

# A KJELDGAARD LECTURE



**Thursday 5 December 2019 at 13:15**

Merethe Barker, 1253 - 211

Same location for the PhD session



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## RNA quality control – how cells sort good from bad RNAs

RNA quality control pathways play essential roles in ridding cells of aberrant transcripts that can arise for example from transcribed pseudogenes, faulty RNA processing, or RNA damage. Multiple such pathways that monitor mRNA quality via the translation process have been described in detail. However, less is known about quality control of small non-coding (nc)RNAs despite the presence of a vast number of ncRNA pseudogenes in the human genome that must be repressed to maintain proper RNA homeostasis. Recent studies from us and others have identified unconventional deadenylases, such as TOE1 associated with the neurodegenerative disease Pontocerebellar Hypoplasia 7 and PARN associated with the ageing disorder Dyskeratosis Congenita, as enzymes critical for 3' end maturation of a wide variety of human ncRNAs. Here will be discussed how the balance between 3' end maturation by these unconventional deadenylases versus competing exonucleases and polymerases acting on RNA 3' ends dictate whether newly synthesized ncRNAs produced from regular genes or pseudogenes are processed to maturity or degraded. Given the central role of unconventional deadenylases in the processing of ncRNAs and their association with human disorders this mechanism likely describes a central principle in ncRNA quality control important for human health.

**Host:** Christian Kroun Damgaard, Gene Expression & Gene Medicine  
Department of Molecular Biology and Genetics, Aarhus University

**The lecture will be followed by a chalk-board session for PhD students**