

Supplementary materials

Fig. S1

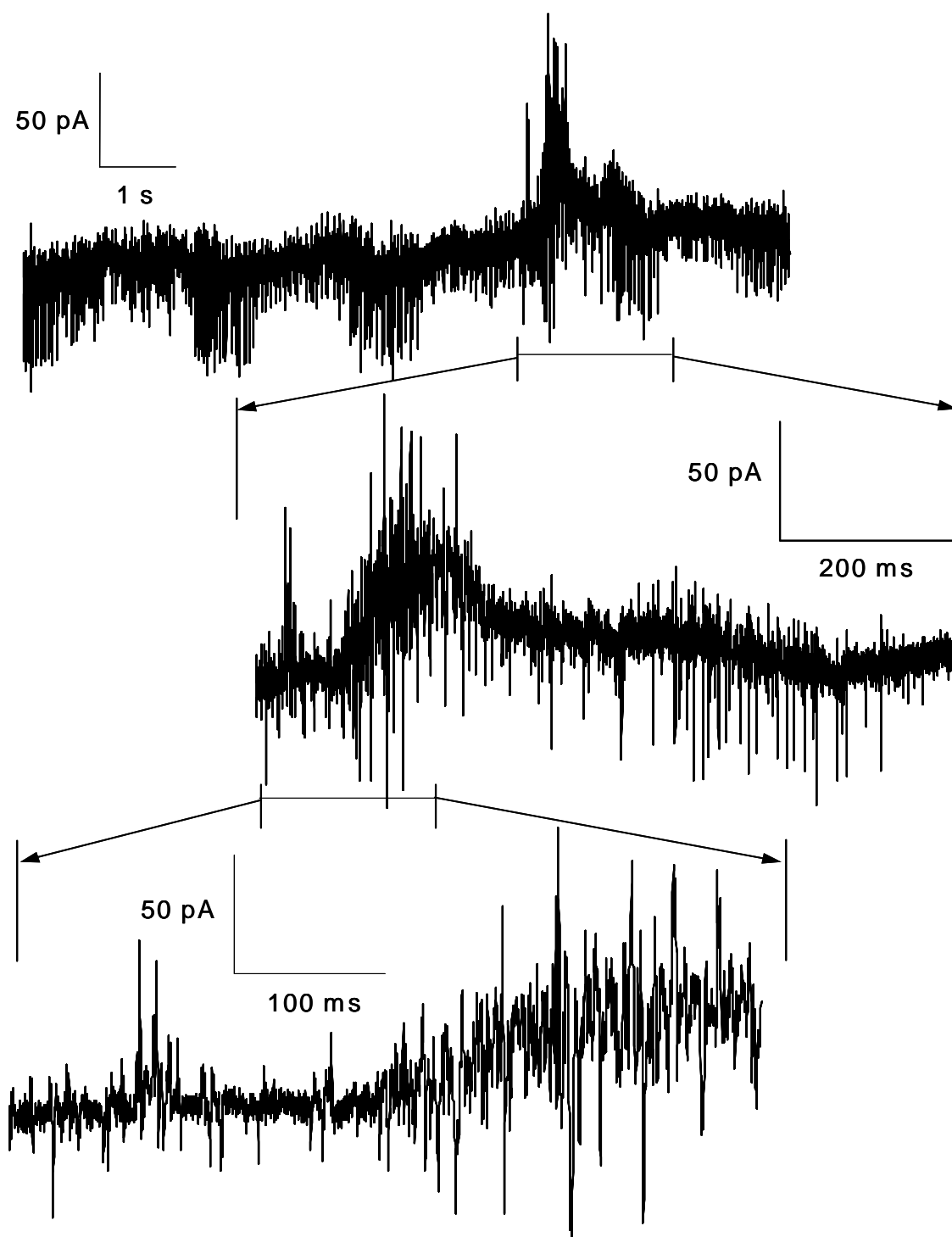


Fig S1 Voltage-clamp recording of intra-channel currents including a burst (bandwidth of amplifier 0 - 5KHz). Note various baseline shifts, e.g. upwards during the selected burst, suggesting the presence of slow superimposed signals likely of synaptic origin.

