Figure EV1. Differential regulatory effect of miR-132 on TAU phospho-epitopes.

Quantification of Western blot analysis in APPPS1 hippocampal lysates with antibodies recognizing distinct phosphosites on TAU upon miR-132 overexpression (miR-132) at 3 months of age. Sample size, \( n = 6 \) per group. Values were normalized to control-injected group and presented as mean ± SEM. Student's t-test was used. An overview of the effects on distinct TAU phosphosites is given in the table provided.

<table>
<thead>
<tr>
<th>Phospho epitope</th>
<th>Antibody</th>
<th>Ser202/Thr205</th>
<th>Thr212/Ser214</th>
<th>Thr231</th>
<th>Thr181</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ctr</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>miR-132</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Source data are available online for this figure.

Figure EV2. Expression levels of TAU kinases upon miR-132 downregulation.

Western blot analysis of CDK5, GSK3b and ERK1/2 in ant-132-injected mice at 6 months of age. Sample size, \( n = 9 \) per group. Values were normalized to scramble-injected group and presented as mean ± SEM. Student's t-test was used.

Source data are available online for this figure.
Figure EV3. Knockdown efficiency of miR-132 and ITPKB in vitro.

A  Semi-quantitative PCR of miR-132 and control miRNAs in HEK293-APPsw cells transfected with a miR-132 antisense inhibitor (miR-132 inh) or a negative control oligonucleotide (Neg Ctrl).

B  Western blot analysis of ITPKB levels in HEK293-APPsw cells transfected with miR-132 antisense oligonucleotide (miR-132 inh), an siRNA against ITPKB (ITPKB siRNA) or both.

Data information: Sample size in (A and B), n = 3 (three independent experiments, each in triplicates). Values were normalized to the respective control groups and presented as mean ± SEM. Student’s t-test was used in (A), while in (B), one-way ANOVA was employed. Source data are available online for this figure.

Figure EV4. Effect of miR-132 downregulation on APP and BACE1 expression.

A, B  Western blot analysis of full length APP (A) and BACE1 (B) levels in ant-132-injected mouse hippocampus at 6 months of age. Sample size, n = 9 per group. Values were normalized to scramble-injected groups and presented as mean ± SEM. Student’s t-test was used. Source data are available online for this figure.
miR-132 deficiency in human AD prefrontal cortex.

FISH of miR-132 and negative control miR-124 in prefrontal cortex from AD patients (AD) and non-demented (ND) controls combined with amyloid immunostaining (6E10). Graphs represent quantification of the percentage of integrated density (see Materials and Methods). Sample size, n = 3 per group. Values were normalized to ND samples and presented as mean ± SEM. Student's t-test was used.

Scale bar, 500 μm.