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IN BRIEF

MYELIN

Wrapped up

In myelination, oligodendrocyte processes enwrap sections of axons termed internodal regions. Little is known about how newly generated oligodendrocytes integrate into mature existing circuits or how environmental changes affect myelination. Hill et al. used spectral confocal reflectance microscopy to monitor oligodendrocyte production and axon myelination over the lifetime of mice. New oligodendrocytes continued to be produced and new internodes continued to be formed on partially myelinated and unmyelinated axons into adulthood. In aged mice, myelination declined and internodes were lost through oligodendrocyte cell death and myelin degeneration. In another study, Hughes et al. used in vivo two-photon imaging of the somatosensory cortex of adult transgenic mice in which oligodendrocyte precursors could be distinguished from mature oligodendrocytes. Consistent with Hill et al., they found that myelination of partially myelinated or unmyelinated axons continued into adulthood and was achieved exclusively by newly generated oligodendrocytes. Interestingly, exposure to an enriched sensory environment markedly increased oligodendrocyte integration into existing circuits. Thus, in mice, myelination by new oligodendrocytes continues in adulthood and is enhanced on exposure to enriched environment, supporting a possible role in circuit plasticity in the adult brain.

ORIGINAL ARTICLE Hill, R. A., Li, A. M. & Grutzendler, J. Lifelong cortical myelin plasticity and age-related degeneration in the live mammalian brain. *Nat. Neurosci.* https://doi.org/10.1038/s41593-018-0120-6 (2018) | Hughes, E. G. et al. Myelin remodeling through experience-dependent oligodendrogenesis in the adult somatosensory cortex. *Nat. Neurosci.* https://doi.org/10.1038/s41593-018-0121-5 (2018)

TECHNIQUES

In a split sequence

Currently available methods for transcriptome sequencing such as single-cell RNA-seq (scRNA-seq) are complex to perform. Here, the authors developed split-pool ligation-based transcriptome sequencing (SPLiT-seq), which involves four rounds of combinatorial barcoding of cellular RNA. The technique involves a series of pipetting steps and requires no specialist equipment. Analysis of transcriptomes from developing mouse CNS neurons revealed that gene expression patterns corresponded to cellular function, developmental stage and regional specificity. This method allows scalable profiling of single neurons that allows analysis of complex tissues containing many cell types, thus improving the usefulness of this technique.

ORIGINAL ARTICLE Rosenberg, A. B. et al. Single-cell profiling of the developing mouse brain and spinal cord with split-pool barcoding. *Science* https://doi.org/10.1126/science.aam8999 (2018)

TECHNIQUES

MEG in motion

Magnetoencephalography (MEG) is a powerful technique for mapping brain activity in real time. Current MEG scanners are cumbersome and require subjects to remain motionless during the procedure, which limits its use. Now, a MEG system has been developed that uses quantum sensors mounted in a lightweight helmet that also cancels the Earth's magnetic field, which would otherwise interfere with readings. The new technology can record MEG data at millisecond resolution in moving subjects and has the potential to dramatically expand the application of MEG.

ORIGINAL ARTICLE Boto, E. et al. Moving magnetoencephalography towards real-world applications with a wearable system. *Nature* https://doi.org/10.1038/nature26147 (2018)