

# Houk-Jung Organic Colloquium



**Dr. Richard Mackman FRSC**  
Vice President, Medicinal Chemistry  
Gilead Sciences

## “The Journey of Remdesivir from Respiratory Syncytial Virus to COVID-19”

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**Abstract:** SARS-CoV2, the causative agent of the COVID-19 pandemic, is an RNA virus that has efficient human to human transmission and carries significant morbidity and mortality for vulnerable patient populations. Remdesivir (Veklury®) is a broad-spectrum inhibitor of RNA viruses and the first agent to be approved for the treatment of COVID-19.

The seminar will introduce the concept of targeting RNA viruses through inhibition of the viral polymerase by nucleoside analogs, and then focus on the early discovery of the nucleotide prodrug, remdesivir for respiratory syncytial virus. Topics discussed will include structure-activity relationships, prodrug design, mechanism of action, and pharmacokinetics. The identification of the broad-spectrum activity of remdesivir toward RNA viruses including Ebola and SARS-CoV2 paved the next stage in the journey of remdesivir. Details on the synthesis and early route optimization to support the development of remdesivir for Ebola will be highlighted. Finally, a summary of the preclinical data evaluating remdesivir toward SARS-CoV2, and the clinical data that supported its regulatory approval for COVID-19, will conclude the talk.

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**Thursday, February 4, 2021 | 4:00 PM | ZOOM**

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