**Introduction**

Myelin, a specialized membrane, ensheathes and insulates axons in the peripheral and central nervous system. In mice and rats, myelination begins around birth in the spinal cord and is completed in the brain during the first postnatal month. In humans, myelin formation starts during the second half of fetal life in the spinal cord, peaks during the first year postnatally and can continue until 20 years of age.

When myelin containing neural tissue is dissociated, large quantities of myelin debris are generated. Myelin debris in single-cell suspensions was reported to considerably impair cell isolation and antibody staining. So far, sucrose has been used for the elimination of myelin. Here, we present a solution for myelin depletion based on magnetic cell sorting.

**Results**

1. **Myelin debris is abundant in single-cell suspensions**

Mouse brains were dissociated using the Neural Tissue Dissociation Kit-B (NTDK-B; Miltenyi Biotec). Flow cytometrical analysis of the resulting single-cell suspensions shows the distribution of cells and myelin debris (a) forward scatter (cell size) and side scatter (granularity).

2. **Myelin Removal Beads are more efficient than sucrose solution for myelin debris removal**

1×10^6 cells from a single-cell suspension of P22 mouse brain were stained with CD11b-APC (1) or anti-Prominin-1-APC (2) without and with previous myelin removal using Myelin Removal Beads. Dot plots show that in single-cell suspensions with previous myelin removal, higher percentages of CD11b- and prominin-1-positive cells are stained, respectively. Dead cells were excluded using PI. Only the positive cells along with positive debris are displayed in dot plots 1b+d and 2b+d in side and forward scatter.

3. **Removal of myelin debris improves antibody stainings**

For MACS separations using CD11b-Microbeads (1a–e) or Anti-Prominin-1 Microbeads (2a–e), P18 or P22 mouse brain, respectively, was dissociated using the NTD-K. 1×10^6 cells from a single-cell suspension were directly used for separation or were submitted to myelin depletion using Myelin Removal Beads. Comparing the separations from samples without and with myelin removal demonstrates that the recovery is higher for samples with previous myelin removal. These data demonstrate a higher efficiency of cell separations in the absence of myelin debris.

4. **Removal of myelin significantly improves the results of immunostainings and cell isolation experiments**

**Conclusions**

- Myelin Removal Beads efficiently deplete myelin debris.
- The recovery of viable cells after Myelin Removal Beads is higher than after sucrose solution.
- Removal of myelin significantly improves the results of immunostainings and cell isolation experiments.