Article15 January 2018Grid scale drives the scale and long-term stability of place mapsHow entorhinal grid cells control hippocampal coding and behavior remains elusive. The authors report that increasing the spatial scale of grid cells expands the scale and reduces the stability of place fields, impairing spatial memory in mice.

Technical Report15 January 2018In vivo simultaneous transcriptional activation of multiple genes in the brain using CRISPR–dCas9-activator transgenic micedCas9-mediated activation has been verified and widely used in vitro. Here the authors generated a potent in vivo activation platform and applied it to control the transcription of multiple genetic elements in the mammalian brain.

Resource15 January 2018Conserved properties of dentate gyrus neurogenesis across postnatal development revealed by single-cell RNA sequencingUsing single-cell RNA-seq, the authors show that early developmental neurogenesis in the dentate gyrus of the hippocampus is largely conserved in the adult, but with a perinatal transformation of stem cells to an adult type.

Article15 January 2018Dietary salt promotes neurovascular and cognitive dysfunction through a gut-initiated TH17 responseA salt-rich diet promotes cerebrovascular diseases and dementia. This study shows that high dietary salt in mice induces a TH17 response in the gut leading to cerebral endothelial dysfunction and cognitive impairment via circulating IL-17.

Article15 January 2018Dentate network activity is necessary for spatial working memory by supporting CA3 sharp-wave ripple generation and prospective firing of CA3 neuronsSasaki et al. reveal that the dentate gyrus not only performs pattern separation but also has a direct role in organizing memory-guided behavior by coordinating the planning of future actions.

Article15 January 2018N6-methyladenosine RNA modification regulates embryonic neural stem cell self-renewal through histone modificationsUsing a genetic approach, Wang et al. demonstrate an essential function for m6A mRNA modification in promoting neural stem cell proliferation and reveal interactions between m6A and histone modification as a novel gene regulatory mechanism.