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# Impaired neuronal myelination occurs two months after ischemic stroke induction in mice

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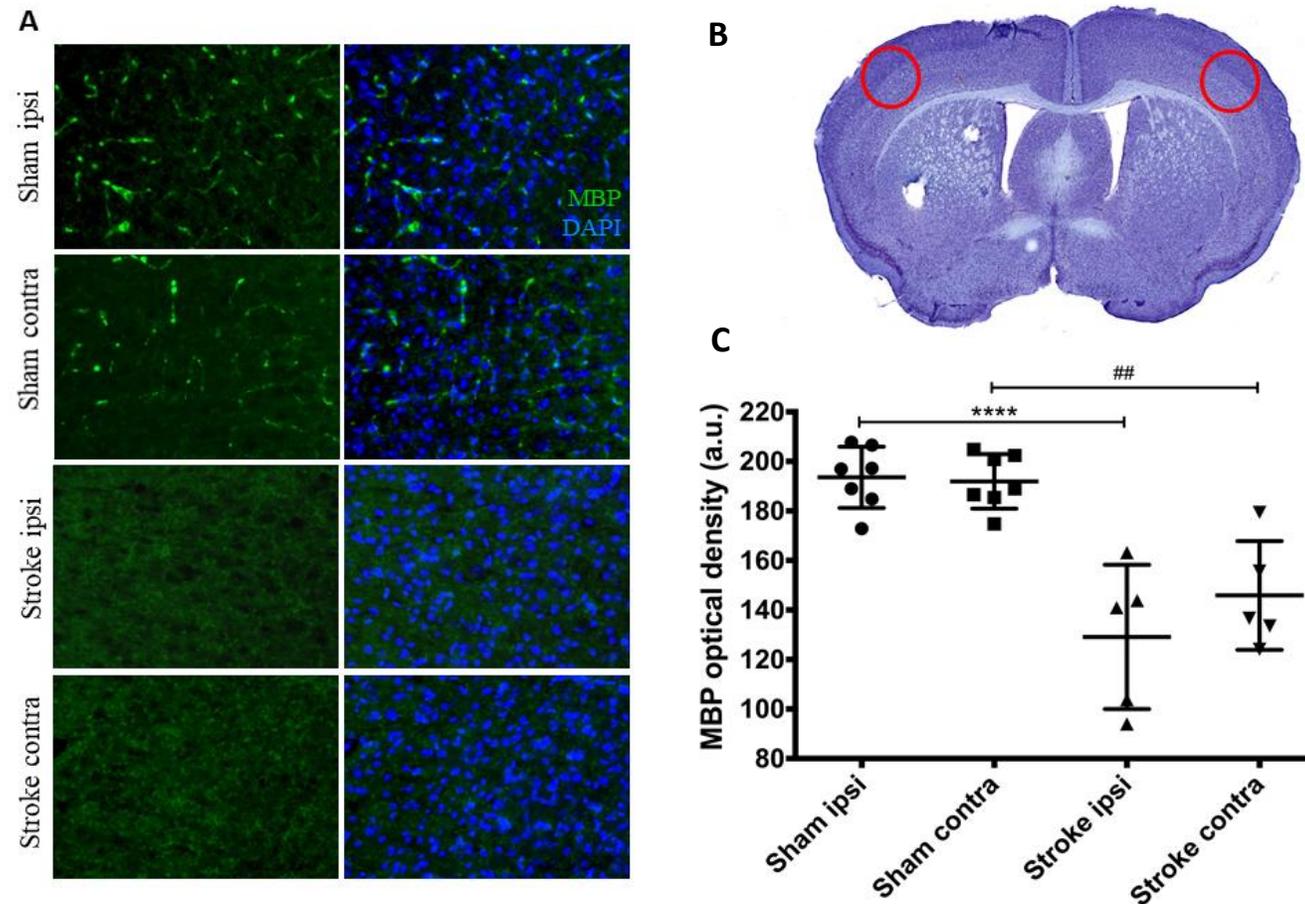
**Background.** One of the defining processes in stroke is the loss of myelination that is observed in acute stages of stroke and is associated with motor and cognitive impairments (Zhou et al., 2013), however, whether this process is impaired in the subacute stages of ischemic stroke remains unknown.

**Aim.** In this study, we determined whether myelination is altered in the peri-infarct area and ischemic core of stroke model mice (two months after stroke induction).

