

Oligodendrocytes in sulfatide-null optic nerve

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Figure legends

Fig. 1. PLP-positive cells in adult optic nerves of wild-type and CST-deficient mice.

(A-D) The mRNA expression pattern of the oligodendrocyte marker PLP in 4- (A, B) and 22-week-old (C, D) wild-type (WT; +/+) and CST-deficient (CSTKO; -/-) mice were examined by *in situ* hybridization. Scale bar indicates 100 μ m. (E) Comparative cell densities of PLP mRNA-positive cells in the optic nerves are shown. Each value represents the mean \pm SEM of the data obtained from four animals. *, P < 0.05; ***, P < 0.001 vs. control.

Fig. 2. NG2-positive cells in the optic nerve of 4-week-old wild-type and CST-deficient mice.

(A, B) The expression pattern of the oligodendrocyte precursor cell marker, NG2, in wild-type (WT; +/+) and CST-deficient (CSTKO; -/-) mouse optic nerves were examined using an antibody specific to NG2. Scale bar indicates 50 μ m. (C) Comparative cell densities of NG2-positive cells are shown. (D) The total cell number and number of NG2-positive cells were counted in each nerve area and the percentage of NG2-positive cells was calculated. Each value represents the mean \pm SEM of the data obtained from four animals. *, P < 0.05; ***, P < 0.001 vs. control.

Fig. 3. GLAST- and *c-fms*-positive cells in optic nerves of wild-type and CST-deficient adult mice.

The cell densities of astrocytes and microglia were examined by *in situ* hybridization using the cell-specific markers, GLAST (A) and *c-fms* (B), respectively. Each value represents the mean \pm SEM of the data obtained from four animals.

Fig. 4. Number of OPCs and the proportion of dying or proliferating cells in 5-day-old optic nerves of wild-type and CST-deficient mice.

(A-F) Double labeling of NG2 (green)/PI (red) was performed on optic nerves from 5-day-old wild-type (+/+; A-C) and CST-deficient (-/-; D-F) mice. Scale bar represent 25 μ m. (G-I) Total cell numbers (G) or the number of NG2-positive cells (H) per area, and percentages of NG2-positive cells (I) in both wild-type (WT) and CST-deficient (CSTKO) optic nerves are shown. (J, K) One day after BrdU injection, the densities of dying cells (J) and proliferating cells (K) were

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examined using specific antibodies against ssDNA or BrdU, respectively. Each value represents the mean \pm SEM of the data obtained from three individual animals of each genotype. *, $P < 0.05$; ***, $P < 0.001$ vs. control.

Fig. 5. Regional differences in OPC numbers during early development of optic nerves in wild-type and CST-deficient mice. Transverse serial cryosections (10 μ m) were prepared by cutting 1-day-old (H-J) and 3-day-old (B-G; K-M) optic nerves of wild-type and CST-deficient mice from the retinal to the chiasmatal side. (A) A schematic representation of the optic nerve regions (positions 1 to 6) is illustrated. Optic nerves of wild-type (+/+) and CST-deficient (-/-) mice were divided into six regions (250 μ m each, for a total of 1.5 mm; see the materials and methods for details). (B-G) The 10- μ m-thick sections from each region were triple stained with NG2 (red), BrdU (green) and DAPI (blue). Representative pictures in B/C, D/E, and F/G were obtained from positions 1, 3 and 6, respectively. (H- M) The average number of NG2-positive cells per nerve area (H, K), percentages of NG2-positive cells (I, L) and percentages of BrdU-positive cells in NG2-positive cell populations (J, M) from three sections at each optic nerve position are represented as mean \pm SEM. Each value represents the mean of the data obtained from two individual animals (H-J; 1-day-old mice) and three individual animals (K-M; 3-day-old mice) of each genotype. *, $P < 0.05$; ***, $P < 0.001$ vs. control.