Fig. S2

Supplementary Material (ESI) for Lab on a Chip

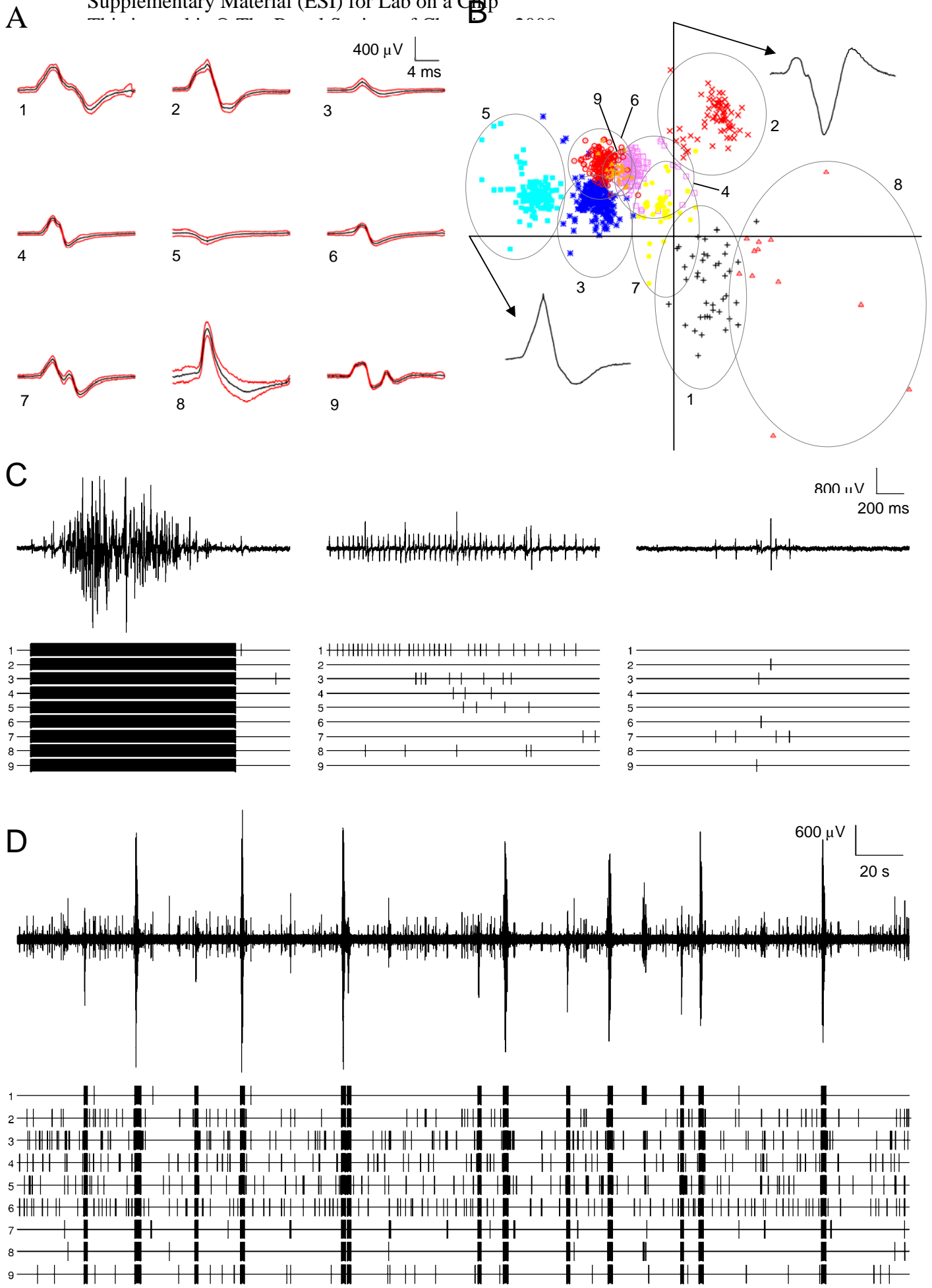


Fig. S2 (A) Nine spike profiles ascribed to different clusters by the spike sorting algorithm (black and red traces show mean and mean-absolute-deviation respectively). The number of spikes in each class was 41, 70, 197, 135, 135, 137, 45, 12 and 29 for classes 1 to 9 or a total of 801. (B) Two-dimensional scatter plot in PCA space showing the nine corresponding k-means clusters. (C) Short epochs of raw data (top traces) and raster plots (bottom) with bursting and sparse activity. (D) Longer epoch of raw data and raster plot including hippocampal bursts and inter-ictal periods.