**Methods.**

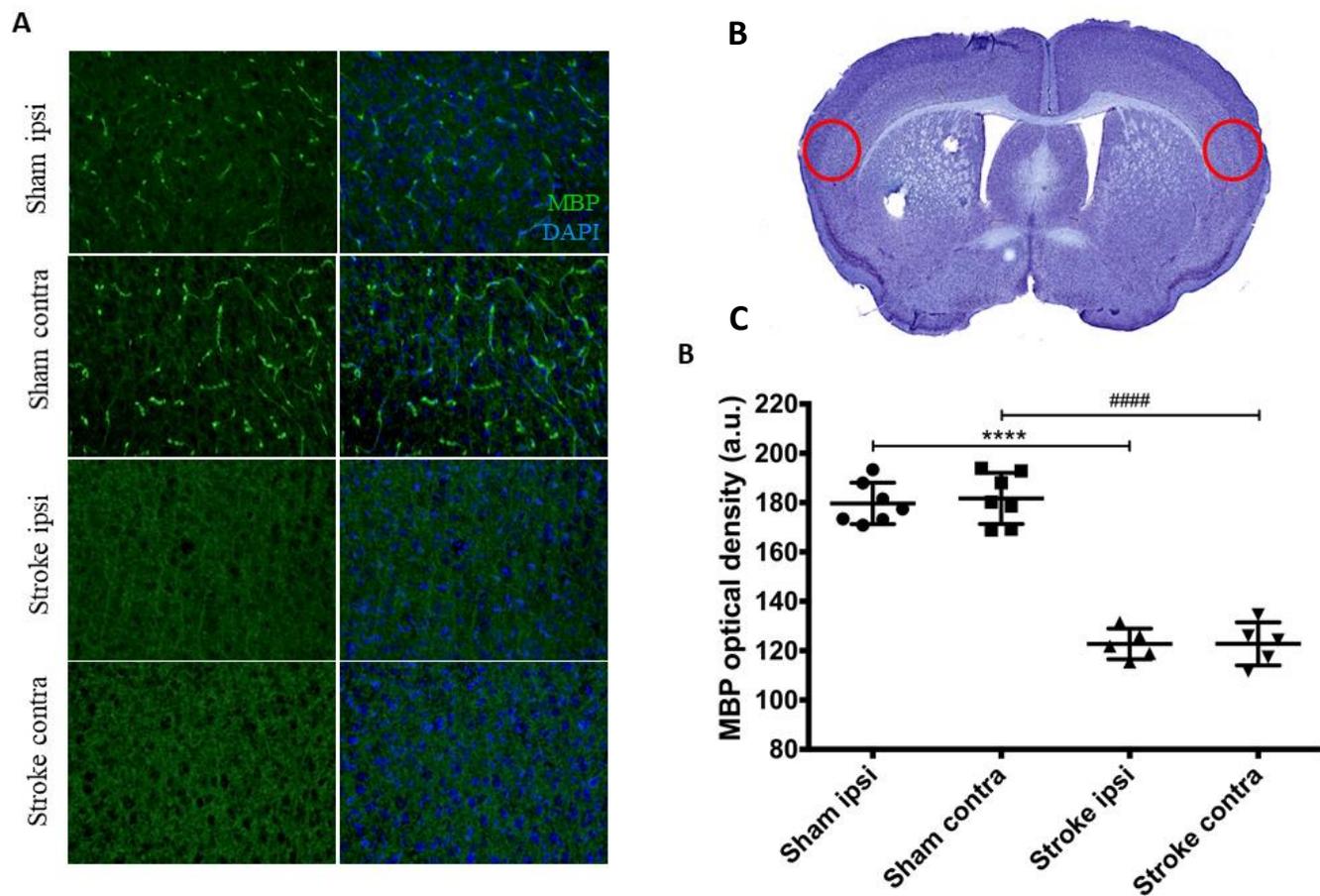
- Endovascular filament-induced middle cerebral artery occlusion in male mice for 60 minutes (Stroke group, n=5).
- For Sham group (n=7), filament was briefly introduced into the blood vessel and immediately taken out as protocol of procedure required.
- 2 months after this procedure, myelin basic protein (MBP) density changes was determined in the peri- infarct and ischemic core region of both brain hemispheres using immunohistochemistry with free-floating frozen sections.
- Density of MBP staining was analysed using analysis of variance within groups (ischemized versus non-ischemized hemisphere) and between groups (Sham versus Stroke).

# MBP density is decreased in the selected peri-infarct region 2 months after stroke



Ischemic stroke-induced changes on mouse myelin basic protein (MBP) density. Representative photomicrographs (A) show MBP expression in the mouse peri-infarct region at 200 $\times$  magnification. Analyzed regions were marked with red circles (B). Bar graphs (C) demonstrate density measurements reported as arbitrary units (au). The data are shown as mean values  $\pm$  S.D. One-way ANOVA followed by Holm-Sidak's multiple comparisons test. \*\*\*\* $p < 0.0001$  versus Sham Ipsis; ##### $p < 0.0001$  versus Sham Contra

# MBP density is decreased in the selected ischemic core region 2 months after stroke



Ischemic stroke-induced changes on mouse myelin basic protein (MBP) density. Representative photomicrographs (A) show MBP expression in the mouse ischemic core at 200× magnification. Analyzed regions was marked with red circles (B). Bar graphs (C) demonstrate density measurements reported as arbitrary units (au). The data are shown as mean values ± S.D. One-way ANOVA followed by Holm-Sidak's multiple comparisons test. \*\*\*\* $p < 0.0001$  versus Sham Ipsi; ##### $p < 0.0001$  versus Sham Contra

# Conclusions & Acknowledgments

**Conclusions.** Data demonstrate that ischemic stroke produces impairments in myelination of neurons in the peri-infarct area and ischemic core. Identifying the association of myelination deficits with behavioural outcomes is the next step in our research.

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