



Research Updates

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Current research at OSU

▪ **Clinical research**

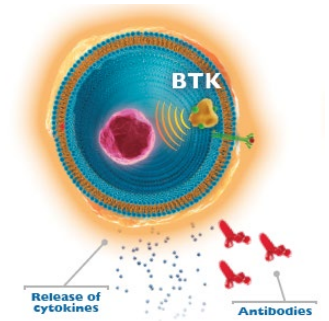
1. Clinical trials – site principal investigator – Dr. Gyang
 - Phase 3 study of BTK inhibitor in relapsing MS
 - Phase 3 trial of BTK inhibitor in primary progressive MS
2. COVID19 vaccine and booster study - Dr. Gyang
3. Aging and MS – Dr. Zhang

▪ **Translation/bench research – Dr. Segal’s lab**

1. Repair pathways in MS
2. The impact of ageing in MS
3. Immune response to DMTs
4. Oligodendrocyte function in aging – Dr. Harrington

BTK inhibitors in RRMS and PPMS

- Bruton's tyrosine kinase (BTK) inhibitor – BTK-i
 - BTK is an enzyme found inside certain immune cells
 - B cells
 - Myeloid cells – macrophage and granulocytes
 - Microglial cells in the central nervous system
 - Blocking BTK may have therapeutic benefits in
 - Certain types of malignancies – leukemia, lymphoma
 - Graft vs host disease – transplant patients
 - Autoimmune diseases



BTK-i in RRMS and PPMS

- Potential advantages of BTK-i in MS
 - Effects on both adaptive and innate immune cells
 - Ability to penetrate the blood brain barrier
 - Direct effect on microglia cells in the CNS
 - May have neuroprotective effects
 - Potential benefit in both relapsing and progressive MS
- Preliminary studies
 - EAE – BTK-i effectively treats experimental mouse model of MS

Crespo O. J Clin Immunol. 2011;31(6):1010–1020
 - RRMS – BTK-i vs. placebo – 12 weeks
 - 85% relative reduction in new gadolinium-enhancing lesions
 - 89% relative reduction in new or enlarging T2 lesions (secondary outcome)

Reich DS. Eur J Neurol. 2020;27(Suppl. 1):1–102.

Phase 3 BTK inhibitor (BTK-i) in MS

- Currently enrolling patients for 2 exciting clinical trials
- Relapsing remitting MS
 - BTK-i 60mg daily vs. Teriflunomide 14mg daily
 - Primary end point – annualized relapse rate
- Primary progressive MS
 - BTK-i 60mg daily vs. placebo
 - Primary end point – time to onset of 6-month confirmed disability progression

Phase 3 BTK inhibitor (BTK-i) in MS

- Contact information
 - **Kasturi Ganesh Barki**
 - 614-293-6123 Office
 - Email: Kasturi.ganesh@osumc.edu

- Discuss with your MS doctor

Aging and MS – Dr. Zhang

- Dr. Zhang is planning a study of biological age in MS
 - Biological age reflects genetic and molecular changes
 - It may be different from one's chronological age
 - Advanced biological age linked to worse health outcomes
- Goals
 - To see if people with MS age differently from those without MS
 - Study will measure markers of biological age in blood
 - Expected enrollment in 2022

COVID19 vaccine/booster study – Dr. Gyang

- Results from the COVID19 vaccine study have been analyzed and will be published soon
 - Does MS affect the response to the COVID vaccine?
 - Are there MD treatments that affect the response to the COVID vaccine?
- We are enrolling for the COVID19 booster vaccine study
 - Is the booster vaccine beneficial for patients with MS treated with DMTs?
 - Blood testing prior to and after COVID booster vaccine
 - Unique assay to test for COVID19 neutralizing antibodies

Contact information

- Trittnee Robinson
 - 614-293-6123
 - MSResearch@osumc.edu
 -
- Contact your provider
 - mychart



Multiple Sclerosis and the COVID19 vaccine booster

- Do you have multiple sclerosis (MS) or a similar disorder like neuromyelitis optica (NMO) or MOG-antibody related disorder?
- You may qualify for an interesting study with the OSU MS center.

The Ohio State Department of Neurology is currently enrolling for a research study to determine the effectiveness of the COVID19 booster vaccine in patients with MS and similar diseases.

