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*VABILO NA PREDAVANJE
V OKVIRU DOKTORSKEGA ŠTUDIJA
KEMIJSKE ZNANOSTI*

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z naslovom:

**TDP43 in neurodegeneration – a tale of
tribulations**

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<https://uni-lj-si.zoom.us/j/92434902721>

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Vljudno vabljeni!

Abstract:

Cytoplasmic aggregation of TAR DNA-binding protein 43 (TDP43; also known as TARDBP or TDP-43) is a key pathological feature of several neurodegenerative diseases, including amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD), Alzheimer's and Parkinson's disease. TDP43 typically resides in the nucleus but can shuttle between the nucleus and the cytoplasm to exert its multiple functions, which include regulation of the splicing, trafficking and stabilization of RNA. Cytoplasmic mislocalisation and nuclear loss of TDP43 have both been associated with ALS and FTD, suggesting that calibrated levels and correct localization of TDP43 - achieved through an autoregulatory loop and tightly controlled nucleocytoplasmic transport - safeguard its normal function. Furthermore, TDP43 can undergo phase transitions, including its dispersion into liquid droplets and its accumulation into irreversible cytoplasmic aggregates. Thus, autoregulation, nucleocytoplasmic transport and phase transition are all part of an intrinsic control system regulating the physiological levels and localization of TDP43, and together are essential for the cellular homeostasis that is affected in neurodegenerative disease. Despite these advances and insights into TDP43 control, the initiating events and underlying mechanisms causing TDP43-mediated cytotoxicity remained elusive. This talk will present current knowledge and strategies towards a comprehensive understanding of TDP43-related neurodegeneration, with the ultimate aims to find lasting treatments for these devastating illnesses.