Supplementary Material to the article "Local field and dynamic heterogeneities in the $\pm J$ Ising spin glasses"

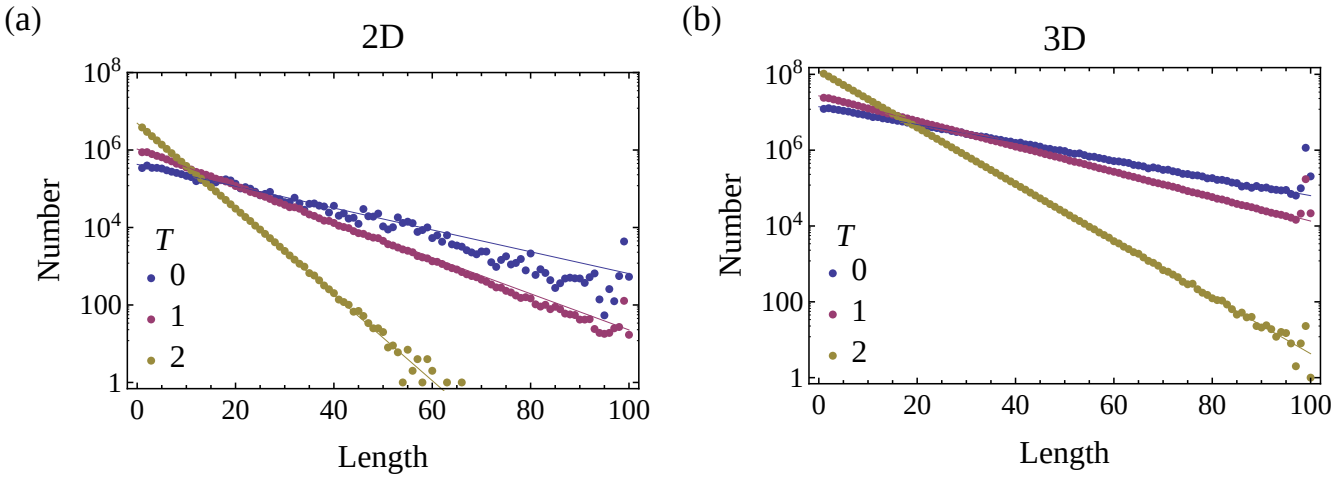

Fig. S1. Domain size distribution for nonzero absolute values of the local field at temperatures $T = 0$, 1, and 2 in 2D (a) and 3D (b). Lines correspond to exponential fit. The noisier data in 2D compared to 3D is due to smaller statistics for the same sample size $L = 100$.

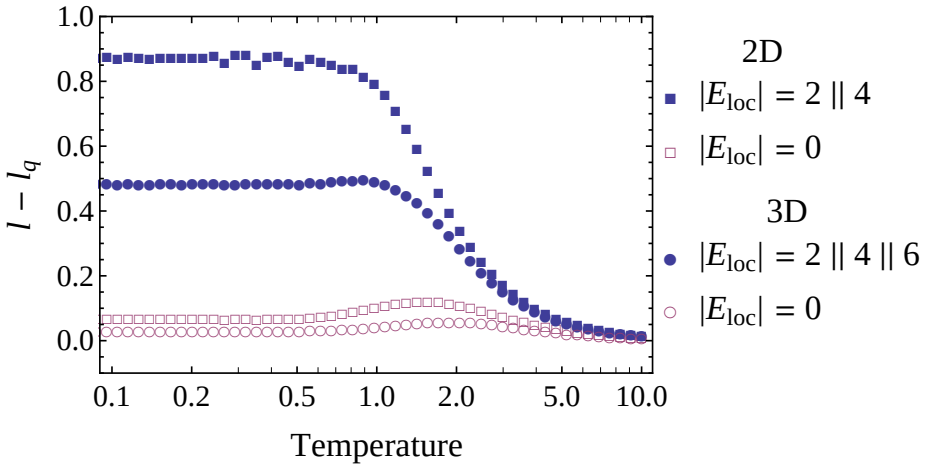

Fig. S2. Difference in the actual average domain size l and the domain size calculated from the probability q of the local field absolute value (zero or nonzero), assuming no spatial correlation, $l_q = (1 - q)^{-1}$ in the 2D and 3D $\pm J$ Ising spin glass. The small bump for a nonzero local field in 3D at $T \approx 0.9$ is due the finite size and time effects and disappears for larger sample sizes (it practically disappears at $L = 120$).

