Early alterations of AMPA receptors mediate synaptic potentiation induced by neonatal seizures

**Abbreviated Title:** AMPA receptor potentiation by neonatal seizures

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Supplementary Materials:

Supplementary Figure S1
Supplementary Figure S2

A

Normoxia  Post Hypoxic Seizure

B

Ratio of 2nd eEPSC/1st eEPSC

Normoxia  Post Hypoxic Seizure
Supplementary Data:

Figure S1. Enhanced AMPAR-mediated mEPSCs in CA1 pyramidal neurons immediately following hypoxic seizures. (a) Representative traces of pharmacologically isolated AMPAR-mediated mEPSCs in CA1 hippocampus slices from animals removed at 1 hour after hypoxic seizures versus normoxic controls, with lower traces expanded in time scale to show individual mEPSCs. Similar to the sEPSCs, (b) histograms (normoxia mEPSC event \( n = 46 \), post-hypoxic seizure event \( n = 468 \)) and (c) normalized cumulative distribution plots show increased mEPSC events with larger amplitudes in CA1 pyramidal neurons following hypoxic seizures (\( n = 5 \)). (d) mEPSCs recorded from CA1 neurons from hippocampi of P10 rat pups experiencing hypoxic seizures exhibit larger amplitude (15.07 ± 0.87 pA, \( n = 5 \), \( p < 0.05 \)) compared to normoxic controls (10 ± 1.59pA, \( n = 5 \)) and occurred at higher frequency (226% ± 47, \( n = 5 \), \( p < 0.05 \)) compared to normoxic controls.

Figure S2. Hypoxic seizures do not cause early alterations in paired pulse facilitation of AMPAR-mediated evoked EPSCs (a) Representative traces of paired pulse EPSC recordings in CA1 pyramidal neurons in hippocampal slices from normoxic control pups (left traces) and slices removed from pups at 1 hour after hypoxic seizures (right traces). Cells were clamped at -60 mV and stimulated in Schaffer collaterals. The interval of pulses was 50 ms. (b) No significant effect on paired-pulse facilitation of eEPSCs was observed following hypoxic-seizures (1.69 ± 0.16, \( n = 6 \)) compared to normoxic control littermates. (1.53 ± 0.12, \( n = 6 \), \( p = 0.375 \))