Spring Brain Conference

April 28 - May 1, 2024

Sunday April 2024	
4:45 pm – 5:15 pm	Arrival and Badge pick-up
4:45 pm – 5:15 pm	Opening Reception (Cash Bar)
5:15 pm – 5:30 pm	**Welcome and Opening Remarks: Dimitrios Davalos, PhD**
5:30 pm – 6:45 pm	**Plenary Session 1: Neuroinflammation: Translation at the Brain-Immune Interface** **Chair: Samuel Pleasure, MD, PhD** (University of California, San Francisco)
5:30 pm – 5:55 pm	**Samuel Pleasure, MD, PhD** (University of California, San Francisco) *Brief developmental exposure to pathogenic NMDAR antibodies cause long term cortical circuit defects*
5:55 pm – 6:20 pm	**Sasha Gupta, MD** (University of California, San Francisco) *Cellular Therapies use in Neuroinflammatory Conditions*
6:20 pm – 6:45 pm	**Andrew Yang, PhD** (Gladstone Institutes, University of California, San Francisco) *Decoding Barrier-Immune Interactions in Neurodegenerative Disease*
6:45 pm – 7:30 pm	Buffet Dinner
7:30 pm – 8:30 pm	**Keynote Session 1: Katerina Akassoglou, PhD** (Gladstone Institutes, University of California, San Francisco) *Neurovascular Interactions: Mechanisms, Imaging, Therapeutics*

Samuel Pleasure, MD, PhD (University of California, San Francisco) Brief developmental exposure to pathogenic NMDAR antibodies cause long term cortical circuit defects

- Encephalitis ... inflammation of the brain
- Less than half of the patients are infectious.
- Many patients developing self antibodies.
- Dubey et al. Annals of Neurology 2028 infectious and autoimmune
- Etiologies of autoantibody associated encephalitis
- Listed Post-infection NMDAR and HSVI encephalitis (likely based on molecular mimicry)
- Paraneoplastic (eg. T-cell therapy)... Idiopathic ... and Idiopathic
- Brain on Fire Book
- anti-NMDR AE
- Ovarian teratomas (tumors of stem cells - can find a tooth inside a tumor?)
- leads to psychosis, seizures,
- long term deficits ... why? Chronic inflammation leading to brain injury is listed as one option
- He studies the impact on circuits ...
- Shows mouse coordination videos permeant circuit problems with 10 days of exposure

Sasha Gupta, MD (University of California, San Francisco) Cellular Therapies use in Neuroinflammatory Conditions

- Familiar store … Refractory GABA-B; NMDAr - Encephalitis
- Dinota et al CNS Drugs 2022
- 80's used non-engineered T-Cells from tumor … engineered cells (CAR-T)
- What about neurological treatments
- MS anti-CD20 mAb CD20 is a marker on B-cells
- Sadly there is still progress. B-cell depletion while helpful, still progress
- Resident B cells in the CNS are thought to be the culprit
- Enter CAR T Cells … Anti CD19 CAR T cells in CNS diffuse large-B-Cell lymphoma
- T Cell Receptor plus CAR Receptor
- EAE immunization; rhMOG
- CAR-T Cell Mediated B-Cell Depletion in Central Nervous System Autoimmunity Neurology and Neuroinflammation
- Phase 1, Open -label drug KYV-101 is the drug.
- CAR-T for MS Bristol Myers Squib
- A brain targets delivery platform using T cells to overcome neuroinflammation Simic et al (Lim lab … under review)

Andrew Yang, PhD (Gladstone Institutes, University of California, San Francisco) Decoding Barrier-Immune Interactions in Neurodegenerative Disease

