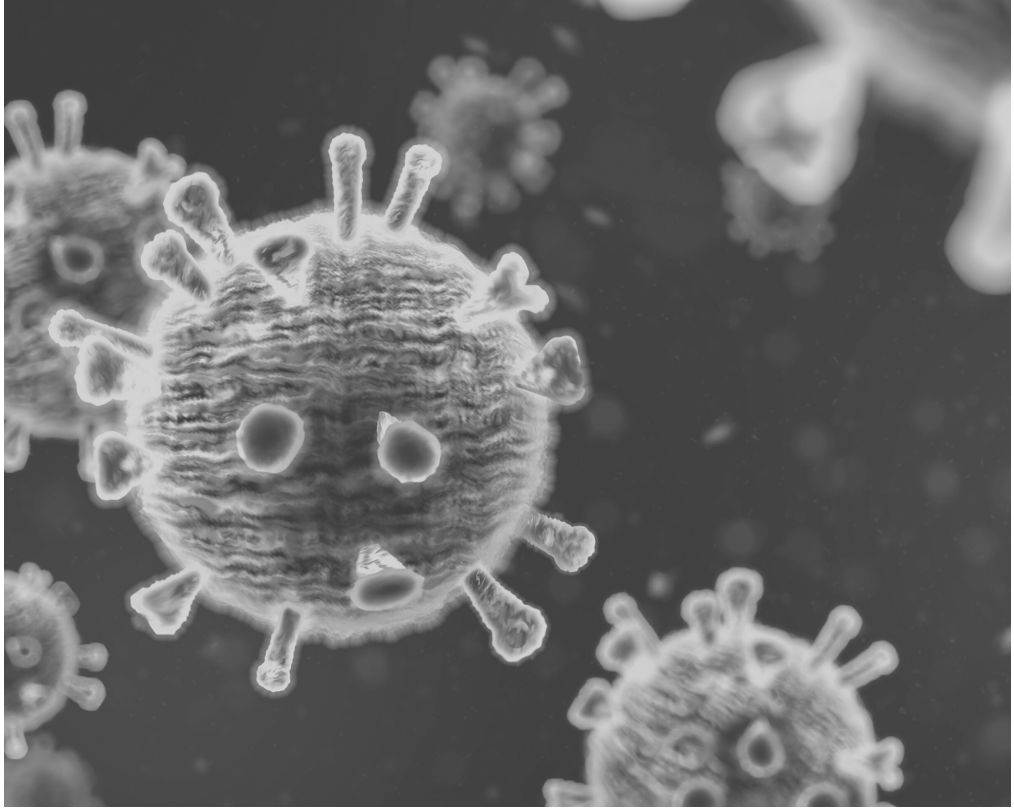

Oncolytic Viruses: Successes, Challenges, and a Promising Future

Pre-Meeting Workshop

Monday, May 10

10 a.m. - 2 p.m. ET

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Oncolytic Viruses: Successes, Challenges, and a Promising Future

Co-Chairs: Autumn Schulze, Ph.D., and Timothy Cripe, M.D., Ph.D., FAAP

10:00 - 10:10 a.m.
Introduction
Autumn Schulze, Ph.D., Mayo Clinic

10:10 - 10:40 a.m.
Going Viral: Clinical Application of Oncolytic HSV-1 G207 for Pediatric Brain Tumors
Gregory Friedman, M.D., University of Alabama at Birmingham

10:40 - 11:10 a.m.
A Phase 1 Trial of rQNestin34.5v.2, an oHSV that Maintains Expression of the ICP34.5 gene, in Subjects with Recurrent Malignant Glioma
E. Antonio Chiocca, M.D., Ph.D., Brigham and Women's Hospital

11:10 - 11:25 a.m.
oHSV Treatment of Glioblastoma and the Induction of Anti-Tumor Immunity
Joseph Jackson, Ph.D., University of Pittsburgh

11:25 - 11:40 a.m.
Altered Arginine Metabolism within the Tumor Microenvironment Inhibits Oncolytic Myxoma Virus Replication Preventing Effective Therapy
Parker Dryja University of New Mexico

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11:40 - 11:55 a.m.

The Impact of IGF1R Signaling Inhibition in Oncolytic HSV Therapy for GBM

Ji Young Yoo, Ph.D., University of Texas Health Science Center at Houston

12:10 - 12:25 p.m.

