

Calcium Line-Scan — $\Delta F/F_0$

Baseline: First 100 ms (columns 1–50)

Synthetic confocal line-scan: 256 rows $\times$ 750 columns, 500 lines/s (2 ms/column, 1.5 s total), 0.30 μm /pixel (76.8 μm line). F_0 is computed from the **first 100 ms** — before any event begins, clear of every planted artifact. This is the defensible choice here, and only because nothing happens in that window.

F_0 WINDOW

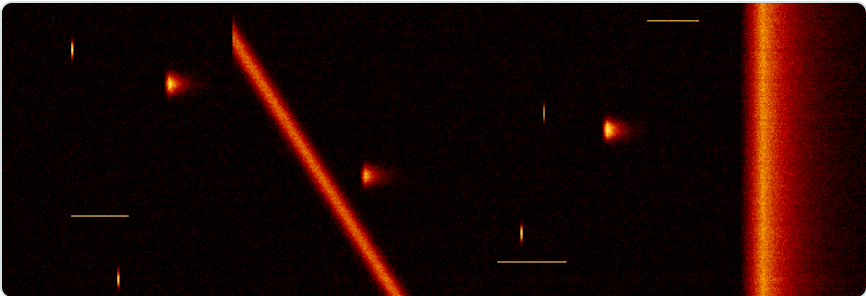
First 100 ms (columns 1–50).
Baseline from a quiet pre-event window. The most defensible choice when you know the recording begins before any event.

Baseline check

Mean $\Delta F/F_0$ over quiet patch: -0.000
✓

Peak $\Delta F/F_0$ in recording: 1.12

space ↓ (0 → 76.8 μm)



This heatmap shows $\Delta F/F_0$ values across 256 spatial positions and 750 time points (0 to 1500 ms) computed using the first 100 ms as baseline. Key statistics are reported in the adjacent panel.

0 ms

time →

1500 ms

Hot colormap: black → red → orange → yellow → white as $\Delta F/F_0$ rises. Display range fixed 0 → 1.2 across all three pages for direct comparison.

PAGE 2 OF 3

Calcium Line-Scan — $\Delta F/F_0$

Baseline: First 300 ms (columns 1–150)

Same recording as page 1. F_0 is now computed from the **first 300 ms**. This window reaches column 150 — and the first spark peaks at column 140. An event inside its own baseline window inflates F_0 for that row, so every $\Delta F/F_0$ afterward is understated. Watch the statistics, not the picture.

F_0 WINDOW

Caution. First 300 ms (columns 1–150) overlaps the first spark (peak at column 140). Events inside the baseline window inflate F_0 and understate $\Delta F/F_0$ for the affected row.

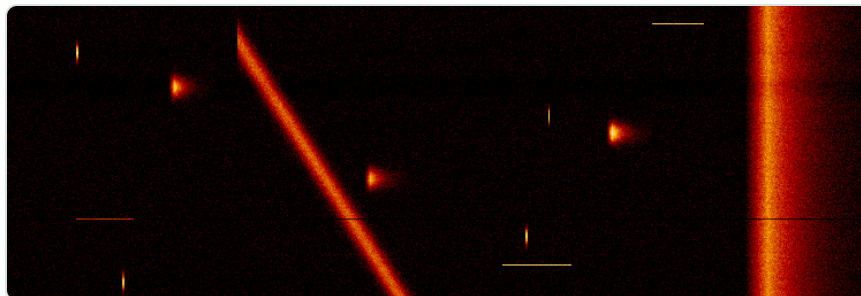
Baseline check

Mean $\Delta F/F_0$ over quiet patch: -0.005

✓

Peak $\Delta F/F_0$ in recording: 1.07

space ↓ (0 → 76.8 μm)



This heatmap shows $\Delta F/F_0$ values computed using the first 300 ms as baseline. The first spark overlaps this window, causing underestimation of that row. Statistics are reported in the adjacent panel.

0 ms

time →

1500 ms

Hot colormap: black → red → orange → yellow → white as $\Delta F/F_0$ rises. Display range fixed 0 → 1.2. Note reduced apparent amplitude of the first spark compared to page 1 — an artifact of baseline contamination.

PAGE 3 OF 3

Calcium Line-Scan — $\Delta F/F_0$

Baseline: Per-row rolling minimum

Same recording as pages 1 and 2. F_0 is now the **per-row rolling minimum** across the entire recording. A rolling minimum never contains an event — but it rides the noise floor downward, so F_0 is biased low and every $\Delta F/F_0$ is inflated. The baseline check sits well above zero.

F_0 WINDOW

Caution. Per-row rolling minimum. F_0 is biased toward the noise floor, inflating all $\Delta F/F_0$ values. The baseline check should sit near zero — it does not.

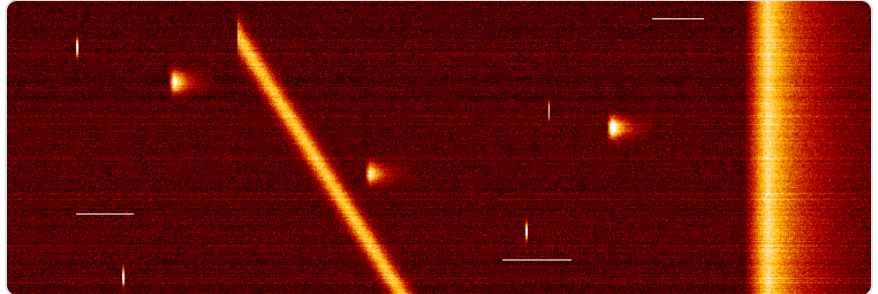
Baseline check

Mean $\Delta F/F_0$ over quiet patch: 0.185

← **should be near 0**

Peak $\Delta F/F_0$ in recording: 1.55

space ↓ (0 → 76.8 μm)



This heatmap shows $\Delta F/F_0$ values computed using a per-row rolling minimum baseline, which inflates all values due to noise floor bias. Statistics are reported in the adjacent panel.

0 ms

time →

1500 ms

Hot colormap: black → red → orange → yellow → white as $\Delta F/F_0$ rises. Display range fixed 0 → 1.2. All values appear inflated compared to page 1 — a systematic bias from rolling minimum baseline.