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Increasing access to basic team science concepts through asynchronous online modules: Team science 101

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OBJECTIVES/GOALS: Team science (TS) competency is important for translational science team collaboration. However, there are few educators available to assist teams. Asynchronous learning is an effective strategy for delivering TS content. The goal of this project is to expand TS education by providing online access to our learners using online modules. METHODS/STUDY POPULATION: The Collaboration and Team Science (CaTS) team at the University of Cincinnati provides a robust TS education and training program. As the need for team science gains recognition, CaTS has received increased requests for services, leading to a need to broaden TS offerings. To address this demand, the CaTS team created "Team Science 101," an online, asynchronous, series of 15 modules covering basic team science concepts. Each module consists of an educational recording lasting an average of 20 minutes, optional topic resources, pre- and post-module surveys assessing learners' confidence and satisfaction, post-module knowledge checks, and evaluation questions. Upon completing all modules, participants receive a completion certificate. RESULTS/ANTICIPATED RESULTS: TS 101 will be piloted with a group of participants who expressed interest in asynchronous TS content and will be adjusted based on the feedback received. The associated pre- and post-module survey, post-module knowledge check, and evaluation questions will be monitored to determine learning levels and improve TS 101 overall. Canvas is the educational platform that houses these modules, allowing for participant follow-up and scalable dissemination. The CaTS team plans to disseminate TS 101 nationally and internationally for anyone interested in this resource. DISCUSSION/SIGNIFICANCE OF IMPACT: There is a national effort to collect and curate TS education, training, and toolkits. TS 101 will be a useful educational tool that will expand the reach of team science educators, provide the foundation for educators to explore topics more deeply by building on the module topics, and provide education to broader audiences who lack access to TS experts.

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Tracking newly regenerated oligodendrocytes in a preclinical mouse model of multiple sclerosis

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OBJECTIVES/GOALS: Multiple sclerosis (MS) is a chronic demyelinating disease of the central nervous system that affects 2 million people worldwide causing severe disability. This study uses the Gamt-GFP transgenic mouse line as a novel approach to track oligodendrocyte lineage cell regeneration in inflammatory demyelination for identifying potential therapies. METHODS/STUDY POPULATION: We previously showed that Gamt, an enzyme required for creatine synthesis, is essential for oligodendrocyte (OL) maturation and survival using the Gamt-Green Fluorescent Protein (Gamt-GFP) reporter line. In this study, we capitalize on this finding and track OL lineage cells in an experimental autoimmune encephalomyelitis (EAE) mouse model by inducing immune-mediated demyelination in the Gamt-GFP reporter line. At 7 days post-immunization (dpi), both control and EAE mice receive 4 mg/kg tamoxifen for 4 consecutive days to induce GFP expression. GFP+ cells and those also expressing OL lineage markers [Olig2 (pan-OL lineage cell marker), NG2 (OL precursor cells; OPCs), and CC1 (mature OL)] are quantitated by immunofluorescent staining of spinal cord sections collected at 28 dpi. RESULTS/ANTICIPATED RESULTS: Preliminary data using immunofluorescent staining demonstrated GFP was expressed in Olig2+ cells in the inflammatory ventral white matter lesions of mice with EAE, whereas no GFP labeling was present in the control mice. Moreover, GFP+ cells also expressed NG2+. In contrast, few CC1 + cells were detected in the inflammatory lesions. The low number of dual labeled GFP+CC1+ cells in these lesions suggests OPCs under the EAE environment are unable to efficiently differentiate into mature OL. Therefore, the Gamt-GFP reporter mouse can be used to identify and track activated OL lineage cell populations (i.e., GFP+CC1) in inflammatory lesions in the EAE mouse model. DISCUSSION/SIGNIFICANCE OF IMPACT: The Gamt-GFP reporter line identifies activated OL lineage cells responding to inflammatory demyelination, making it a valuable tool for testing potential therapeutics aimed at enhancing remyelination. This model helps bridge the gap between preclinical and clinical research to guide MS therapy development.

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Is PHASTR faster? A target trial emulation case study in the N3C

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OBJECTIVES/GOALS: Our study team won a Public Health Answers to Speed Tractable Results (PHASTR) contract to conduct a target trial emulation to answer "Does metformin show a reduction of severe outcomes of COVID-19 or of Long COVID in the N3C Data Enclave?" We quickly delivered an answer due to productive technical and collaboration support in the N3C. METHODS/

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