Supplementary material: This file includes Legends of supplementary figures and figure 1-3 and 1 table.

Legends of supplementary Figures:

**Supplemental Fig. 1**

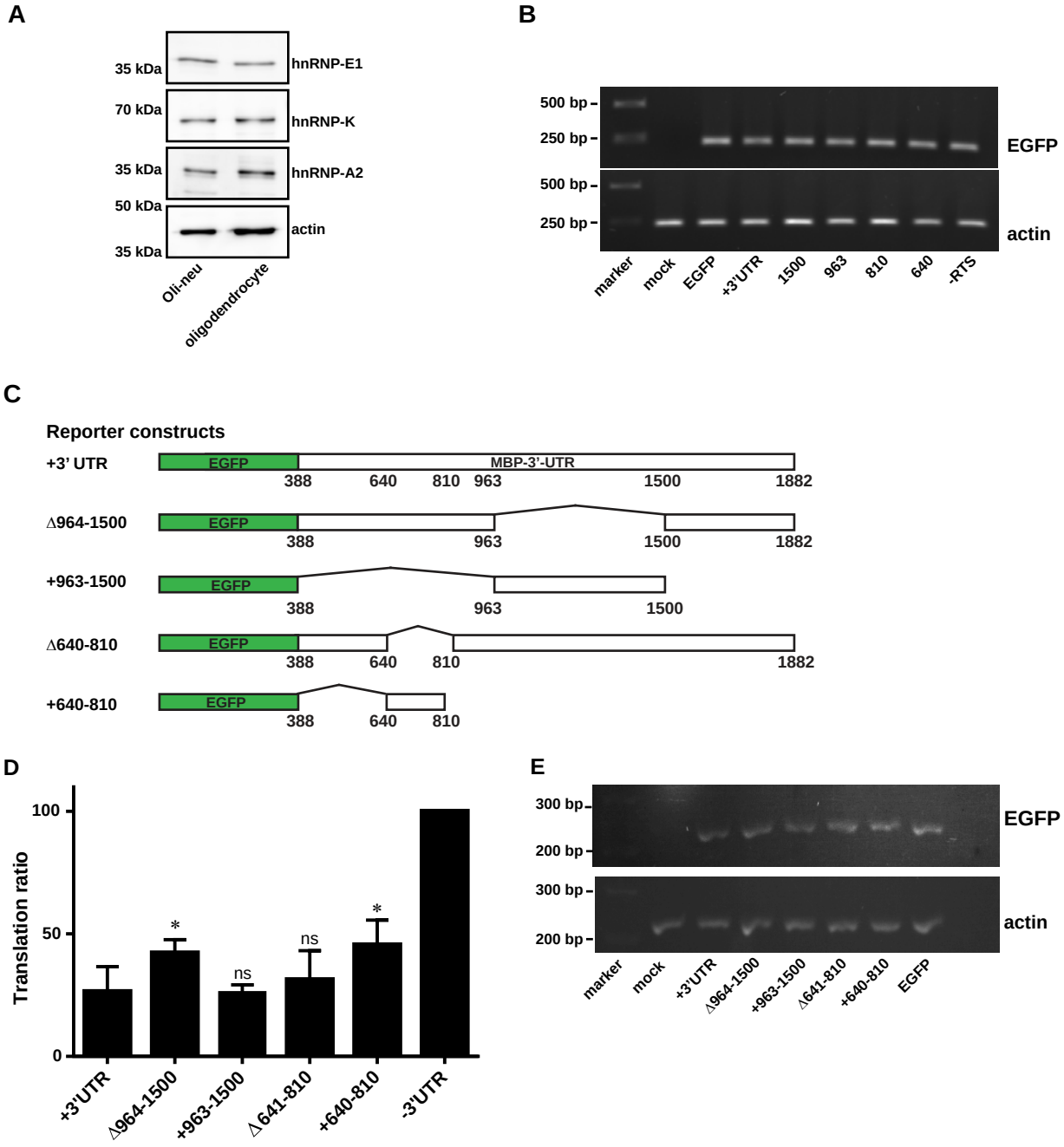
(A) Western blot for hnRNP-E1, hnRNP-K, and hnRNP-A2 expression in Oli-neu cells and oligodendrocytes differentiated for 2 days. Actin was used as a loading control. (B) RT-PCR for EGFP or actin on mRNA isolated from Oli-neu cells transfected with the reporter construct listed in Fig. 1A. (**C**) Diagram of reporter constructs in which the regions identified in Figure 1 have been deleted or directly fused to EGFP cDNA (**D**) Analysis by flow cytometry of Oli-neu cells co-transfected with the reporter constructs of B and a DsRed-expressing vector as a control for transfection efficiency. The relative EGFP expression, displayed as the translation ratio, was calculated as described in Materials and Methods. Mean ratios from at least four independent experiments +/- SD are shown. Statistical significance was analyzed by one-way ANOVA followed by Turkeys multiples Comparison test (ns = non-significant, $p<0.05$*). (E) RT-PCR for EGFP or actin on mRNA isolated from Oli-neu cells transfected with the reporter construct listed in C.

