Supplementary Figure 3. The negative BOLD response is correlated with decreases in neuronal activity.

The format here is identical to the format in Fig. 4. The trial-by-trial amplitude of the response here was estimated on the basis of the periods of pre-stimulation baseline (5 s) and stimulation (20 s) of each trial. The estimation of the amplitude in Fig. 4 was based on the full epoch of a trial, including the post-stimulation period (additional 20 s). While the data here are somewhat noisier (as to be expected, since they are based on fewer data points), they do demonstrate the findings that are reported in Fig. 4.

(A) Scatter plot of the amplitude of the PBR as a function of the increase in neuronal activity. Session F01.jl1.

(B) Scatter plot of the NBR as a function of the decrease in neuronal activity. The data are from trials with the stimulus that did not overlap the receptive field, from the same session as in (A). The trial-by-trial amplitudes of the positive and negative BOLD response were correlated with those of the corresponding increases and decreases, respectively, in global neuronal activity ($r = 0.26, P < 7 \times 10^{-2}$; $r = 0.37, P < 10^{-5}$; regression using orthogonal fitting).

(C) Scatter plot of the trial-by-trial amplitude of the PBR as a function of the increase in neuronal activity. The data are pooled from the five data sets with the largest decreases in neuronal activity.

(D) Scatter plot of the NBR as a function of the decrease in neuronal activity. The data are pooled from the same five data sets as in (C). The trial-by-trial BOLD and neuronal responses pooled from the 5 data sets with the largest DiNA were correlated ($r = 0.27, P < 3 \times 10^{-5}$ and $r = 0.34, P \approx 0$ for the positive and negative response, respectively).