

Metabolic Vulnerabilities and Opportunities in Brain Function

January 21

Tuesday, 12:30 pm

Billings Building—Rosedale Room

SPEAKER:



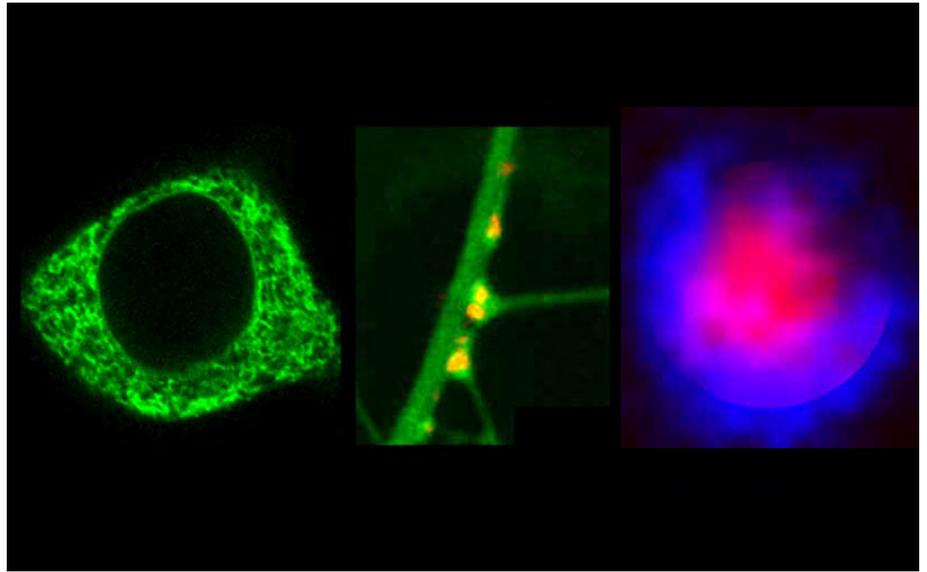
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Host: Gary E. Gibson, Ph.D

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Abstract



The Ryan laboratory develops and applies quantitative methods to understand the molecular underpinnings of synapse function with a particular emphasis on the control of neurotransmitter release and the recycling of synaptic vesicles. The lab discovered that nerve terminals represent one of the critical loci of metabolic vulnerability in the brain which has led them to explore questions of how fuel availability and combustion is regulated to support synapse function.

Publications:

1. Benedetti L, Fan R, Weigel A.V, Moore A.S., Houlihan P.R., Kittisopikul M., Park G., Petruncio A., Hubbard P.M., Pang S., Xu C. S., Hess H.F., Saalfeld S., Rangaraju V., Clapham D.E., De Camilli P., Ryan T. A. & Lippincott-Schwartz J. *Periodic ER-plasma membrane junctions support long-range Ca²⁺ signal integration in dendrites* (2024) Cell Dec 18:S0092-8674(24)01345-X. doi: 10.1016/j.cell.2024.11.029.
2. A. C. Kokotos, A.M. Antoniazzi, S.R. Unda, M. Soo Ko, D. Park, D. Eliezer, M. G. Kaplitt, P. De Camilli, T.A. Ryan. *Phosphoglycerate kinase is a central leverage point in Parkinson's Disease driven neuronal metabolic deficits.* (2024). Science Advances .https://doi.org/10.1126/sciadv.adn6016.
3. J. S. Marvin, A. C. Kokotos, M. Kumar, C. Pulido, A. N. Tkachuk, J. Shuxin Yao. T. A. Brown & T. A. Ryan. *iATPSnFR2: a high dynamic range fluorescent sensor for monitoring intracellular ATP.* PNAS (2024) May 21;121(21):e2314604121. doi: 10.1073/pnas.2314604121.