Escape from Oncolytic Virotherapy Sets Up Tumor Immune Control

Jacob van Vloten, Ph.D., Mayo Clinic

12:25 - 12:40 p.m.

CAR-T and Oncolytic Virus Combination Therapy, Lessons and Opportunities

Laura Evgin, Ph.D., University of British Columbia

12:40 - 12:55 p.m.

How "lytic" Must Oncolytic Viruses Be for Therapeutic Efficacy?

Maria Davola, Ph.D., McMaster University

12:55 - 1:10 p.m.

TNF-armed Myxoma Virus to Treat Metastatic Lung Osteosarcoma in a Syngeneic Mouse Model

John Christie, Arizona State University

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1:10 - 1:25 p.m.

Oncolytic HSV Therapy Modulates Vesicular Trafficking Inducing Cisplatin Sensitivity and Anti-tumor Immunity

Bangxing Hong, Ph.D., University of Texas Health Science Center at Houston

1:25 - 1:55 p.m.

Panel Discussion

- Autumn Schulze, Ph.D., Mayo Clinic
- Gregory Friedman, M.D.., University of Alabama at Birmingham
- E. Antonio Chiocca, M.D., Ph.D., Brigham and Women's Hospital
- Joseph Jackson, Ph.D., University of Pittsburgh
- Parker Dryja University of New Mexico
- Ji Young Yoo, Ph.D., University of Texas Health Science Center at Houston
- Jacob van Vloten, Ph.D., Mayo Clinic
- Laura Evgin, Ph.D., University of British Columbia
- Maria Davola, Ph.D., McMaster University
- John Christie, Arizona State University
- Timothy Cripe, M.D., Ph.D., FAAP, Nationwide Children's Hospital

1:55 - 2:00 p.m.

Final Thoughts

Timothy Cripe, M.D., Ph.D., FAAP, Nationwide Children's Hospital

E. Antonio Chiocca, M.D., Ph.D.
Brigham and Women's Hospital

Dr. Chiocca is the Harvey Cushing Professor of Neurosurgery at Harvard Medical School and is the Chairman Neurosurgery at the Brigham and Women's Hospital. He was previously Chairman of the Department of Neurosurgery at the Ohio State University Medical Center. He has been continuously funded by the NIH since 1996. He has been PI of several multi-institutional clinical trials of gene-, viral-therapies for malignant gliomas, has been permanent member of NIH study sections (NCI DT and NCI P01-D clinical studies), has been a member of the federal recombinant DNA Advisory Committee (RAC/OBA) and of the NINDS Scientific Advisory Council. He was President of SNO from 2015-2017 and President of the American Academy of Neurological Surgery (2018-2019). He also serves on the scientific advisory board of several foundations (Sontag, American Brain Tumor Association). He received The Grass Award in 2007, the Farber Award in 2008 and the Bittner Award in 2013. He was elected to the American Society for Clinical Investigation (2005), is an AAAS fellow (2005) and was also elected to the National Academy of Medicine (formerly Institute of Medicine) in 2014. He received the Charles B. Wilson Career Achievement Award from the CNS/AANS Section on Tumors in 2018 and the Victor Levin Award for Achievement in neuro-oncology from SNO in 2018. He also has served on multiple editorial boards.

John Christie
Arizona State University

John D Christie is currently a 4th year doctoral candidate under the mentorship of Grant McFadden. His research interest includes viral oncolytics, cancer immunology and pox virology. His current research looks at the use of transgene armed Myxoma virus in lung metastatic osteosarcoma.

Timothy Cripe, M.D., Ph.D., FAAP
Nationwide Children's Hospital

Dr. Tim Cripe is the Chief of Pediatric Hematology/Oncology/Blood and Marrow Transplantation at Nationwide Children's Hospital in Columbus, Ohio and a Professor of Pediatrics at the Ohio State University. His research is focused on leveraging viruses to develop novel therapeutic approaches to pediatric cancers. He has published over 130 manuscripts and served on numerous national and international committees including being former chair of the FDA Advisory Committee for Cellular, Tissue and Gene Therapies. He is the Founder of Vironexis Biotherapeutics.