Fig. 6. Myelinated axons in 10-day-old CST-deficient optic nerves. (A, B) Optic nerves prepared from 10-day-old wild-type (A) and CST-deficient (B) mice were examined by electron microscopy. (C) The percentages of myelinated axons are shown. Each value represents the mean \pm SEM of the data obtained from two animals of each genotype. *, $P < 0.001$ vs. control.

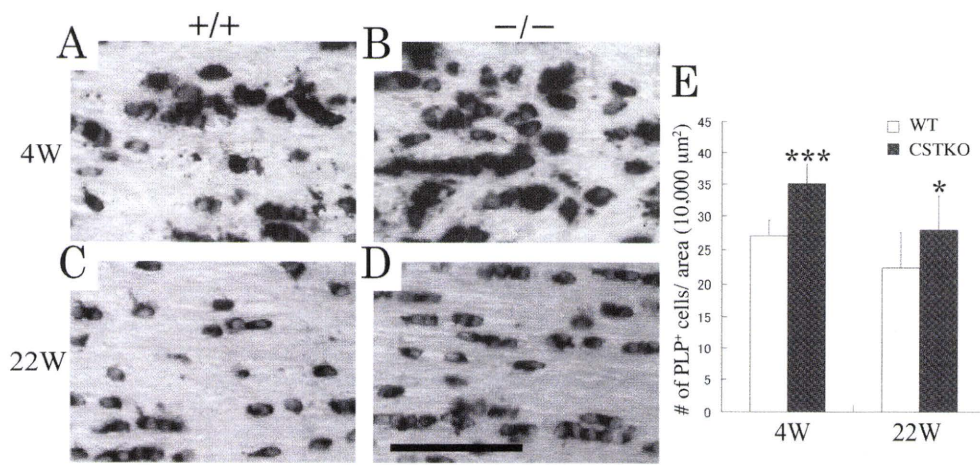


Fig.1 Kajigaya et al. Oligodendrocytes in sulfatide-null optic nerve. black and white

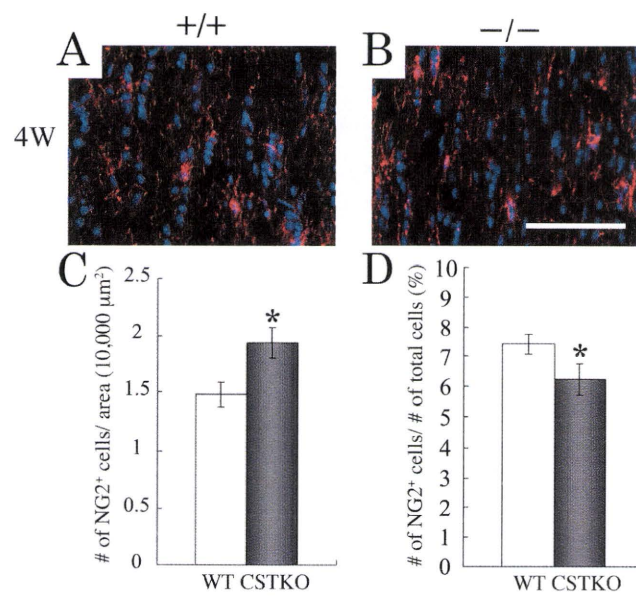


Fig. 2 kajigaya et al. Oligodendrocytes in sulfatide-null optic nerve color

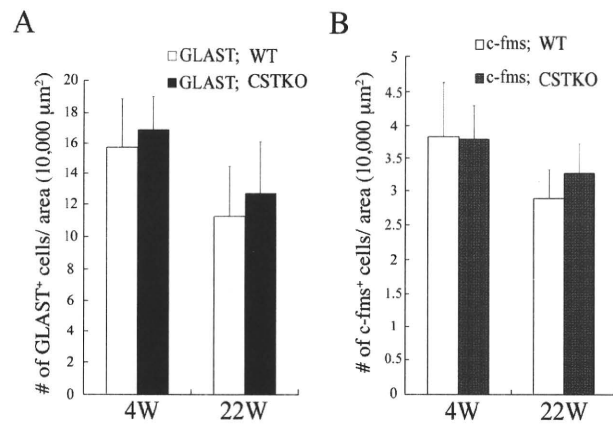


Fig. 3 Kajigaya et al, Oligodendrocytes in sulfatide-null optic nerve black and white

