## **Supplementary Figure S8**



b



Firing locations in darkness are not primarily determined by local non-visual landmarks such as odours or tactile cues. a, Trajectory of a rat running on a linear track in darkness (middle). Darkness trials were preceded and succeeded by trials in light (left and right). For each cell, the upper diagram shows spikes on paths from west to east; lower diagrams show spikes from east to west. Spike locations are indicated as red dots. Note misalignment between firing fields in the same direction during light vs. darkness and between firing positions on eastward and westward trajectories during darkness, both suggesting that the influence of non-visual surface cues is minimal. b, Spatial correlation between firing positions in the same direction of running on the two light trials (L-L') and on dark vs. light trials (L-D and D-L'). Note stronger correlation between pairs of light trials than between light and darkness.