- Every nerve has a micro vessel microns away
- Cartoons from Lendahl EMBO Reports, 2019
- What is the role of brain vascular dysfunction in neurovascular disease
- Brain vascular dysfunction is the norm 80% of AD cases exhibit vascular pathology … is this cause, consequence or correlational
- Genetic heritability of late-onset AD is 60-80%
- AD 60-80
- Pimenova et al. 2018
- Many risk variants reside in microglia
- Natt Hoffman Coufal et al. 2019
- VINE-seq efficient profiles the human brain vasculature from biobanked postmortem tissue … vessel isolation, neuclei extraction … Yang et al Nature 2022
- 95% of the risk variants are in noncoding that control the expression levels of a gene (dimmer switch) … picking the gene that is nearby is just a guess
- So RNA is not enough … epigenics … gene regulation Jansenee t al 2019; Liu et al, 2022 methods that can capture these non-coded regions

Keynote Session 1: Katerina Akassoglou, PhD (Gladstone Institutes, University of California, San Francisco) Neurovascular Interactions: Mechanisms, Imaging, Therapeutics

- Marlini et al Neuron 2019 1099-1108 blood vessel deposits in the inflamed brain
- Fibrinogen is abundantly deposited in neurological diseases; Reviewed in Petersen, Rye, Akassahglo Nat Rev Neuroscience 2018 also Nat Immunol 2020
- Fibrinogen is a draggable target. y277-295 -> CD11B/CD18 complement -> microglia and macrophages ... inflammation
- Mouse to Phase 1 clinical trial ... Drug development Akassoglou et al Neuron 2002; Adams et al J Ex Med 2007 Ryu et al Nat.Immunolo 2018 Therini Bio Humanized Fibrin targeting Mob
- Dynamic interaction between microglia and vasculature ...
- Deavalos et al. Nat. Commun 3:1227 microglia cluster around leaky vessels
- Show that this needed Fibrin/ CD11b signaling
- Fibrin is necessary for cognitive impairment in mice ... missed paper title
- Merlini et al. Neuron 2029, 101: 1099-1108
- Ituria-Medina Nat Comm 2016
- Montagne Nature, 2020
- Fibrin in Progresive MS .. Neuronal Loss
- Jan Vilcek Love and Science ...
- Fibrin-Targeting Immunotherapy
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Monday April 29th	
7:00 am – 7:30 am	Buffet Breakfast
7:30 am – 8:45 am	**Plenary Session 2: Injury and Repair Mechanisms in Traumatic or Ischemic Brain Injury**
	Chair: Selva Baltan, MD, PhD (Oregon Health & Science University)
7:30 am – 7:55 am	**Kevin Lin, PhD** (University of Texas in Houston)
	Role of Protein Arginine Methyltransferase 7 in Repetitive and Mild Traumatic Brain Injury
7:55 am – 8:20 am	**Selva Baltan, MD, PhD** (Oregon Health & Science University)
	Preconditioning white matter against ischemic injury
8:20 am – 8:45 am	**Paco Herson, PhD** (Ohio State University)
	New approach to improve synaptic and cognitive function following acute ischemic stroke
8:45 am – 10:00 am	**Plenary Session 3: The Impact of Systemic Stressors on Central Nervous System Function**
	Chairs: Ting Yang, MD PhD (Duke University), **Niccolo Terrando, PhD** (Duke University)
8:45 am – 9:10 am	**Ting Yang, MD PhD** (Duke University)
	Blood-brain barrier changes in postoperative neurocognitive disorders
9:10 am – 9:35 am	**Tatiana Barichello, PhD** (University of Texas Health Houston, McGovern Medical School)
	The Influence of Infection and Inflammation on Alzheimer's Disease Pathology
9:35 am – 10:00 am	**James McGrath, PhD** (University of Rochester)
	Microphysiological models to study how systemic stressors impact the blood-brain barrier
10:00 am – 10:30 am	Coffee Break

Selva Baltan, MD, PhD (Oregon Health & Science University)
Preconditioning white matter against ischemic injury

