Activity Outline
FDA Grand Rounds: The role of SARS-CoV-2 E and NSP1 proteins on intracellular calcium modulation
March 11, 2021
Virtual

Activity Coordinator:
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Series Description

The FDA Grand Rounds is webcast every other month to highlight cutting-edge research underway across the agency and its impact on protecting and advancing public health. Each session features an FDA scientist presenting on a key public health challenge and how FDA is applying science to its regulatory activities.

Lecture Description

To elucidate COVID-19 pathogenesis and develop a successful treatment will require a comprehensive understanding of all SARS-CoV-2 viral proteins. The aim of this study is to understand the role of NSP1 and envelope protein in disease pathogenesis. NSP1 and envelope protein were expressed in HEK293T cells. Induction of high level of NSP1 expression coincided with higher cell death, while under high levels of envelope and nucleocapsid proteins expression, cells remained health. Future studies will further explore the role of SARS-CoV-2 NSP1 and envelope protein on intracellular calcium modulation.

References

- Banerjee, A. K., et al. (2020). "SARS-CoV-2 Disrupts Splicing, Translation, and Protein Trafficking to Suppress Host Defenses." Cell 183(5): 1325-1339 e1321.
- Benedetti, F., et al. (2020). "Emerging of a SARS-CoV-2 viral strain with a deletion in nsp1." J Transl Med 18(1): 329.
- Duart G, García-Murria MJ, Grau B, Acosta-Cáceres JM, Martínez-Gil L, Mingarro I. SARS-CoV-2 envelope protein topology in eukaryotic membranes. Open Biol. 2020 Sep;10(9):200209.
- Mandala VS, McKay MJ, Shcherbakov AA, Dregni AJ, Kolocouris A, Hong M. Structure and Drug Binding of the SARS-CoV-2 Envelope Protein in Phospholipid Bilayers. Res Sq [Preprint]. 2020 Sep 24:rs.3.rs-77124.
- Nakagawa, K. and S. Makino (2021). "Mechanisms of Coronavirus Nsp1-Mediated Control of Host and Viral Gene Expression." Cells 10(2).
- Narayanan, K., et al. (2015). "Coronavirus nonstructural protein 1: Common and distinct functions in the regulation of host and viral gene expression." Virus Res 202: 89-100.

Series Objectives

- Discuss the research conducted at the FDA
- Explain how FDA science impacts public health

Learning Objectives After completion of this activity, the participant will be able to:

- Explain SARS-CoV-2 genome organization in comparison with other Human Coronaviruses
- Explain the SARS-CoV-2 replication cycle
- Discuss SARS-CoV-2 non-structural proteins and their known functions
- Discuss NSP1 and envelope protein functions
- Describe the effects of NSP1, envelope protein and nucleocapsid expression in HEK293T cells
- Explain the role of NSP1 and envelope protein on the intracellular calcium modulation

Target Audience

This activity is intended for physicians, pharmacists, nurses, and other scientists within the agency external scientific communities.

Agenda

Lecture 1 March 11, 2021

Time	Topic	Speaker
12:00 - 1:00 PM	The role of SARS-CoV-2 E and NSP1 proteins on intracellular calcium modulation	Marli Azevedo, PhD

Continuing Education Accreditation

In support of improving patient care, FDA Center for Drug Evaluation and Research is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

This activity was planned by and for the healthcare team, and learners will receive 1 Interprofessional Continuing Education (IPCE) credit(s) for learning and change.

CME

FDA Center for Drug Evaluation and Research designates this live activity for a maximum of 1.00 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CPE

This knowledge-based activity has been assigned ACPE Universal Activity Number JA0002895-0000-21-016-L04-P for 1.00 contact hour(s).

CNE

FDA Center for Drug Evaluation and Research designates this activity for 1.00 contact hour(s).

Requirements for Receiving CE Credit

Physicians, pharmacists, nurses, and those claiming non-physician CME: participants must attest to their attendance and complete the final activity evaluation via the CE Portal (ceportal.fda.gov). For multi-day activities, participants must attest to their attendance and complete the faculty evaluation each day. Final activity evaluations must be completed within two weeks after the activity - no exceptions.

Attention Pharmacists and Pharmacy Techs: Failure to provide your correct NABP AND Date of Birth information, in the required format, may result in the loss of credit for this activity. NABP profile number should be the 6-7 digit profile number assigned by the CPE Monitor and your birth date should be in the MMDD format (e.g. 0721) Do not provide your pharmacy license number. Please click the "My Account" tab and then navigate to "Edit Contact Information" to verify that your information is correct.

Important Note regarding completion of evaluations and receiving credit
Attendees have 14 days from the last day of the activity to log in, complete the required evaluation(s) and attest to your attendance to claim credit.Physicians and nurses may then view/print statement of credit. Pharmacists should log into the CPE monitor 8 weeks after the last session of the activity to obtain their CE credit.

Disclosure

Faculty

- Azevedo, Marli, PhD, Research Biologist, FDA *nothing to disclose*

Planning Committee

- Dinatale, Miriam, Team Leader, Food and Drug Administration *nothing to disclose*
- Pfundt, Tiffany, PharmD, Pharmacist, FDA *nothing to disclose*
- Wheelock, Leslie, RN, MS, RN, Director, OSPD, FDA, OC, OCS, OSPD *nothing to disclose*

CE Consultation and Accreditation Team

- Bryant, Traci, M.A.T., CE Consultant, FDA/CDER/OEP/DLOD - nothing to disclose
- Zawalick, Karen, CE Team Leader, FDA/CDER/OEP/DLOD - nothing to disclose

Registration Fee and Refunds
Registration is complimentary, therefore refunds are not applicable.