Target Sequences with Motif | % of Targets Sequences with Motif | # Background Sequences with Motif | % of Background Sequences with Motif |
|------|--|---|---------|--------------|---------------------|-------------------------------|-----------------------------------|-----------------------------------|--------------------------------------|
| 1 |  | VRN1(ABI3VP1)/col-VRN1-DAP-Seq(GSE60143)/Homer | 1e-50 | -1.156e+02 | 0.0000 | 155.0 | 13.49% | 0.5 | 0.04% |
| 2 |  | PABPC1(?)/MEL-PABC1-CLIP-Seq(GSE69755)/Homer | 1e-33 | -7.607e+01 | 0.0000 | 400.0 | 34.81% | 162.0 | 13.65% |
| 3 |  | RLR1?/SacCer-Promoters/Homer | 1e-32 | -7.594e+01 | 0.0000 | 240.0 | 20.89% | 56.8 | 4.78% |
| 4 |  | REM19(REM)/colamp-REM19-DAP-Seq(GSE60143)/Homer | 1e-28 | -6.502e+01 | 0.0000 | 269.0 | 23.41% | 85.0 | 7.16% |
| 5 |  | FOXP1(Forkhead)/H9-FOXP1-ChIP-Seq(GSE31006)/Homer | 1e-25 | -5.950e+01 | 0.0000 | 135.0 | 11.75% | 17.1 | 1.44% |
| 6 |  | Eomes(T-box)/H9-Eomes-ChIP-Seq(GSE26097)/Homer | 1e-24 | -5.715e+01 | 0.0000 | 308.0 | 26.81% | 122.6 | 10.32% |
| 7 |  | OCT4-SOX2-TCF-NANOG(POU,Homeobox,HMG)/mES-Oct4-ChIP-Seq(GSE11431)/Homer | 1e-24 | -5.643e+01 | 0.0000 | 101.0 | 8.79% | 6.7 | 0.57% |
| 8 |  | AT1G04880(ARID)/colamp-AT1G04880-DAP-Seq(GSE60143)/Homer | 1e-23 | -5.300e+01 | 0.0000 | 73.0 | 6.35% | 0.5 | 0.04% |
| 9 |  | Mef2c(MADS)/GM12878-Mef2c-ChIP-Seq(GSE32465)/Homer | 1e-22 | -5.296e+01 | 0.0000 | 136.0 | 11.84% | 22.2 | 1.87% |
| 10 |  | Tbx21(T-box)/GM12878-TBX21-ChIP-Seq(Encode)/Homer | 1e-22 | -5.202e+01 | 0.0000 | 179.0 | 15.58% | 45.6 | 3.84% |
| 11 |  | At4g38000(C2C2dof)/col-At4g38000-DAP-Seq(GSE60143)/Homer | 1e-22 | -5.199e+01 | 0.0000 | 269.0 | 23.41% | 102.6 | 8.64% |
| 12 |  | Hnf1(Homeobox)/Liver-Foxa2-Chip-Seq(GSE25694)/Homer | 1e-18 | -4.338e+01 | 0.0000 | 60.0 | 5.22% | 0.0 | 0.00% |
| 13 |  | Oct11(POU,Homeobox)/NCIH1048-POU2F3-ChIP-seq(GSE115123)/Homer | 1e-18 | -4.188e+01 | 0.0000 | 107.0 | 9.31% | 17.5 | 1.48% |
| 14 |  | AT3G25990(Trihelix)/colamp-AT3G25990-DAP-Seq(GSE60143)/Homer | 1e-17 | -4.065e+01 | 0.0000 | 176.0 | 15.32% | 56.8 | 4.78% |
| 15 |  | MYB3R1(MYB)/col-MYB3R1-DAP-Seq(GSE60143)/Homer | 1e-17 | -4.029e+01 | 0.0000 | 93.0 | 8.09% | 12.9 | 1.08% |

