



O'É Gaillimh
NUI Galway

Microbiology External Seminar Series



A mechanistic overview of carbohydrate breakdown in host- associated ecosystems



supported by MicroSoc



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The mammalian gut is an infamous plant fiber-digesting ecosystem, which depending on its host, can harbor a complex mixture of bacteria, archaea, protozoa and fungi that coordinate breakdown of complex dietary carbohydrates into nutrients. Despite extensive efforts to functionally elucidate the gut microbiome, fiber degradation has so far been attributed to a limited number of cultivable representatives that predominantly originate from the human gut. Moreover, the majority of the gut microbiota, their complex interactions and the enzymatic machineries they employ remain poorly understood. We combine traditional culturing, meta-omics, bioinformatics, biochemistry and enzymology to investigate the different saccharolytic mechanisms that microbiota employ from both ruminants and monogastric animals. We demonstrate key findings from studies on well-known *Roseburia intestinalis* and *Fibrobacter succinogenes* isolates, a novel as-yet uncultured Bacteroidetes family ('*Candidatus* MH11'), and large-scale rumen and monogastric (pigs) meta-omics projects that seek to decrypt plant fiber metabolism at a community level. These approaches have revealed new mechanistic information related to the hydrolytic capacity of outer membrane vesicles (OMVs), Polysaccharide utilization loci (PULs) and large multi-modular enzymes.

Thursday,
14th
February
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Larmour
Lecture
Theatre

followed by a reception afterwards
ALL WELCOME