- Stroke is a major cause of death and disability in the US and worldwide
- The growth of the aging population together with improved stroke care has increased th enumber of stroke survivors and the risk for recurrent stroke events
- Ischemic precondition (IPC), which is a brief ischemic exposure in the brain that confers tolerance to the subsequent ischemic challenge, is potent protective mechanism against stroke in clinical and experimental studies.
- Mechanisms of IPC have been mainly studies gray matter (GM) depsitewhite matter (WM) injury and axonal dysfunction being crucial components of clinical deficits observed in stroke patients
- Most in vivo models of IPC performed in rotates are not applicabne to translate into clinical settings as they ... ARGH
- Therefore, there is an unmet need need ...
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Paco Herson, PhD (Ohio State University) New approach to improve synaptic and cognitive function following acute ischemic stroke

- Stroke Affects nearly 795K patients in the US every year
- Stroke death rates are on the decline
- Now the leading cause of disability in the country
- Emerging evidence linking stroke to long term cognitive decline
- Ischemic repefustion acute injury ... unsuccessful translating any of the therapeutics
- Neuro-restoration
- Excitotoxicity and neuronal cell death
- Oxidative stress TRPM2 Ca2+ channel. Develop a specific blocker tatM2NX.
- Interested in chronic disease
- CD38 is a marker of activated astrocytes

Ting Yang, MD PhD (Duke University) Blood-brain barrier changes in postoperative neurocognitive disorders

- POD happens in hours to days after surgery
- Affects 20-50% of elderly surgical patients
- 12.5 fold increased risk of developing newly diagnosed dementia
- Yang et al, Nature Immunology 2020
- Yang et al BJA 2023 - pericyte loss
- BBB breakdown evidence in patients with postoperative delirium Taylor, et al BJA 2022 similarly Deviancy et al Ann Ann Neurol 2023 CPAR score
- A putative target for POD and NVU dysfunction ... Lipocalin 2 (LCN2) elevated in CSF in delirious patients
- LCN2 is a top gene candidate elevated in surgery in the mice Asimakopoulos et al. Frontiers in Physiology, 2016
- Surgery induces LCN2 express in brain vascular 6 hours and 24 hours ...

Tatiana Barichello, PhD (University of Texas Health Houston, McGovern Medical School) The Influence of Infection and Inflammation on Alzheimer's Disease Pathology

- How does peripheral or systemic infection influence behavior changes … Nature Protocols 2009 … cecal ligation and perforation (CLP)
- Depressive-like behavior, Forced swim test. memory, etc.
- Drug that reverses depression also reverses cognition …
- But how does the infection do this? Infection is gone but behavioral changes persist? - Journal of Neuroinflammation 2020, 2022
- Neuroinflammation is still present in the brain
- Perifphal infection triggers neuroinfalmatnand cognitive impairment … another paper
- Does the systemic/CNS infection trigger Alzheimer's disease pathology?
- Sepsis increases AB and p-tau in the rodent brain
- 30 days after septic
- J Psychiatry 2022
- Systemic inflammation triggers dysbiosis
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10:30 am – 12:00 pm	**Plenary Session 4: Neurovascular Regulation of Brain Function**
	Chairs: Andy Shih, PhD (Seattle Children's Research Institute), **Anusha Mishra, PhD** (Oregon Health & Science University)
10:30 am- 10:55 am	**Zhen Zhao, PhD** (University of Southern California)
	Knock, Knock, on the Blood-Brain Barrier's Door
10:55 am – 11:20 am	**Cam Ha Tran, PhD** (University of Nevada, Reno)
	The role of long-range neuromodulators in neurovascular coupling and cerebral blood flow regulation
11:20 am – 11:45 pm	**Amy Nelson, PhD** (University of South Alabama)
	Pneumonia unlocks the blood-brain barrier and increases phosphorylated tau
11:45 am – 12:00 pm	*Trainee presentation:* **Nicole Lummis, PhD** (Daneman Lab, University of California, San Diego)
	Pericyte responses to ischemic stroke

Cam Ha Tran, PhD (University of Nevada, Reno) The role of long-range neuromodulators in neurovascular coupling and cerebral blood flow regulation

- Neurovascular coupling
- Neuronal activity allows increase in vascular blood flow
- Santa et al. Nat. Neurosci 2003 … vasodilation
- Mulligan and Mac Vicar Nature 2004 - astrocyte calcium vasoconstriction
- Neurovascular coupling Lind et al PNAS 2013
-

