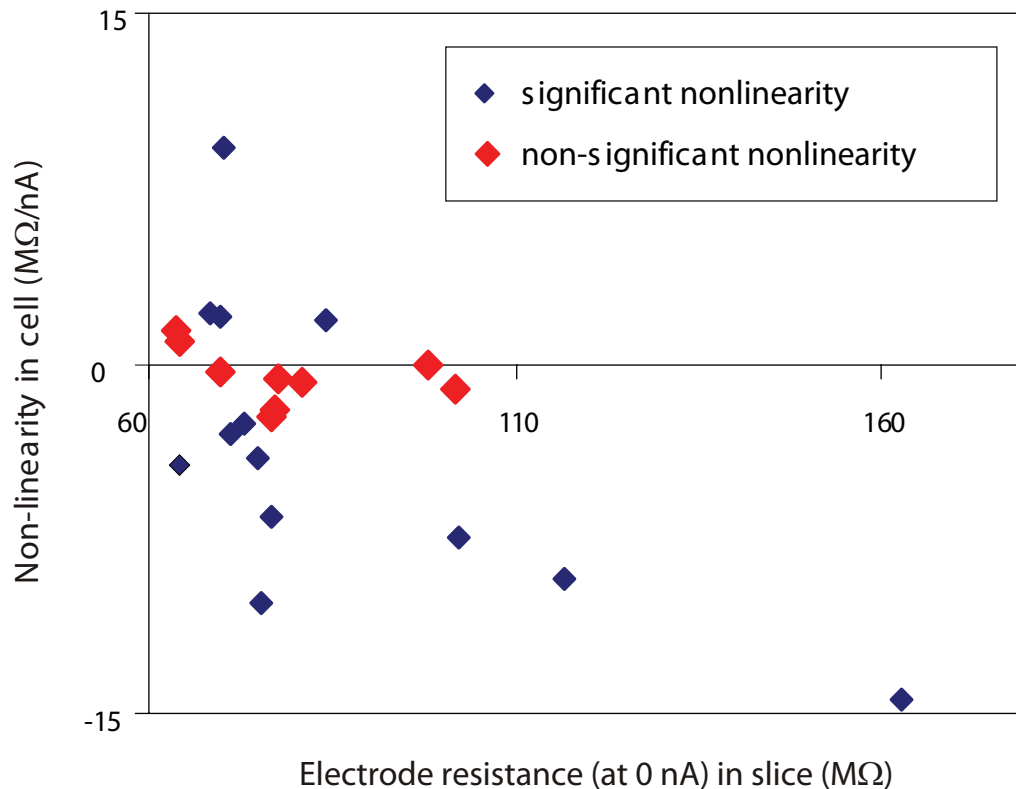


## Supplementary Figure 2 – Electrode nonlinearity



For 20 electrodes (in 23 cells), we estimated the electrode resistance  $R_e$  from kernels obtained at different levels (positive and negative) of constant injected current, using a fast, automated procedure. A linear regression analysis for  $R_e$  (the sum of the kernel) vs. injected current was performed both in the cell and in the slice, for each electrode, and the slopes and intercepts of the linear regressions were extracted in both conditions. The intercept of the linear regression corresponds to  $R_e$  at 0 nA injected current. The slope of the linear regression is one way of quantifying the degree of electrode nonlinearity. The null hypothesis that the slope of the linear regression is 0 (two-tailed t-test) was tested in each case. Each point on the graph is one electrode tested in one cell (a small subset of electrodes was tested in more than one cell: each such test is one point). For 9 electrodes, we found that the linear regression slope was not significantly different from 0 (red points on the graph). Across the tested electrodes, the degree of nonlinearity was significantly correlated to the  $R_e$  measured at 0 nA in the slice ( $P=0.001$ , two-tailed t-test of the null hypothesis that the slope of the linear regression is 0).