**Supplemental Fig. 2**

(**A**) Sequences of RNA probes used for mapping of hnRNP-K binding to MBP mRNA. The U $C_{3-4}$(U/A) consensus motif and hnRNP-A2 binding site (A2RE) are shown in bold. (**B**) Sequences of RNA probes used for mapping of hnRNP-E1 binding to MBP mRNA. The (A/U)$C_{3-5}$(A/U)-$n_x$-(A/U)$C_{3-5}$(A/U) consensus motif and hnRNP-A2 binding site (A2RE) are shown in bold.

**Supplemental Fig. 3**

QRT-PCR for G6P, PLP, or MBP on mRNA isolated from oligodendrocytes transfected with no siRNA (C1), non-targeting (C2), or siRNA targeting hnRNP-K, hnRNP-A2, a combination of hnRNP-K and hnRNP-A2, or hnRNP-E1. The relative amount of PLP and MBP product was normalized against G6P. The values are means of three independent experiments +/- SD. (B) Supershift EMSA was used to determine whether hnRNP-E1 and hnRBP-K can compete for probe binding. 3'-end-biotinylated RNA Probe P539-574 was incubated with hnRNP-E1 (0.4 µM) in the absence or presence of hnRNP-K (1.5 µM), and polyclonal hnRNP-E1 antibodies, as indicated below the gel image. Note that the presence of hnRNP-K reduces the amount of supershifted hnRNP-E1 mRNA complex. (**C**) Supershift EMSA as in B but this time with Probe P1455-1493 incubated with hnRNP-E1 (0.4 µM) in the absence or presence of hnRNP-K (1.5 µM) and polyclonal hnRNP-E1 antibodies, as indicated. Note that the presences of hnRNP-K has only a minor effect on the amount of supershifted hnRNP-E1 mRNA complex. The blots shown are representative images of three independent experiments.

