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Centenary of the oligodendrocyte

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*“At the banquet of medicine, [histology] is the guest of honor, who eats little—aloof, mysterious—to whom all listen, yet whom very few understand.”*¹ For Pío del Río-Hortega (Spain, 1882-Argentina, 1945), histology blended the cold and factual with the dynamic, romantic artistry that brought the subject to light. A disciple of both Nicolás Achúcarro and Santiago Ramón y Cajal, del Río-Hortega adapted his mentors’ metallic impregnation techniques to discover and describe in exacting detail both the microglia and the oligodendrocyte.

Through a series of publications (1919-22), he carefully challenged the thinking around Cajal’s apolar third element of the nervous system (the first and second elements being neuronal and astroglial cells, respectively), and demonstrated that this third element was composed of two cell-types, both, in fact, containing processes: the microglia and glia with very few processes (the oligodendroglia).

Del Río-Hortega described oligodendrocytes close to myelinated nerve fibres with delicate processes spiralling around unstained myelin and associated with Schmidt-Lanterman incisures. He also speculated on their function, and made comparisons with peripherally myelinating Schwann cells, stating that they “carry out identical functions of support, isolation and nutrition connected with nerve conduction.”^{2,3} Whilst his findings and their significance were initially met with scepticism during a brief rift with Cajal, the ensuing years have confirmed the brilliance of del Río-Hortega’s observations and the importance of oligodendrocytes to brain function in health and disease. One hundred years later, researchers continue to unravel the mysteries of oligodendrocytes and myelin, using state-of-the-art techniques that allow for new ways to understand the human brain⁴ (appendix).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

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