

CORRECTION

Open Access



Correction to: Optical monitoring of glutamate release at multiple synapses in situ detects changes following LTP induction

Olga Kopach, Kaiyu Zheng and Dmitri A. Rusakov*

Correction to: Mol Brain

<https://doi.org/10.1186/s13041-020-00572-x>

In the original publication of this article [1], text has been introduced erroneously to Figs. 4a and 5d due to a typesetting mistake. In this Correction the incorrect and correct version of these Figures are shown. The original publication of this article has been corrected.

The publisher apologises to the readers and authors for the inconvenience.

The original article can be found online at <https://doi.org/10.1186/s13041-020-00572-x>

* Correspondence: d.rusakov@ucl.ac.uk

Queen Square Institute of Neurology, University College London, Queen Square, London WC1N 3BG, UK



© The Author(s). 2020 **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

Originally Figs. 4 and 5 were published as:

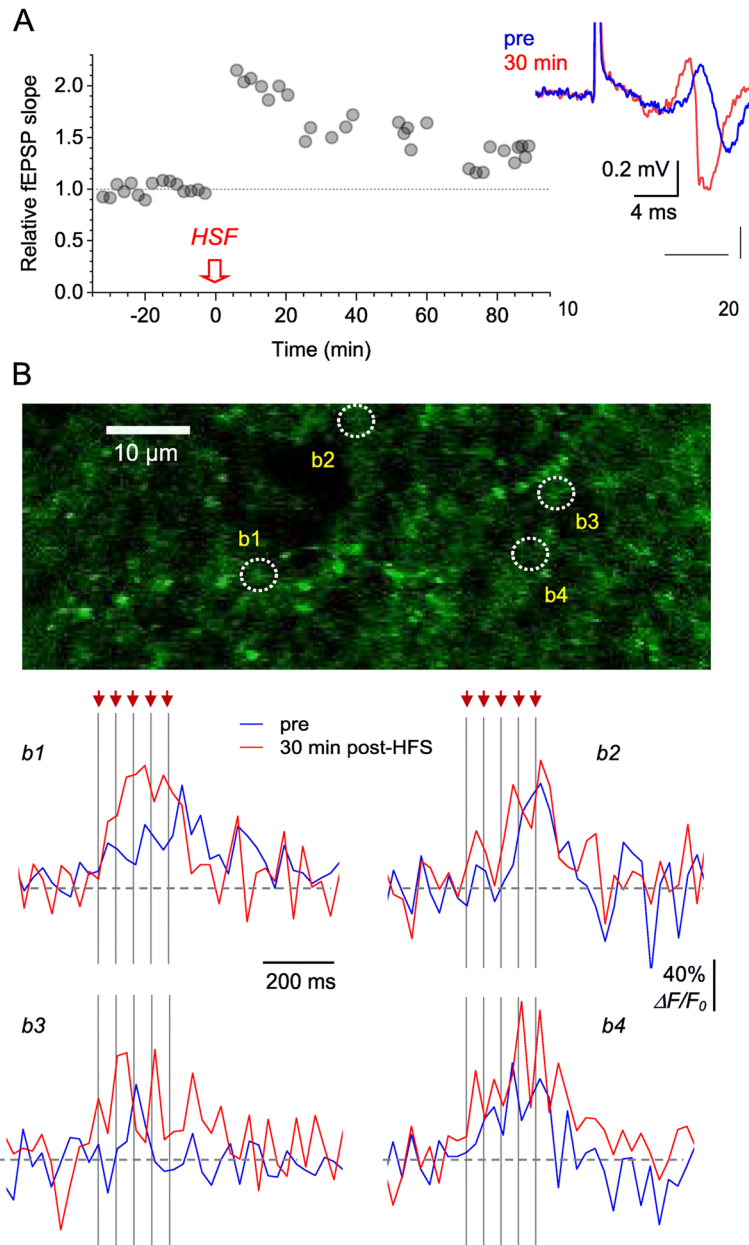


Fig. 4 Optical glutamate signal at individual axonal boutons during LTP induction. **a** Characteristic time course of the fEPSP slope recorded in *S. radiatum* following LTP induction by high frequency stimulation (HFS, one-slice example). Traces, the corresponding fEPSP examples in baseline conditions (blue) and 30 min after LTP induction (red). **b** Image, ROI in *S. radiatum* (iGluSnFR.WPRE.SV40 channel) showing 4 axonal boutons, b1-b4, designated for glutamate release monitoring. Traces, iGluSnFR $\Delta F/F_0$ signal recorded from boutons b1-b4 before (blue) and ~ 30 min after (red) LTP induction. Traces are single-trial examples; arrows and dotted lines, afferent stimulus timestamps