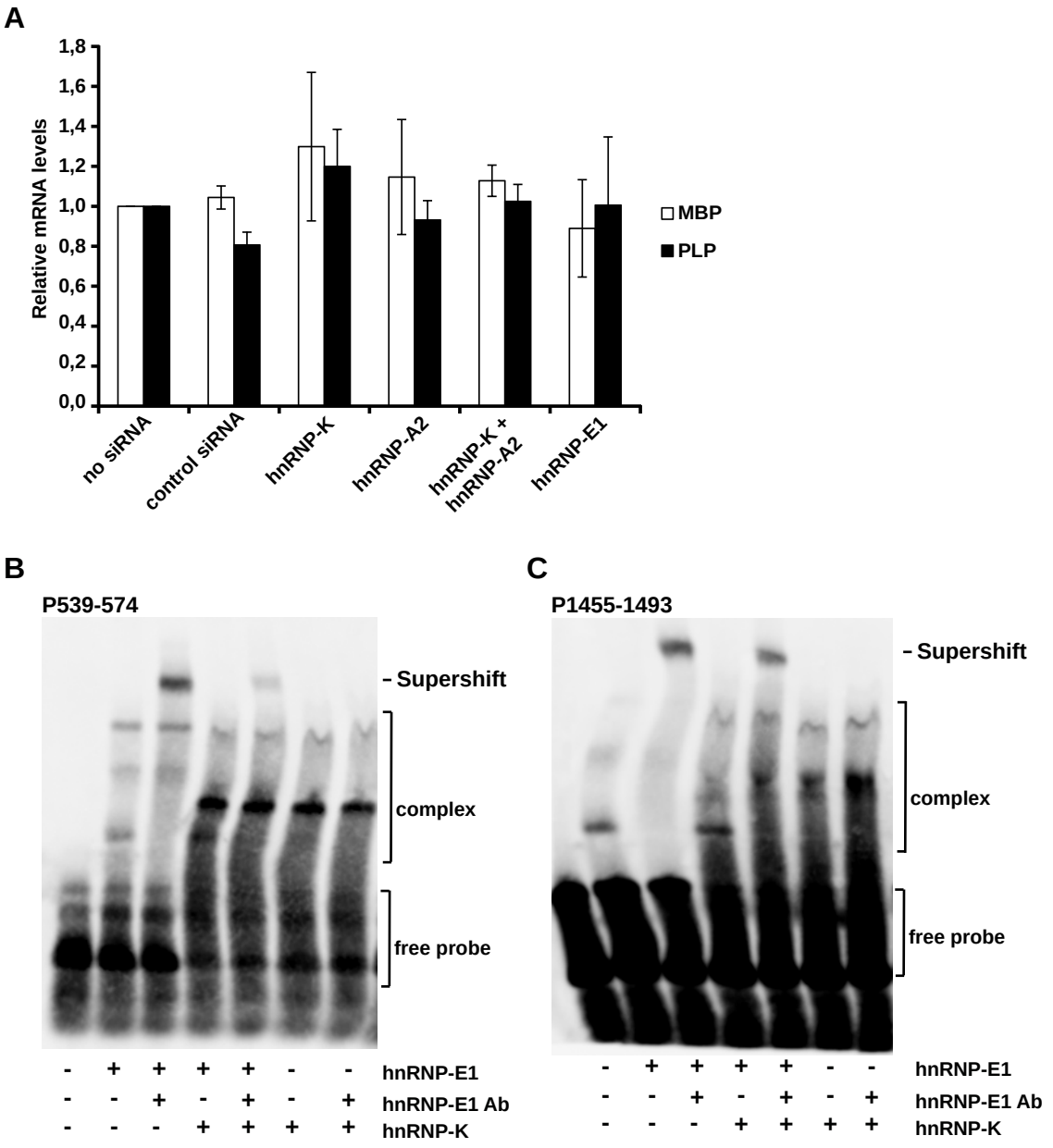

A
35 kDa
hnRNP-E1
70 kDa
hnRNP-K
35 kDa
hnRNP-A2
50 kDa
actin
35 kDa
Oli-neu
oligodendrocyte
B
500 bp
250 bp
EGFP
500 bp
250 bp
actin
marker
mock
EGFP
+3'UTR
1500
963
810
640
-RTS
C
Reporter constructs
+3' UTR
EGFP
MBP-3'-UTR
388
640
810
963
1500
1882
Δ964-1500
EGFP
388
963
1500
1882
+963-1500
EGFP
388
963
1500
Δ640-810
EGFP
388
640
810
1882
+640-810
EGFP
388
640
810
D
Translation ratio
100
50
0
*
ns
ns
*
+3'UTR
Δ964-1500
+963-1500
Δ641-810
+640-810
-3'UTR
E
300 bp
200 bp
EGFP
300 bp
200 bp
actin
marker
mock
+3'UTR
Δ964-1500
+963-1500
Δ641-810
+640-810
EGFP

**A**

P59-95 5′-guaccauggaccaugcccggcauggcuucc**ucccca**ag-3′
P191-230 5′-gaacuacccacuacggc**ucccu**gccccagaagucgcagag-3′
P287-329 5′-cacccccucca**ucccca**aggaaaggggagaggccug**ucccu**cag-3′
P348-385 5′-aagagacagccgcucuggauc**ucccca**uggcaagacgcu-3′
P385-422 5′-ugagagcc**ucccu**gcucagccuucccgaauccugcccu-3′
P539-574 5′-cacccugacuggcuaaaacuguuug**ucccu**uuuuau-3′
P761-780 5′-**gccaaggagcc**agagagcau-3′ (A2RE)
P799-838 5′-guccaggcuuccuuuguuuucuu**uccccu**aaagagcuuug-3′
P962-992 5′-agcggu**ucccu**gcaccccaccagcugauuuc-3′
P1101-1136 5′-caccaucucuccucaguggc**ucccca**gagcaggugc-3′
P1225-1254 5′-ccucgugcug**ucccu**cuggccacuucucac-3′
P1312-1342 5′-aguggaaaaguaaccau**ucccu**gccucuuag-3′
P1455-1493 5′-cuucuaauguccacggacacc**uccccaucccu**cuaacgu-3′