Speakers

Maria Davola, Ph.D.
McMaster University

Dr. Maria Davola completed her interdisciplinary PhD in virology and organic chemistry at University of Buenos Aires in Argentina. During her PhD, she created novel steroidal compounds with broad-spectrum antiviral activity. After her PhD, she joined the Mossman lab at McMaster University as a postdoctoral fellow. She has been leading studies on developing bovine herpesvirus type 1 (BHV-1) as a novel cancer therapeutic. Her current work is focused on better understanding the mechanism of action of oncolytic BHV-1 and developing a BHV-1 based platform for commercial and translational purposes.

Parker Dryja
University of New Mexico

Parker Dryja is a 4th year PhD student of Dr. Eric Bartee at the University of New Mexico. He completed his undergraduate degree at Maryville College (TN) in Biochemistry, and then pursued a post-baccalaureate position at the Radiochemical Engineering Development Center of Oak Ridge National Labs before joining Dr. Bartee's lab in 2017.

Laura Evgin, Ph.D.
University of British Columbia

Dr Evgin is an Assistant Professor in the Department of Medical Genetics at the University of British Columbia and a Scientist at the Genome Sciences Centre at BC Cancer. Her research program seeks to utilize oncolytic viruses and vaccines to improve chimeric antigen receptor (CAR) modified T cell efficacy. Dr. Evgin completed her PhD in the laboratory of Dr. John Bell at the University of Ottawa where she studied how neutralizing antibodies and complement limit the systemic delivery of oncolytic viruses. From there, she joined Dr. Richard Vile's laboratory at the Mayo Clinic in Rochester, Minnesota. Her post-doctoral research focused on the combinatorial use of oncolytic viruses and CAR T cells in the solid tumor setting.

Gregory Friedman, M.D.
University of Alabama at Birmingham

Gregory Friedman, M.D., is a pediatric neuro-oncologist and Professor of Pediatrics at the University of Alabama at Birmingham (UAB). He completed medical school at the Medical College of Georgia and residency and fellowship at UAB and Children's of Alabama. He is the Director of Developmental Therapeutics in the Alabama Center for Childhood Cancer & Blood Disorders and is a Scientist in the Neuro-Oncology Program of the UAB O'Neal Comprehensive Cancer Center. His overarching goal is to improve outcomes for children with brain tumors by developing and improving novel, targeted immunotherapies like oncolytic HSV-1 (oHSV) in the lab and then translating these therapies to clinical trials. His lab focuses on mechanisms of therapeutic resistance to oHSV by exploring the role of the tumor microenvironment and cellular defense mechanisms so that newer viruses, unique routes of virus delivery, and novel combinations may be developed to circumvent resistance mechanisms. He was the Principal Investigator for the first completed trial of an oncolytic virus, HSV-1 G207, in children with recurrent brain tumors, and he is currently the Principal Investigator for a first-in-human trial of G207 in recurrent pediatric cerebellar tumors. His research has been supported by the National Institutes of Health, the U.S. Food and Drug Administration, the Department of Defense, the St. Baldrick's Foundation, Hyundai Hope on Wheels, the Rally Foundation for Childhood Cancer Research, Cannonball Kids' cancer Foundation, and the Andrew McDonough B+ Foundation.

Bangxing Hong, Ph.D.

University of Texas Health Science Center at Houston

Dr. Bangxing Hong is Assistant Professor within the department of Neurosurgery at the University of Texas McGovern Medical School. He has an active research interest in translational therapeutics including cancer immunotherapy and oncolytic viral therapy. Dr. Hong has published more than 30 manuscripts and book chapters pertaining to oncolytic virus and tumor immunotherapy. Dr. Hong received his Ph.D. degree from Sun Yat-sen University and completed his postdoctoral training in both Baylor College of Medicine and the University of Texas MD Anderson Cancer Center and developed dendritic cell vaccine and T cell therapy for both solid tumor and hematologic malignancy. Currently he actively work on oncolytic HSV and vaccinia virus for cancer therapy.