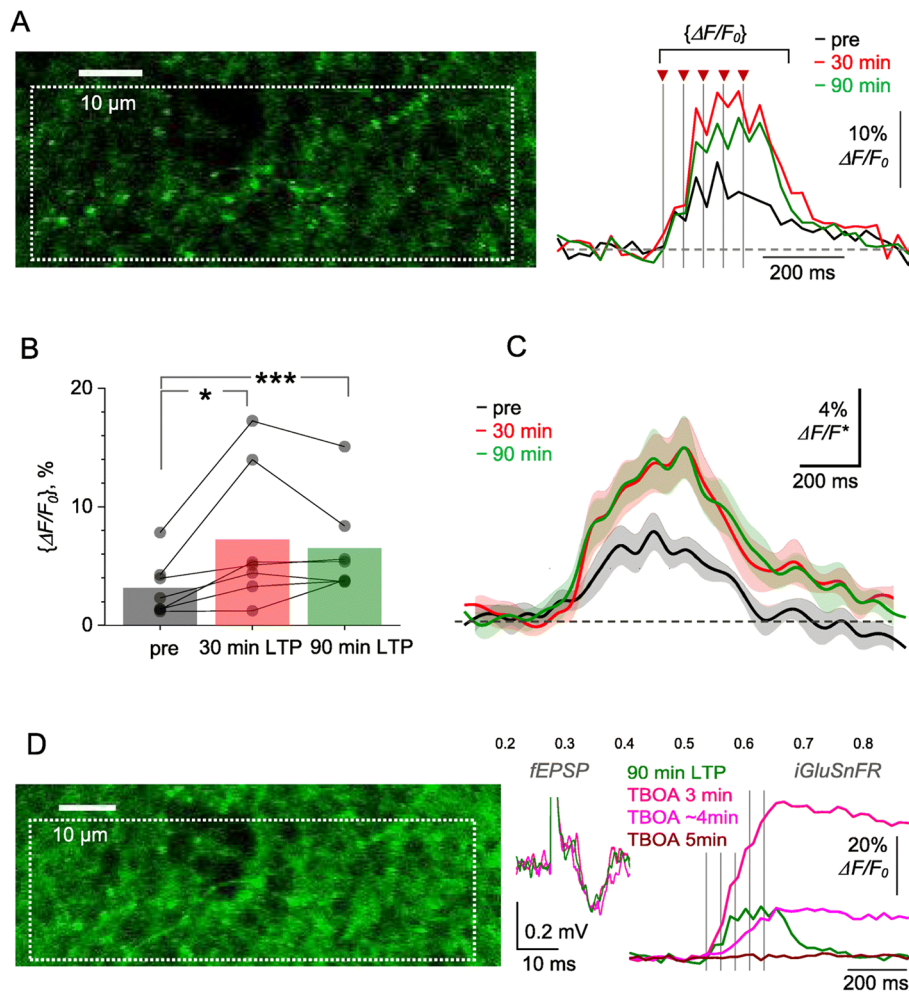


Fig. 5 LTP induction at CA3-CA1 synapses boosts optical glutamate signal in the *S. radiatum* neuropil. **a** Image, axon fragment in *S. radiatum* showing the area with multiple axonal boutons (dotted rectangle, iGluSnFR.WPRE.SV40 channel) for the analysis of average iGluSnFR $\Delta F/F_0$ signal (right traces), as shown before (pre), ~ 30 min after (red), and 90 min after HFS. One-slice example; traces, single-trial examples; arrows and dotted lines, afferent stimulus timestamps. Averaging interval for calculating $\{\Delta F/F_0\}$ values is shown. **b** ROI-average iGluSnFR $\{\Delta F/F_0\}$ values in baseline conditions (pre), and at 30 min and 90 min after LTP induction, as indicated. Connected dots, individual slice data; bars, average values ($n = 7$). $*p < 0.04$; $***p < 0.005$. **c** Average iGluSnFR $\Delta F/F_0$ signal traces (line \pm shaded area, mean \pm SEM, $n = 7$) normalised to their $\{\Delta F/F_0\}$ value in baseline conditions, in each individual preparation, and rescaled to illustrate the 'average $\Delta F/F_0$ traces' across preparations ($\Delta F/F_0^*$). **d** Experiment as in **(a)** but following the blockade of glutamate transporters with 50 μ M TBOA, at 90 min after LTP induction. fEPSP and iGluSnFR traces illustrate single trials recorded at different time points after TBOA application onset, as indicated; one-slice example, notations as in **(a)**. Note that no $\Delta F/F_0$ signal (red) may reflect saturation of the baseline fluorescence F_0