Cam Ha Tran, PhD (University of Nevada, Reno) The role of long-range neuromodulators in neurovascular coupling and cerebral blood flow regulation

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Amy Nelson, PhD (University of South Alabama) Pneumonia unlocks the blood-brain barrier and increases phosphorylated tau

- arteries are at the surface of the brain
- very interested in pericytes
- neurotrace dye label pericytes specifically
- Long covid interests
- lung infections promote cytotoxic amyloid production
- lung infections promote cytotoxic amyloid production from the lung
- Amyloid are not just AB ... proteins with beta-sheet including prion protein
- Taus are also amyloids ..
- Prion, AB, Tau, Huntington, SOC 1
- Prion detected in all, AB detected in all, Tau detected in many including the lung , Huntiniting, detected all tissue
- Nelson, Ront Again ... peripheral amlyoidhypothesis to cognitive impairment and AD
- Serum Amyloid A in Pneumonia and dementia
- Pneumonia reduces LTP in WT by not tau KO mice FASEB 2021; SEp 35; e21807
- Bacterial infection induced tau aggregation J Bio Chem 2022298:101482
- Tau in the lung endothelium
- Bacterial pneumonia causes neurovascular response including lack of pericyte coverage.

Trainee presentation: Nicole Lummis, PhD (Daneman Lab, University of California, San Diego) Pericyte responses to ischemic stroke

- Reported that pericytes migrate away and transdifferentiation, die,
- PDGFRB labels multiple perivascular cells include vSMCS fibroblasts and Neural Progenitor Cells
- Using Lineate tracing to identify cell origin: has a specific perivascular cell marker
- 3 days after stroke all perivascular cells are dying … pericytes are lost before the vascular cells are gone ..
- 28 days later the pericytes return but microglyosis has on set … Maybe not
- Scar tissue with pericytes associated. Fewer pericytes around vasculature
- Says days later pericytes migrate into tissue and away from

5:30 pm – 6:45 pm	**Plenary Session 5: Glial Regulation of CNS Function and Dysfunction** **Chair: Susanna Rosi, PhD** (Altos Labs and University of California San Francisco)
5:30 pm – 5:55 pm	**Yao Yao, PhD** (University of South Florida) *Oligodendrocyte-derived laminin-γ1 promotes blood-brain barrier integrity and regulates oligodendrocyte biology*
5:55 pm – 6:20 pm	**Elena Blanco-Suarez, PhD** (Thomas Jefferson University) *Astrocyte-mediated plasticity: a path to recovery from injury*
6:20 pm – 6:45 pm	**Gaurav Chopra, PhD** (Purdue University) *Time to Face the Fats: Can we target Lipid Droplets for Neuroimmunotherapy?*
6:45 pm – 7:30 pm	Buffet Dinner and Cash Bar
7:30 pm – 8:30 pm	**Keynote Session 2: Stefano Pluchino, PhD** (University of Cambridge, UK) *Fuels and Drivers of Smouldering Brain Disease*

Yao Yao, PhD (University of South Florida) Oligodendrocyte-derived laminin-γ1 promotes blood-brain barrier integrity and regulates oligodendrocyte biology

- genetic delete laminin no basal lamina = basement membrane
- Nirvana and Yao, JCBFM, 2022
- basal limina 50-100 nm
- laminin is a cross shape, 3 subunits, a(5),beta(4), and gamma (3)
- Cell-specific expression
- astrocytes 211
- endothelial 411, 511
- pericytes almost everything ...
- laminin 111 is pan laminin
- knock out 411 or 511 no BBB breakdown but both, yes
- powerful compensation
- Oligodendrocytes .. the only meylating cells
- Sox10 is a marker
- laminin-gamma1 reporter line
- kang and yay cell rep 2024
- checked junction and transcellular so same tight junction was not affected in the knock out
- barrier function checked with HRP .. not paracellular mechanism
- increased transcytosis ... HRP positive vesicles ...
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Elena Blanco-Suarez, PhD (Thomas Jefferson University)
Astrocyte-mediated plasticity: a path to recovery from injury

