



Talks by rising stars of neuroscience

**Neural representations of space in the hippocampus of
a food-caching bird**

Hannah Payne - Aronov lab

(Columbia University)

Spatial memory in vertebrates requires brain regions homologous to the mammalian hippocampus. Between vertebrate clades, however, these regions are anatomically distinct and appear to produce different spatial patterns of neural activity. We asked whether hippocampal activity is fundamentally different even between distant vertebrates that share a strong dependence on spatial memory. We studied tufted titmice – food-caching birds capable of remembering many concealed food locations. We found mammalian-like neural activity in the titmouse hippocampus, including sharp-wave ripples and anatomically organized place cells. In a non-food-caching bird species, spatial firing was less informative and was exhibited by fewer neurons. These findings suggest that hippocampal circuit mechanisms are similar between birds and mammals, but that the resulting patterns of activity may vary quantitatively with species-specific ethological needs.

Event link:

<https://www.crowdcast.io/e/wwneurise/>