The correct version of Figs. 4 and 5:

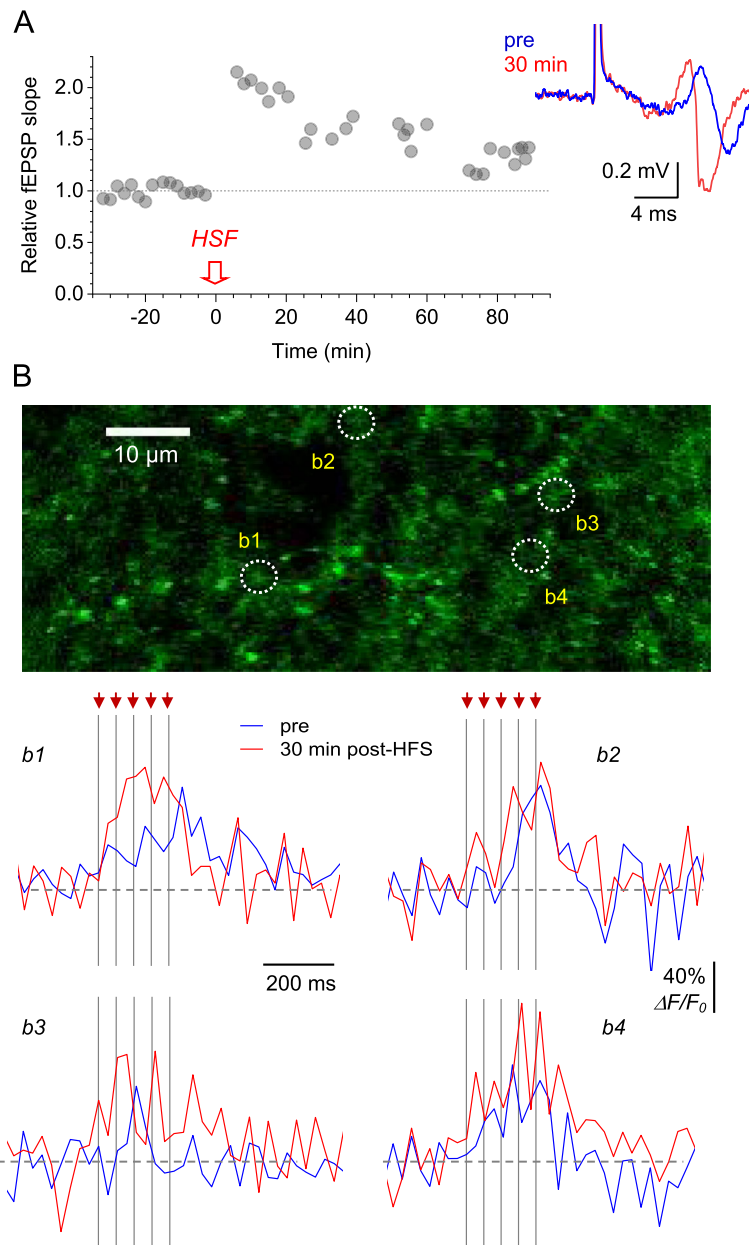


Fig. 4 Optical glutamate signal at individual axonal boutons during LTP induction. **a** Characteristic time course of the fEPSP slope recorded in *S. radiatum* following LTP induction by high frequency stimulation (HFS, one-slice example). Traces, the corresponding fEPSP examples in baseline conditions (blue) and 30 min after LTP induction (red). **b** Image, ROI in *S. radiatum* (iGluSnFR.WPRE.SV40 channel) showing 4 axonal boutons, b1-b4, designated for glutamate release monitoring. Traces, iGluSnFR $\Delta F/F_0$ signal recorded from boutons b1-b4 before (blue) and ~30 min after (red) LTP induction. Traces are single-trial examples; arrows and dotted lines, afferent stimulus timestamps

