graduate colloquium

... invites speakers

Monday, 6th of November 2023, 16:00, DE.2.121

Prof. Dr. Ralf Braun

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Dissecting the functional interactome of human TDP-43 in a yeast model for TDP-43 proteinopathies

TAR DNA-binding protein 43 (TDP-43) is a critical player in the pathogenesis of neurodegenerative diseases such as amyotrophic lateral sclerosis (ALS), frontotemporal lobar degeneration (FTLD), and limbic-predominant age-related TDP-43 encephalopathy (LATE). The molecular mechanisms underlying TDP-43-associated neurodegeneration remain elusive, largely due to the complexity of TDP-43's function and its interaction network. This talk will present our recent work utilizing a yeast model system to study TDP-43 proteinopathies. Our research leverages the genetic tractability and simplicity of yeast to dissect the protein-protein interaction network of TDP-43. We have developed a yeast model expressing human TDP-43, which recapitulates key features of TDP-43 proteinopathies, including TDP-43 aggregation and cytotoxicity. Using this model, we have performed a systematic screen for genetic interactors of TDP-43, identifying several novel protein interaction partners. These newly identified interactors provide fresh insights into the cellular processes and pathways that may be perturbed in TDP-43 proteinopathies. Our findings suggest a complex interplay between TDP-43 and multiple cellular pathways, including RNA metabolism, protein homeostasis, and cellular stress responses. This talk will discuss the implications of these findings for our understanding of TDP-43 proteinopathies and highlight the potential of our yeast model as a tool for the identification of therapeutic targets. Our work underscores the power of simple model organisms in unraveling the complexities of neurodegenerative diseases and paves the way for future studies on the pathogenic mechanisms of TDP-43.

Host: RIGeL Graduate Colloquium
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