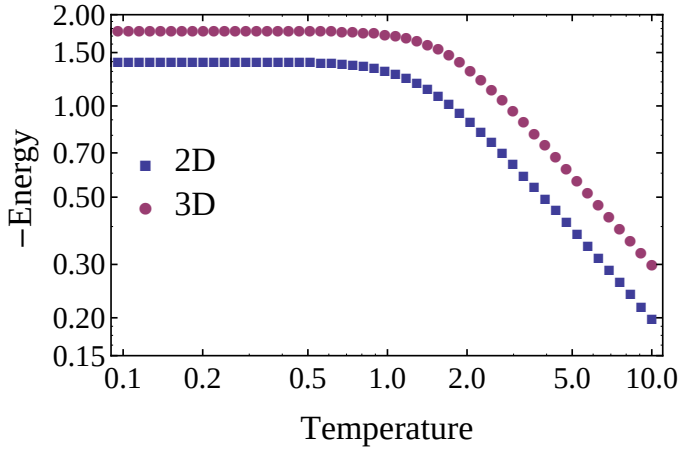

Fig. S3. Energy (taken with a minus sign) as a function of temperature in the $\pm J$ Ising model in 2D and 3D. Asymptotically it approaches zero and inversely proportional to temperature as $T \to \infty$. Below about $T = 2$, it begins to saturate to zero-temperature values of -1.401 for 2D and -1.787 for 3D. The glass transition temperature is zero in 2D and $T_g = 1.102$ in 3D.

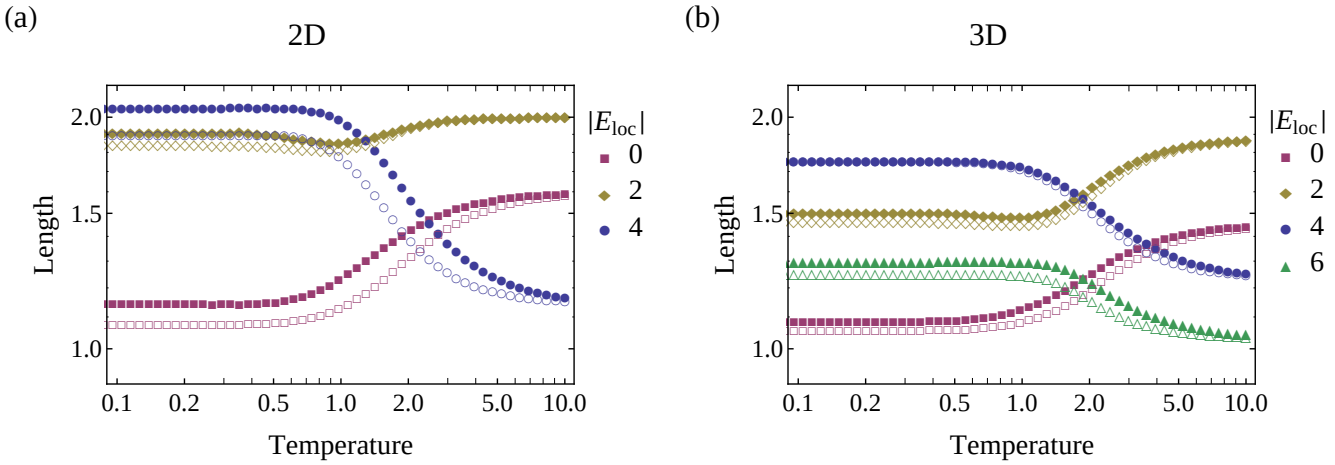

Fig. S4. Average domain size for each absolute value of the local field vs temperature for the $\pm J$ Ising model in 2D (a) and 3D (b). Filled markers correspond to the direct measurements. Empty markers correspond to the calculation from the probabilities of those local fields, provided there is no correlation between them. The glass transition temperature is zero in 2D and $T_g = 1.102$ in 3D.