Joseph Jackson, Ph.D.
University of Pittsburgh

I am currently a postdoctoral fellow in the lab of Dr. Joseph Glorioso at the University of Pittsburgh. Over the course of my education I have studied a variety scientific fields. First, my Master's research, at Lipscomb University, focused on cytolysin toxin production of the nosocomial pathogen, enterococcus faecalis. Following my MS program, I joined the lab of Dr. Tim Sparer at The University of Tennessee-Knoxville where I studied the human cytomegalovirus's (HCMV) host-pathogen interaction. This work focused on the HCMV viral chemokine, vCXCL-1, which enhances viral dissemination. During my graduate work, I developed a fascination with the innate immune system and clinically translatable research. This interest led me to join Dr. Joseph Glorioso's lab which mainly focuses on using oncolytic herpes simplex virus (oHSV) to combat glioblastoma multiforme (GBM). GBM is a severe brain cancer for which current treatment protocols are not effective. Since joining Dr. Glorioso's group, I have spearheaded the lab's brain tumor projects. I am specifically interested in enhancing vector replication within the tumor mass, elucidating innate and adaptive immune responses to vector therapy, and using oHSV as a mule to locally express immunomodulatory proteins locally within the tumor mass.

Autumn Schulze, Ph.D.
Mayo Clinic

Dr. Autumn Schulze is an Assistant Professor of Molecular Medicine at Mayo Clinic. Prior to her arrival at Mayo Clinic, she studied microbiology at the University of Iowa and obtained her Ph.D. in Anatomy and Cell Biology from the University of Kansas Medical Center. Her research program focuses on identifying, developing and characterizing novel picornavirus-based therapeutics for clinical translation as anti-cancer agents. Dr. Schulze is highly involved in educational efforts regarding the Virology and Gene Therapy Program at Mayo Clinic and was recently appointed as the Director of the Virus and Vector Product Laboratory at Mayo Clinic. She is also an active member of various professional committees including the ASGCT Diversity and Inclusion Committee.

Jacob van Vloten, Ph.D.
Mayo Clinic

Jacob received their Ph.D. from the University of Guelph in Canada. They are now a Research Fellow at the Mayo Clinic, Rochester in the Department of Molecular Medicine.

Ji Young Yoo, Ph.D.
University of Texas Health Science Center at Houston

Dr. Ji Young Yoo received her Ph.D. in Medical Science (Specific Major: Cancer Biology) at the Yonsei University Medical Center in South Korea under the mentorship of Dr. Chae-Ok Yun. Her graduate school research focused on developing anti-cancer therapeutic oncolytic adenoviruses and evaluating their therapeutic efficacy and molecular mechanisms of action. In 2009 after graduating, she joined the laboratory of Dr. Balveen Kaur at The Ohio State University for her postdoctoral training to study host stromal responses elicited upon oncolytic HSV-1 (oHSV) treatment of malignant glioma. Dr. Yoo was promoted as a Research Assistant Professor in the Department of Neurological Surgery at The Ohio State University in 2015. The direction of her research gave her a new ultimate goal during her postdoctoral training to devise better treatment strategies to transform brain tumors from resistant to current therapies into treatable tumors. Her research towards this goal has highlighted how OV-infected tumor cells can lead to the education of uninfected tumor and stromal cells in the tumor microenvironment (TME) and have uncovered some very significant impact of these exchanges on response to treatment and tumor growth. Dr. Yoo joined the Department of Neurosurgery at University of Texas Health Science Center at Houston as a tenure track Assistant Professor in 2017. Dr. Yoo's current research focuses on understanding tumor microenvironment changes in response to oHSV therapy and developing more efficient therapeutic oHSV. Dr. Yoo has authored 11 as first and 4 as corresponding author in 55 published research articles in scientific journals including Cancer Cell, Cell Reports, Clinical Cancer research, Cancer Research, Proceedings of the National Academy of Sciences (PNAS), Nature Biotechnology, Nature Communications, and Neuro-Oncology,

Disclosures

E. Chiocca
DNATrix; Equity options, honorarium; DSMB

Insightec Inc.; Honorarium; Advisory board

Advantagene Inc.; Honorarium; Advisor

Immunomic Therapeutics; Equity options; Advisory board

Seneca Therapeutics; Equity options; Advisor

Voyager Therapeutics; Honorarium; Advisor

GSK; Honorarium; Advisor

J. Christie
Oncomyx Therapeutics; Consulting fee; Scientific advisor.

T. Cripe
Vironexis Biotherapeutics; Founder

Pfizer.; Consulting fee; Spouse on DSMB

G.K. Friedman
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Pfizer Inc.; Research contract to UAB; Site PI for Children's Oncology group industry-supported trial

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Disclosures

A.J. Schulze

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