**B**

P191-230 5′-gaacu**accca**cuacggc**ucccu**gccccagaagucgcagag-3′
P287-329 5′-c**acccccu**cca**ucccca**aggaaaggggagaggccug**ucccu**cag-3′
P539-574 5′-c**acccu**gacuggcuaaaacuguuug**ucccu**uuuuau-3′
P660-694 5′-ac**acccu**uucaaguuc**acccccu**acuccauccucag-3′
P761-780 5′-**gccaaggagcc**agagagcau-3′ (A2RE)
P962-992 5′-agcggu**ucccu**gc**acccca**ccagcugauuuc-3′
P1455-1493 5′-cuucuaauguccacggacacc**uccccaucccu**cuaacgu-3′
P1541-1573 5′-gag**accca**acuggcacuguc**acccccu**aggag-3′


A
Relative mRNA levels
1,8
1,6
1,4
1,2
1,0
0,8
0,6
0,4
0,2
0,0
MBP
PLP
no siRNA
control siRNA
hnRNP-K
hnRNP-A2
hnRNP-K + hnRNP-A2
hnRNP-E1
B
P539-574
Supershift
complex
free probe
- + + + + - - hnRNP-E1
- - + - + - + hnRNP-E1 Ab
- - - + + + + hnRNP-K
C
P1455-1493
Supershift
complex
free probe
- + + + + - - hnRNP-E1
- - + - + - + hnRNP-E1 Ab
- - - + + + + hnRNP-K

| Primer name | Sequence (5' → 3') |
|---|---|
| Fw 59 + T7 | TATAATACGACTCACTATAGGGAGAGTACCATGGACCATGCCC |
| Rev 95 | CTTGGGAGGAAGCCATGC |
| Fw 191 + T7 | TATAATACGACTCACTATAGGGAGAGAACTACCCACTACGGCT |
| Rev 230 | CTCTGCGACTTCTGGGGC |
| Fw 287 + T7 | TATAATACGACTCACTATAGGGAGACACCCCCTCCATCCCAAG |
| Rev 329 | CTGAGGGACAGGCCTCTC |
| Fw 385 + T7 | TATAATACGACTCACTATAGGGAGATGAGAGCCTCCCTGC |
| Rev 422 | AGGGCAGGATTCGGGAA |
| Fw 539 + T7 | TATAATACGACTCACTATAGGGAGACACCCTGACTGGCTAAAA |
| Rev 574 | ATAAAAAGGGACAAACAG |
| Fw 660 + T7 | TATAATACGACTCACTATAGGGAGAACACCCTTTCAAGTTC |
| Rev 694 | CTGAGGATGGAGTAGGGGT |
| Fw 761 + T7 | TATAATACGACTCACTATAGGGAGAGCCAAGGAGCCAGAG |
| Fw T7 | TATAATACGACTCACTATAGGGAGA |
| Rev 780 | ATGCTCTCTGGCTCCT |
| Fw 962 + T7 | TATAATACGACTCACTATAGGGAGAAGCGGTTCCCTGCA |
| Rev 992 | GAAATCAGCTGGTGGGGT |
| Fw 1101 + T7 | TATAATACGACTCACTATAGGGAGACACCATCTCTCCTCAG |
| Rev 1136 | GCACCTGCTCTGGGGA |
| Fw 1225 + T7 | TATAATACGACTCACTATAGGGAGACCTCGTGCTGTCCC |
| Rev 1254 | GTGAGAAGTGGCCAG |
| Fw 1455 + T7 | TATAATACGACTCACTATAGGGAGACTTCTAATGTCCACGGA |
| Rev 1493 | ACGTTAGAGGGATGG |
| Fw 1541 + T7 | TATAATACGACTCACTATAGGGAGAGAGACCCACACTGGCA |
| Rev 1573 | CTCCTAGGGGGTGACAGTG |

**Supplementary table 1:** List of primers used to amplify the regions for EMSA probes. The amplification of the A2RE probe (761-780) was performed in two steps: first with primers Fw 761+T7 and Rev 838, followed by a second round of PCR with primers Fw T7 and Rev 780.