- Astrocyte regulate plasticity
- chording-like 1 plays a crucial role limiting placidity
- Chrd1 is unregulated i stroke
- absense of chording-like 1 in a stroke model limited damage and improved recovery

Keynote Session 2: Stefano Pluchino, PhD (University of Cambridge, UK)
Fuels and Drivers of Smouldering Brain Disease

- Smoldering lesions vs smouldering disease
- Progressive MS … recapitulates chronic inflammation in the brain
- Animal models have limitations
- Diverse tool kit
- There is no translatable disease model for progressive MS
- Tissue regeneration works way better in animals
- Life spans and aging are very different
- single cell analysis of transcriptional and epigenetic stages in the human adult MS brain
- Cell 2024 187: 1-20
- Microglial and astroglial activation occur in MS, AD, huntington's, Parkinson's

Tuesday April 30th	
7:00 am – 7:30 am	Buffet Breakfast
7:30 am – 8:45 am	**Plenary Session 6: Stem Cell Reprogramming Technologies**
	Chairs: Nadja Zeltner, PhD (University of Georgia), **Timothy A Blenkinsop, PhD** (Icahn School of Medicine at Mount Sinai)
7:30 am – 7:55 am	**Nadja Zeltner, PhD** (University of Georgia)
	hPSC-derived parasympathetic neurons model human disease
7:55 am – 8:20 am	**Timothy A Blenkinsop, PhD** (Icahn School of Medicine at Mount Sinai)
	Specification of Neuroectoderm Derived Iris Smooth Muscle Cells in an Eye Organoid Model
8:20 am – 8:45 am	**Faranak Fattahi, PhD** (University of California, San Francisco)
	hPSC-derived enteric ganglioids for the study of GI motility disorders
8:45 am – 10:00 am	**Plenary Session 7: Imaging Neuroimmune Processes in Neurological Diseases**
	Chair: Dimitrios Davalos, PhD (Cleveland Clinic, Lerner Research Institute)
8:45 am – 9:10 am	**Marie-Ève Tremblay, PhD** (University of Victoria, British Columbia, Canada)
	Ultrastructural imaging of microglial structure and function using 3D electron microscopy
9:10 am – 9:35 am	**Martin Fuhrmann, PhD** (DZNE at University of Bonn, Germany)
	Two- and Three-photon imaging – New Insights into Microglial Function
9:35 am – 10:00 am	**Jaime Grutzendler, PhD** (Yale University)
	Uncovering Mechanisms of Neurodegeneration One Image at a Time
10:00 am – 10:30 am	Coffee Break

Nadja Zeltner, PhD (University of Georgia)
hPSC-derived parasympathetic neurons model human disease

- Nice overview slide of reprograming -> drug discovery. Missed references but should go pick up if posted.

Timothy A Blenkinsop, PhD (Icahn School of Medicine at Mount Sinai) Specification of Neuroectoderm Derived Iris Smooth Muscle Cells in an Eye Organoid Model

Faranak Fattahi, PhD (University of California, San Francisco)
hPSC-derived enteric ganglioids for the study of GI motility disorders

Marie-Ève Tremblay, PhD (University of Victoria, British Columbia, Canada) Ultrastructural imaging of microglial structure and function using 3D electron microscopy

Jaime Grutzendler, PhD (Yale University) Uncovering Mechanisms of Neurodegeneration One Image at a Time

- 2Phatal - Two-photon chemical apoptotic targeted ablation Hill et al. Nat. Comms. 2017
- Davao's Nat Neuro 2005
- Ca2+ increases during nuclear condensation
- Precise engulfment of neuronal cell body and proximal dendrites
- Nearby microglia synchronously compete to engulf dying neuron
- One microglia and prevails and migrates to engulf neuron body
- Damisah et al. Science Adv. 2020
- Astrocytes eat the dendrites
-