Fig. S3 Supplementary Material (ESD) for Lab on a Chip

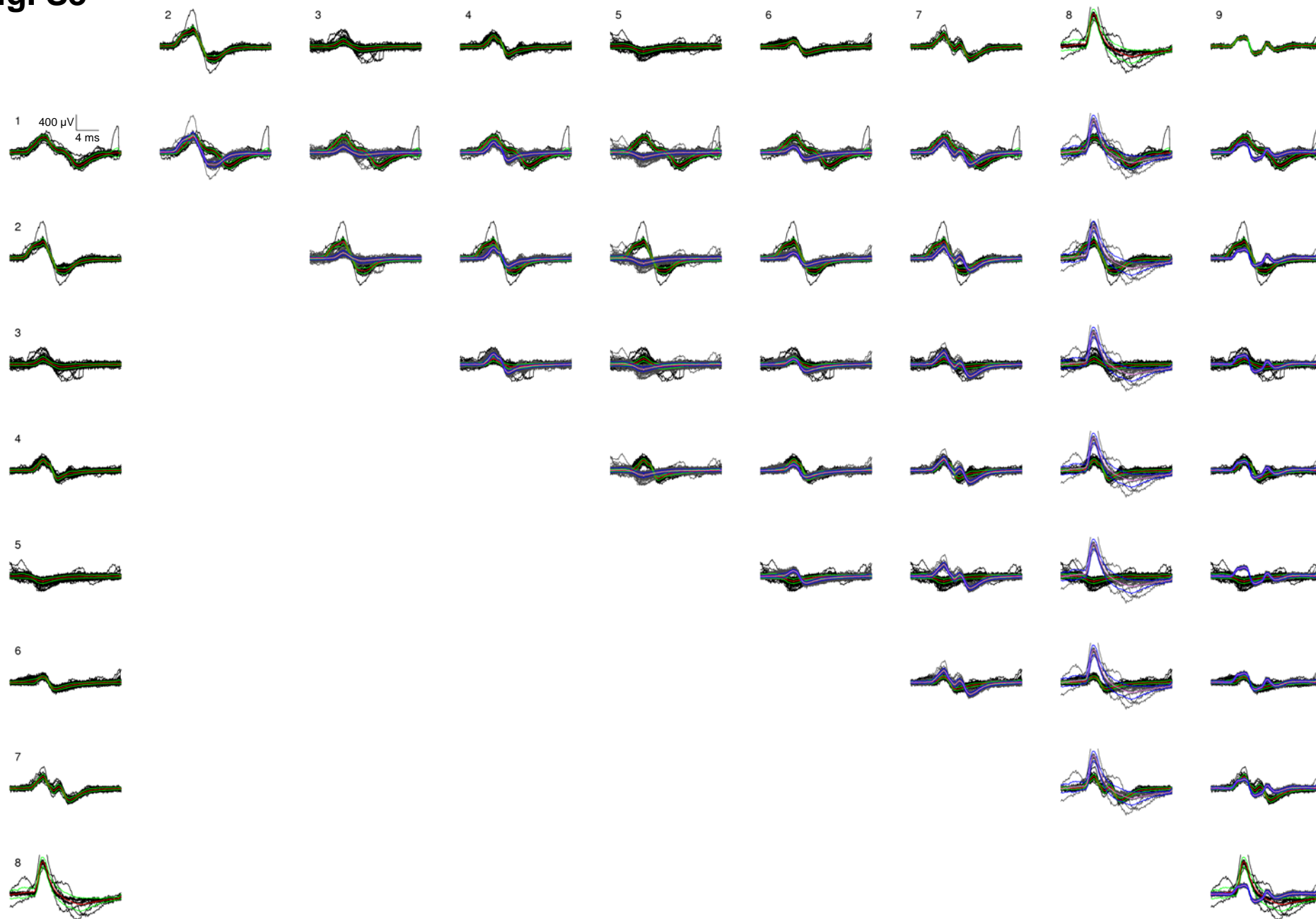


Fig. S3 Pairwise matrix for the nine signal types shown in Fig. S2. Each entry in the matrix shows two overlapped profiles (mean and mean-absolute-deviation) for comparison. The numbered traces correspond to the individual profiles according to the clusters shown in Fig. S2.

Movies

M1 Sparse activity

M2 Bursting activity