

SUPPLEMENTARY FIGURE LEGENDS

Supplementary figure 1 –Changes in strength, potency and FR expressed as percentages

Supplementary figure 2 – Different outcomes in divergent and convergent triplets

Supplementary figure 3 – Changes in latency

Supplementary figure 4 – Number of release sites

Supplementary figure 1 –Changes in strength, potency and FR expressed as percentages

(A-C) Histograms showing the change in strength (A), potency (B) and failure rate (C) of all connections (n=42) after pairing expressed as percentage of baseline values.

Supplementary figure 2 – Different outcomes in divergent and convergent triplets

(A) The normalized $((X_A - X_B)/(X_A + X_B))$ difference in Δ_N strength (upper panel), Δ_N potency (middle panel) and Δ_N failure rate (lower panel), of the two recorded connections for each divergent triplet (n=4; left; large grey points) were compared to differences in strength, potency and failure rate values for pairs of connections randomly extracted from all recorded connections (n=42). 100 such sets are shown (right); black points indicate sets not significantly different to the actual triplet data, red points indicate the rare sets that are significantly different ($p < 0.05$) from the actual triplet data (See Methods for details).

(B) – Same as (A), but for convergent triplets (n=3).

Supplementary figure 3 – Changes in latency

(A-B) Correlations between changes in latency ($\text{latency}_{\text{post}} - \text{latency}_{\text{pre}}$) and normalized changes in strength (A; $R^2 = 0.25$, $p < 0.01$) and failure rate (B; $R^2 = 0.18$, $p < 0.01$).

(C) Average pre- (black) and post-pairing (red) traces from example connections that underwent LTD and a shift towards higher latency (top) and LTP and a shift towards lower latency (bottom). (D) Barplots showing the change in latency for each plasticity

group (LTP/NC/LTD shown in red/grey/blue). Asterisks indicate significant differences ($p < 0.01$, Wilcoxon test).

Supplementary figure 4 – Number of release sites

(A) Scatterplot showing the relationship of initial N to normalized strength changes.

(B) Difference in absolute strength change in response to pairing between connections mediated by a low (< 5) and high (≥ 5) number of release sites ($p < 0.001$, Wilcoxon test).

(C) Lack of correlation between normalized changes in strength and N ($R^2 = 0.04$, $p = 0.11$).

(D) Averaged normalized changes in N for connections grouped by plasticity outcome. $\Delta_N N$ was not significantly different between groups (all $p > 0.05$, Wilcoxon test).

(E) Lack of correlation between initial failure rate and $\Delta_N N$ ($R^2 = -0.04$, $p = 0.92$).