Jaime Grutzendler, PhD (Yale University) Uncovering Mechanisms of Neurodegeneration One Image at a Time

- Chroriplexis vs meniges ... three layers pie mater sits above the parachyma, subachachnoid space - arachnoid matter - dura mater
- Pick your favorite immune cell and you'll find it in the dura mater
- CD4 T cells in the meninges are mostly resident - Radjavi et al., Mol. Psychiatry 2014
- Infiltrating lymphocytes patrol the brain Single Cell analysis reveals T cell infiltration in old neurogenic niches. Wake et., PNAS2010
- Viruses that can cause central nervous system infections - Koyouncu & Hogue and Enquist 2013

10:30 am – 12:00 pm	**Plenary Session 8: Mechanisms of Neurodegeneration** **Chairs: John Lukens, PhD** (University of Virginia), **Jasmin Herz, PhD** (Washington University
10:30 am- 10:55 am	**Jasmin Herz, PhD** (Washington University in St. Louis School of Medicine) *Impact of immunity against viral infections on Alzheimer's disease*
10:55 am – 11:20 am	**Lance Johnson, PhD** (University of Kentucky) *APOE allelic 'switching' in vivo: Implications for Alzheimer's disease?*
11:20 am – 11:45 am	**John Lukens, PhD** (University of Virginia) *Honing in on the molecular orchestrators of neuroprotective microglial responses in Alzheimer's disease*
11:45 am – 12:00 pm	*Trainee presentation:* **Ana Royo Marco, BS** (Lukens Lab, University of Virginia) *Treating head injury induced tauopathy by boosting the function of the meningeal lymphatic vasculature*

Lance Johnson, PhD (University of Kentucky) APOE allelic 'switching' in vivo: Implications for Alzheimer's disease?

- E4/E3 individuals are 237X more likely to develop AD than E2/E2
- Reiman et al Nat. comm 2020
- E2/E2 odds ratio = 0.004 compared to E4/E4
- Great chart should be grabbed by Michelle
- Yamazaki Nat. Rev. Neurology, 2019
- Direct targeting of APOE4 as a therapeutic strategy (E4 may exert both 'gain of toxic function' and 'loss of function' effects
- Ilin et al (2018) Want et al (2018) Zhae et al (2020) Brohouser (2021) TCW (2022)
- Plan get rid of E4 and replace with E2
- Tamoxifen induced switch from E4 to E2 (all cells)
- Plasma E4 / E2 is liver derived; in brain mostly astrocytes
- Astrocytes, oligodendrocytes, microglia and endothelial cells have the largest number of DEGs
- Repeated with astrocyte-specific.
- IBA1 as a glyosis marker
- plaque associated apoE goes down with ApoE2

5:45 pm – 6:45 pm	**Plenary Session 9: Hot Topic Presentations** **Chair: Gaurav Chopra, PhD** (Purdue University)
5:45 pm – 6:05 pm	*Hot Topic:* **Anthony Filiano, PhD** (Duke University) *Mural cells interact with macrophages in the dura mater to regulate CNS immune surveillance*
6:05 pm – 6:25 pm	*Hot Topic:* **Evi Paouri, PhD** (Davalos Lab, Cleveland Clinic, Lerner Research Institute) *Molecular Mechanisms of Neuroinflammatory Lesion Formation Across the Blood-Brain Barrier*
6:25 pm – 6:45 pm	*Hot Topic:* **Sebastian Werneburg, PhD** (University of Michigan) *Impact of Cellular Stress on Synaptic Circuits in the Visual System in Multiple Sclerosis*

Hot Topic: Anthony Filiano, PhD (Duke University) Mural cells interact with macrophages in the dura mater to regulate CNS immune surveillance