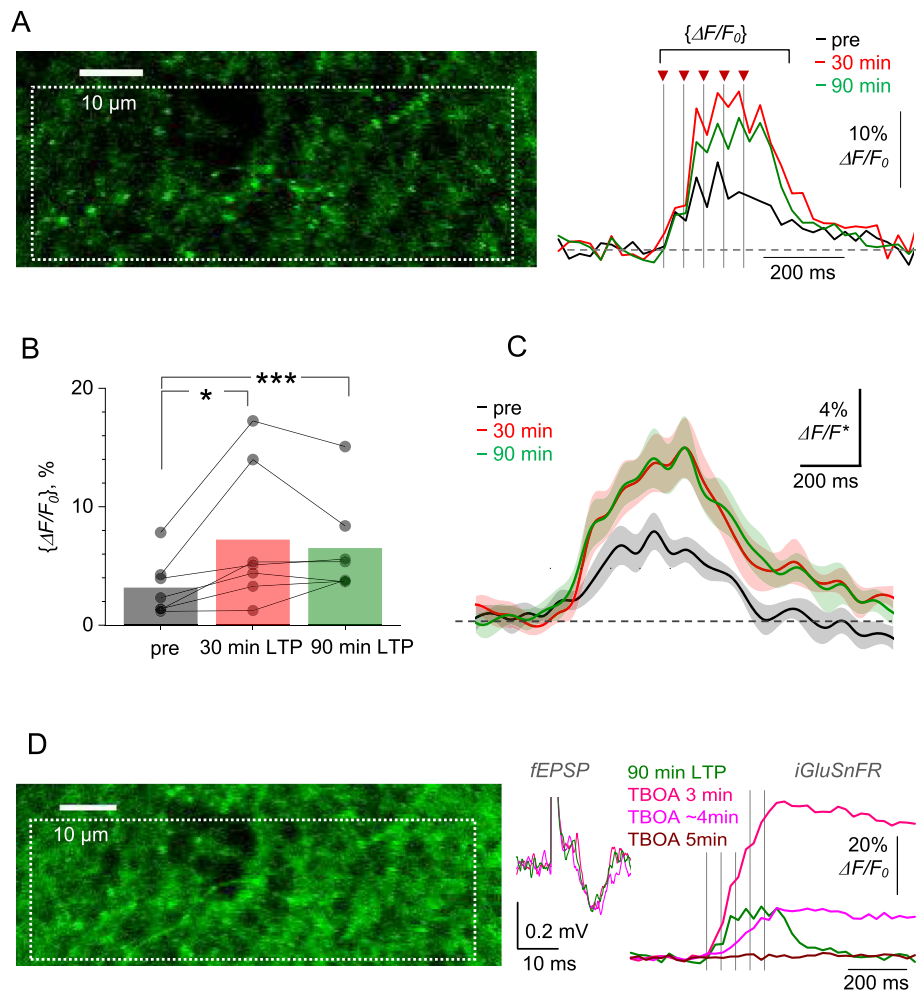


Fig. 5 LTP induction at CA3-CA1 synapses boosts optical glutamate signal in the *S. radiatum* neuropil. **a** Image, axon fragment in *S. radiatum* showing the area with multiple axonal boutons (dotted rectangle, iGluSnFR.WPRE.SV40 channel) for the analysis of average iGluSnFR $\Delta F/F_0$ signal (right traces), as shown before (pre), ~30 min after (red), and 90 min after HFS. One-slice example; traces, single-trial examples; arrows and dotted lines, afferent stimulus timestamps. Averaging interval for calculating $\{\Delta F/F_0\}$ values is shown. **b** ROI-average iGluSnFR $\{\Delta F/F_0\}$ values in baseline conditions (pre), and at 30 min and 90 min after LTP induction, as indicated. Connected dots, individual slice data; bars, average values ($n = 7$). $*p < 0.04$; $***p < 0.005$. **c** Average iGluSnFR $\Delta F/F_0$ signal traces (line \pm shaded area, mean \pm SEM, $n = 7$) normalised to their $\{\Delta F/F_0\}$ value in baseline conditions, in each individual preparation, and rescaled to illustrate the 'average $\Delta F/F_0$ traces' across preparations ($\Delta F/F^*$). **d** Experiment as in **(a)** but following the blockade of glutamate transporters with 50 μ M TBOA, at 90 min after LTP induction. fEPSP and iGluSnFR traces illustrate single trials recorded at different time points after TBOA application onset, as indicated; one-slice example, notations as in **(a)**. Note that no $\Delta F/F_0$ signal (red) may reflect saturation of the baseline fluorescence F_0

Published online: 25 March 2020

Reference

1. Kopach O, Zheng K, Rusakov DA. Optical monitoring of glutamate release at multiple synapses in situ detects changes following LTP induction. *Mol Brain*. 2020;13:39 <https://doi.org/10.1186/s13041-020-00572-x>.