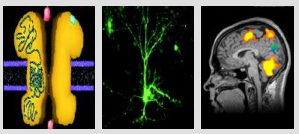

EXTINCTION LEARNING

April, 23rd – 24th 2024

Session 2 **Comparative hippocampal memory formation**

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Is spatial memory in birds with hippocampal specialization mediated by familiarity or recollection?

When scatter-hoarding birds hide their food, they can retrieve it using spatial memory for the cache sites. This memory is believed to be adaptively specialized, as indicated by the relatively large hippocampus, responsible for spatial memory, in these species. However, we don't know which memory processes underlie this spatial memory. While it is possible that the birds can recollect the cache locations freely, even when they are nowhere near the site, it is also possible that they need to see the cache location to trigger the spatial memory. The latter process is more akin to familiarity than recollection. In mammals, the hippocampus is known to be involved in recollection, so we predicted that food-hoarding birds would mainly use recollection. However, in a novel application of the Receiver Operating Characteristic curve approach to recognition memory, we found that coal tits in the lab are much more likely to use familiarity than recollection to retrieve their caches. While this is completely compatible with their ecology and their behaviour in the field, it was a surprising finding that makes us think again about the role of the hippocampus in cache memory.