YOU MAY QUALIFY IF:

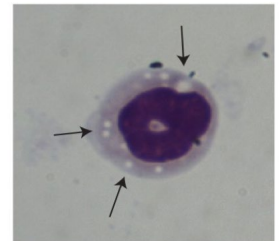
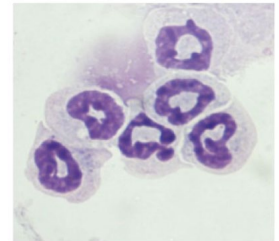
- You are age 18 years and above
- You have a diagnosis of MS, NMO or MOG-antibody related disorder
- You plan on taking the COVID19 booster vaccine

Participants will have blood samples taken before and after they receive the COVID19 vaccine.

For more information, please call 614-293-6123 or email MSResearch@osumc.edu

Dr. Segal - Lab research

- Interrogation of repair pathways in MS
 - Investigating the potential of novel white blood subsets
 - suppress destructive inflammation
 - induce remyelination/ nerve fiber regeneration in mouse models of MS
 - Isolating cell subsets from human umbilical cord blood and testing their neuroprotective and pro-regenerative properties
 - Goal: To ultimately develop drugs that reverse damage and restore lost neurological functions in people with MS

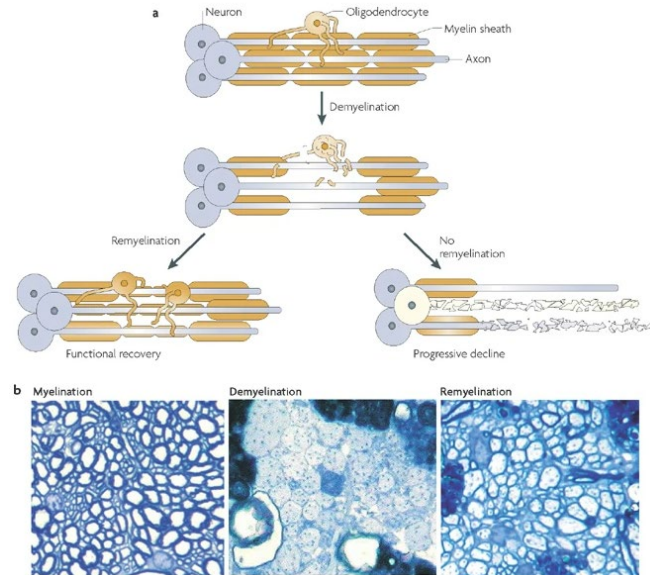


Dr. Segal - Lab research

- Impact of aging on MS
 - insights into new approaches for the treatment of established progressive MS
 - strategies to block the transition from relapsing to progressive disease
 - Goal: To increase our understanding of how changes in the body that normally occur during aging interact with the pathogenic pathways in MS to drive the transition from a relapsing to a progressive disease course
- In depth analysis of immune responses in relapsing and progressive MS pre- and post-initiation of DMT
 - analysis of plasma, PBMCs, CSF, CSF cells
 - Goal: To discover biomarkers predictive of responsiveness to individual DMTs, or that reflect disease activity, and to elucidate new therapeutic targets

Dr. Harrington - Lab research

- Oligodendrocyte function in aging
 - Oligodendrocytes myelinate axons and remyelination of MS lesions by oligodendrocytes promotes recovery
 - Oligodendrocytes may interact with immune cells directly
 - Goal: To determine if oligodendrocytes are impaired in an aged inflammatory environment. Investigate pathways that could promote oligodendrocyte repair and remyelination with goal of developing treatments for progressive disease.



Franklin and ffrench-Constant Nature Rev Neurosci 2008

Movement for MS

- Coming soon
- Dance program for patients with MS
- Hybrid class –
 - In-person
 - Virtual
- Contact information
 - Gianna Buffano
 - Buffano.2@osu.edu

MOVEMENT FOR MS

A dance class for those living with multiple Sclerosis



WHAT IS MOVEMENT FOR MS?

In this 60 minute class individuals will be welcomed into a dance space where they will be empowered to explore their own movement in exciting and creative ways. The activities will work to build a collaborative community through physical movement and mindfulness. Together as a cohesive group we will move through breath work, musicality, and seated and standing stretches and combinations.

WHO CAN PARTICIPATE?

Movement for MS is a program designed for people with Multiple Sclerosis, their care givers, and their loved ones. No previous dance experience is necessary in order to participate.

WHERE AND WHEN WILL IT BE?

This hybrid class will be offered in person at Sullivant Hall, 1813 N High St, Columbus, OH 43210 and virtually on ZOOM.

Dates and Times: TBD

Sign up Today, Online at:

<https://forms.gle/2zqSspxQ6RHZ63vf8>

Need more information or have any questions?

Contact: Gianna Buffano
Email: Buffano.2@osu.edu
Phone: 682-365-0901

Thank You

