BIOCHEMISTRY SEMINAR SERIES

"Elucidating cellular pathways controlling protein aggregation, spread and toxicity in neurodegenerative disease"

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Protein aggregates are a hallmark of neurodegenerative diseases, and mutations in aggregating proteins such as tau and alpha-synuclein are linked to familial forms of these diseases. However, we still lack consensus on the molecular mechanisms by which protein aggregation contributes to neurodegeneration. Intriguingly, different types of neurons show selective vulnerability to protein aggregation, suggesting that cellular pathways play a key role in controlling aggregation and resulting toxicity. A systematic understanding of these pathways would enable a mechanistic understanding of the disease processes and point to potential therapeutic targets. To uncover such pathways in human neurons, we are leveraging a CRISPR-based platform for genetic screening that we recently co-developed. We recently implemented this technology in human iPSC-derived neurons and glia, enabling us to study mechanisms of neurodegenerative diseases in the relevant human cell types. We are applying this approach to uncover genes that control tau aggregation, and toxicity in human iPSC-derived neurons. Our screens have identified roles for specific cellular factors, and we are using biochemistry and cell biology to clarify the mechanisms by which these factors control protein aggregation and toxicity, and to evaluate their potential as therapeutic targets.

Friday, February 26, 2021

via Zoom

3:30 pm

Please contact host if you would like to meet with speaker: David Boyer, Eisenberg Lab, davboyer@g.ucla.edu

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