Supplemental Fig 3

A

| Table 2. Top list of different polyA RNAs in FMRP KO mice. | | |
|--|------------------------------|----------|
| Gene name | PolyA length in FMRP KO mice | pvalue |
| Gsdmd | +135 | 3,98E-02 |
| Itga10 | +116 | 9,90E-03 |
| Fam234a | +110 | 3,48E-02 |
| Camta1 | +107 | 3,38E-02 |
| Gm2011 | +103 | 3,32E-02 |
| Gm5577 | +97 | 2,66E-02 |
| Frg2f1 | +95 | 3,84E-03 |
| Lrig3 | +94 | 3,53E-02 |
| Tbc1d1 | +91 | 1,37E-02 |
| Rgs11 | +89 | 3,22E-03 |
| Arhgap1 | +88 | 1,31E-02 |
| Adcy4 | +85 | 1,74E-02 |
| Dlgap1 | +80 | 3,95E-02 |
| Tial1 | +79 | 2,91E-02 |
| Azi2 | +78 | 4,75E-02 |
| Med12 | -138 | 3,96E-02 |
| Brpf3 | -128 | 3,22E-02 |
| Thsd4 | -127 | 4,09E-02 |
| Surf1 | -119 | 3,47E-02 |
| St7 | -117 | 7,74E-03 |
| Col26a1 | -110 | 2,13E-02 |
| Nt5dc2 | -110 | 3,80E-02 |
| Piga | -109 | 3,95E-02 |
| Sirt1 | -109 | 2,69E-02 |
| Slc16a3 | -104 | 5,02E-03 |
| Atp11c | -102 | 1,16E-02 |
| Nup210 | -102 | 1,86E-02 |
| Zdhhc24 | -100 | 3,55E-02 |
| Spag5 | -98 | 4,60E-02 |
| Ncapd3 | -96 | 1,72E-02 |

B

| Table 3. Top list of differentially expressed RNAs in FMRP KO mice. | | |
|---|----------------|-------------|
| Gene name | log2FoldChange | pvalue |
| Ttr | 4,706138715 | 0,000746203 |
| Eno1b | 4,018161344 | 1,33E-65 |
| Pabpc112b-ps | 2,893730241 | 5,00E-05 |
| Lcn2 | 2,888785735 | 0,002857194 |
| Fmr1 | 2,837103639 | 4,09E-08 |
| Agl | 2,620547673 | 2,85E-36 |
| Serpina3n | 2,501141302 | 0,002704949 |
| AC149090.1 | 1,799280119 | 7,97E-05 |
| Ccn1 | 1,607481408 | 9,77E-07 |
| Hmgcs2 | 1,60323475 | 0,000720511 |
| Clasp2 | 1,434590674 | 1,73E-28 |
| Btg2 | 1,420043551 | 3,48E-10 |
| Cmip | 1,369020509 | 0,000156979 |
| Npas4 | 1,147903423 | 0,001018073 |
| Dynlt1b | 1,057945469 | 1,13E-05 |
| Akap7 | -5,145536827 | 0,004324928 |
| Ccdc142os | -5,017013271 | 0,005273313 |
| Tubd1 | -4,693887055 | 0,012490827 |
| Tmem254a | -2,853417469 | 9,50E-05 |
| Gm9780 | -2,298125884 | 0,001943021 |
| Tmem254a | -1,700910364 | 5,72E-17 |
| Plac9b | -1,686246724 | 0,012378009 |
| Tmem254c | -1,598165003 | 0,003255884 |
| Ncoa5 | -1,385638772 | 0,003991992 |
| Polr2h | -1,340496837 | 0,019275243 |
| Kpna2 | -1,233796251 | 0,001663893 |
| Tmem254b | -1,166714331 | 5,29E-06 |
| Cdkn1c | -1,144219918 | 0,008313182 |
| Rbp1 | -1,075680001 | 5,62E-06 |
| Gm29562 | -1,03183798 | 0,001262765 |

C