- The Border of the CNS: The Meninges
- Thinks of the Dura as the upper management
- Homeostatic Antigen Presentation in the Dura (Rustenhoven et al., Cell; 2021)
- Lymphocytes accumintate in the leptomeninges of EAE and MS .. adapted from Barthalumeu et al Nature 209
- Leptomininges ... sigh junctions, low expression adhesion
- Mural Cells Physically Interact with Macrophages in the Dura; Min et al., J Exp Med, 2024 ...
- Macrophages can uptake CD tomato from mural cells
- Partially Depleting Mural Cells Does Not induce General Inflammation
- Brain antigen specific T Cells Traffic to the dura after partial mural cell depletion
- Working model direct cell contact between mural cells and macrophages. Min et al J Exp Med 2024; Min et al Stem Cells 2020; Processing bodies
- INFg produced by NKCs and TCells and one other cell
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Hot Topic: Evi Paouri, PhD (Davalos Lab, Cleveland Clinic, Lerner Research Institute) Molecular Mechanisms of Neuroinflammatory Lesion Formation Across the Blood-Brain Barrier

- Effector T cells oral along the CNS vasculatory prior to arresting and infiltration at specific vascular locations (Barthamoaues et al Nature 2009
- Prevailing idea is the it is up to the Tcell to decide when and where to transmigrate … she thinks it is coming from the parenchymal side
- Microglial migrate towards blood vessels before any transmigration occurs
- Hypothesis: microglia produced localized signals that promote peripheral immune cell …
- Endothelin-1 a promoter of vascular tone. Smooth muscle cells … *But wait, wrong side of the vasculature?*
- Impressive neutrophil swarming videos suppressed by an inhibitor of Edn1

Hot Topic: Sebastian Werneburg, PhD (University of Michigan) Impact of Cellular Stress on Synaptic Circuits in the Visual System in Multiple Sclerosis

Wednesday May 1st	
7:00 am – 7:30 am	Buffet Breakfast
7:30 am – 8:45 am	**Plenary Session 10: Neuroimmune Mechanisms in Brain Cancer** **Chair: Maria G. Castro, PhD** (University of Michigan Medical School)
7:30 am – 7:55 am	**Maria G. Castro, PhD** (University of Michigan Medical School) *Epigenetic reprogramming of the immune landscape in gliomas*
7:55 am – 8:20 am	**Defne Bayik Watson, PhD** (University of Miami Miller School of Medicine) *GABA drives glioblastoma by modulating myeloid cell activity in a sex-specific manner*
8:20 am – 8:45 am	**Dolores Hambardzumyan, PhD** (Mount Sinai School of Medicine) *Myeloid Tumor Interplay Drives Glioblastoma Progression*
8:45 am – 10:10 am	**Plenary Session 11: Trainee and Hot Topic Presentations** **Chairs: Richard Daneman, PhD,** (University of California, San Diego), **Evi Paouri, PhD** (Cleveland Clinic, Lerner Research Institute)
8:45 am – 9:00 am	*Trainee presentation:* **Montserrat Puigdelloses Vallcorba, PhD** (Hambardzumyan Lab, Mount Sinai School of Medicine) *The role of Msh2 in glioblastoma growth and temozolomide resistance*
9:00 am – 9:15 am	*Trainee presentation:* **Alexandra Nicaise, PhD** (Pluchino Lab, University of Cambridge, UK) *Neural Stem Cells as Novel Drivers of Smoldering Brain Disease*
9:15 am – 9:30 am	*Trainee presentation:* **Travis Faust, PhD** (Schafer Lab, University of Massachusets Chan Medical School) *Microglia-astrocyte crosstalk during activity-dependent synaptic remodeling*
9:30 am – 9:45 am	*Trainee presentation:* **Camden Hoover, BS** (Smith Lab, University of Notre Dame) *Sox17 is required for development of Mrc1+ microglia*
9:45 am – 10:00 am	*Trainee presentation:* **Jingsong Ruan, BS** (Yao Lab, University of South Florida) *Loss of mural-cell laminin aggravates Alzheimer's disease pathology*
10:00 am – 10:15 am	*Trainee presentation:* **Hsueh-Fu Wu, BS** (Zeltner Lab, University of Georgia) *A modular platform to generate functional sympathetic neuron-innervated heart assembloids*
10:15 am – 10:45 am	Coffee Break