



The BRAINet SYNAPSE

BRAINet is a friends group of the OHSU Brain Institute (OBI) that helps build community awareness, interest, and support for neuroscience research at OHSU.

BRAINet Synapse Newsletter

May 2017

President's Message

*By Helen Richardson,
BRAINet President*

I hope some of you got to the impressive Science March in April. It was heartening to see so many people who were willing to give up their Saturday morning to support science as the vehicle with which to approach our world's problems. Signs, chants, Raging Grannies – all encouraging support of science and extolling the many ways our world and our lives can be and have been made better through scientific exploration and discoveries. How fortunate we are to have institutions like the OHSU Brain Institute!

Best regards,
Helen Richardson, President



Photo courtesy of katu.com. Taken 4/22/2017 by Tristan Fortsch.

May Lecture Luncheon

Our lecture luncheon will be on **Monday, May 22, at 11:30 a.m.** at the Multnomah Athletic Club. We are grateful to have Jeffrey Pollock, M.D., present *“Functional MRI: Past, Present and Future.”*



Dr. Pollock is associate professor of Neuroradiology, director of MRI and Functional MRI, and director of the

Neuroradiology Fellowship Program.

11:30 Registration and Lunch Served

12:00-1:00 Lecture

To register and pre-pay to secure your reservation please visit:

<https://goo.gl/bcOLsf>

Registration will close at midnight on Wednesday, May 17.

*This month we will be served
Rosemary Lemon Chicken.*



From On the Brain Blog:

Meet Patricia O'Shea, Brain Resource Center volunteer

By Jennette Zarko

It's Volunteer Week here at OHSU. This interview was originally published in 2015, but Patricia O' Shea is still here and going strong!

She has been volunteering since 2010 and as of April 2017 has put in over 820 hours of volunteer time.

Thank you so much for your continued dedication!

Patricia O'Shea volunteers at our Brain Resource Center and is an active member of our [Brain Research Awareness and Information Network \(BRAINet\)](#).

Why did you become a volunteer for OHSU?

I attended some of the first [Brain Awareness events](#), back when they were held at OMSI.

I've always been a very curious person with a strong interest in neuroscience.

I started out volunteering at the OHSU Brain Fair and then became a member of [BRAINet](#), eventually landing here at the resource center.



Patricia O'Shea, Brain Resource Center volunteer

How long have you volunteered in this position?

I am in my fifth year as a volunteer. There are currently two of us and we could use one more. I work about 4-6 hours per week. It keeps me feeling useful, productive and I'm exposed to a wide circle of very interesting people.

What does your position entail?

I maintain the free resources for OHSU patients regarding various neurological conditions. I always jump up to help patients with whatever they need that day. Sometimes, I'm helping facilitate and orient them to where they can learn more about their condition. I can help explain their condition, but I never give medical advice.

Other times, I'm helping out-of-town visitors get around Portland. I talk to everyone, human-to-human, and help

where I can, even if it's just finding someone a glass of water.

What's the best thing about being a volunteer?

It's a very exciting time in brain development research. There are incredible advancements that have been made in imaging techniques and other research

that may inform the development of targeted therapies. Researchers are chipping away at finding the underlying causes of various brain disorders. People should feel very hopeful.

The [Brain Resource Center](#) is located on the 8th floor of the Center for Health and Healing.

Brain in the News:

by George Ivan Smith, BRAINet member

Research at UCLA, reported March 9, 2017 in the journal *Science*, discovered that dendrites are electrically active in animals that are moving around freely, and generate nearly 10 times more spikes than somas.

Neurons are large, tree-like structures in the brain, made up of the body (soma) and many branches (dendrites) that extend outward. Somas generate brief electrical pulses (spikes) to communicate with each other. Scientists had believed that spikes activate the dendrites that passively send currents to other neurons' somas.

But the UCLA team found that dendrites are not just passive conduits, thus challenging long held beliefs that spikes in the soma are the primary way perception, learning and memory formation occur.

Dendrites make up more than 90 percent of neural tissue. Understanding this may pave

the way for understanding and treating neurological disorders, and for developing brain-like computers. The new study showed that dendrites generate large fluctuations in voltage in addition to the spikes that are binary (all or nothing) events.

So dendrites are hybrids that do both analog and digital computations, and are basically different from digital computers, somewhat similar to quantum analog computers. This is a major change from what neuroscientists have believed for about 60 years.

Dendrites are nearly 100 times larger in volume than neuronal centers, so the large number of dendritic spikes could mean the brain has more than 100 times the computational capacity we previously thought.

Scientific paper:

<https://on.dana.org/2okTkx0>

UPCOMING EVENTS AT OHSU

[Nature Night: The Singing Brain: The Fascinating Science of Birdsong](#)

Tuesday, May 8, Chapman Elementary School

[Newly Diagnosed Workshop for Parkinsons](#)

Thursday, May 11, Registered participants will receive event location

[Essential Tools for Parkinson's Disease: A Toolkit for Meeting the Challenges of Mid-stage Parkinson's Disease](#)

Thursday, May 18, Residence Inn Portland RiverPlace

[Advance Care Planning for Everyone: Science and Practical Advice](#)

Thursday, May 18, OHSU Auditorium

[Neuroeducation: An Instructional Model for Learning](#)

Saturday, May 20, University of Portland

Upcoming BRAINet Lecture Luncheons

June 19 “Engineering balance: Controlling balance in humans and robots”

Robert Peterka, Ph.D.

Associate Professor, Biomedical Engineering

Faculty Member, Neuroscience Graduate Program

July 17 “An update in pediatric neurology”

Yoon-Jae Cho, M.D.

Chief, Division of Pediatric Neurology

Doernbecher Children’s Hospital

August 21 “Brain and behavior perspectives on the complaint ‘I hear you but can’t understand you’”

Curtis Billings, Ph.D.

Research Investigator and Audiologist, National Center for Rehabilitative Auditory Research

VA Portland Healthcare System

September 18 “Race and Facial Profiling: an fMRI perspective”

Binyam Nardos, Ph.D.

Post Doctoral Researcher

Fair Neuroimaging Lab



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Institute

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