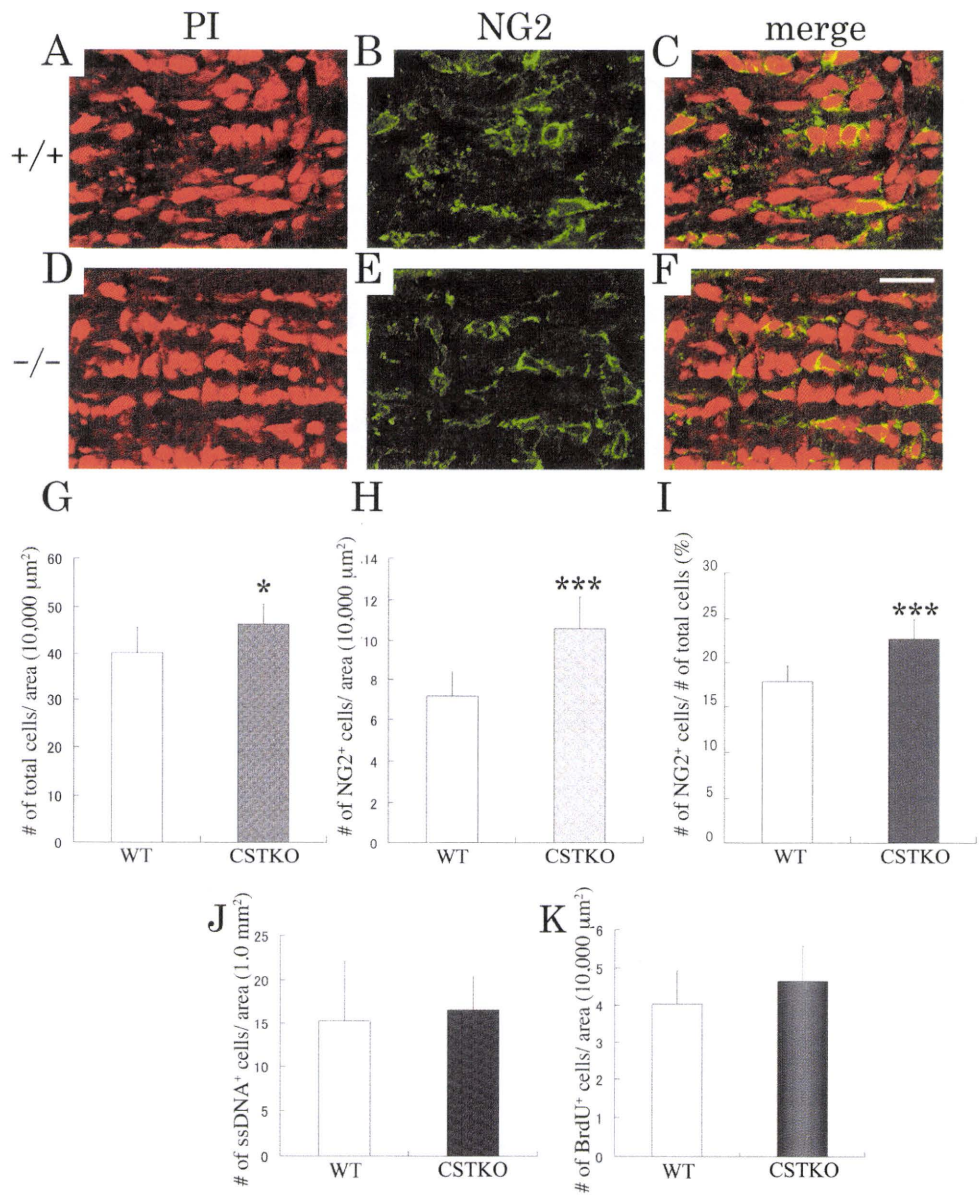
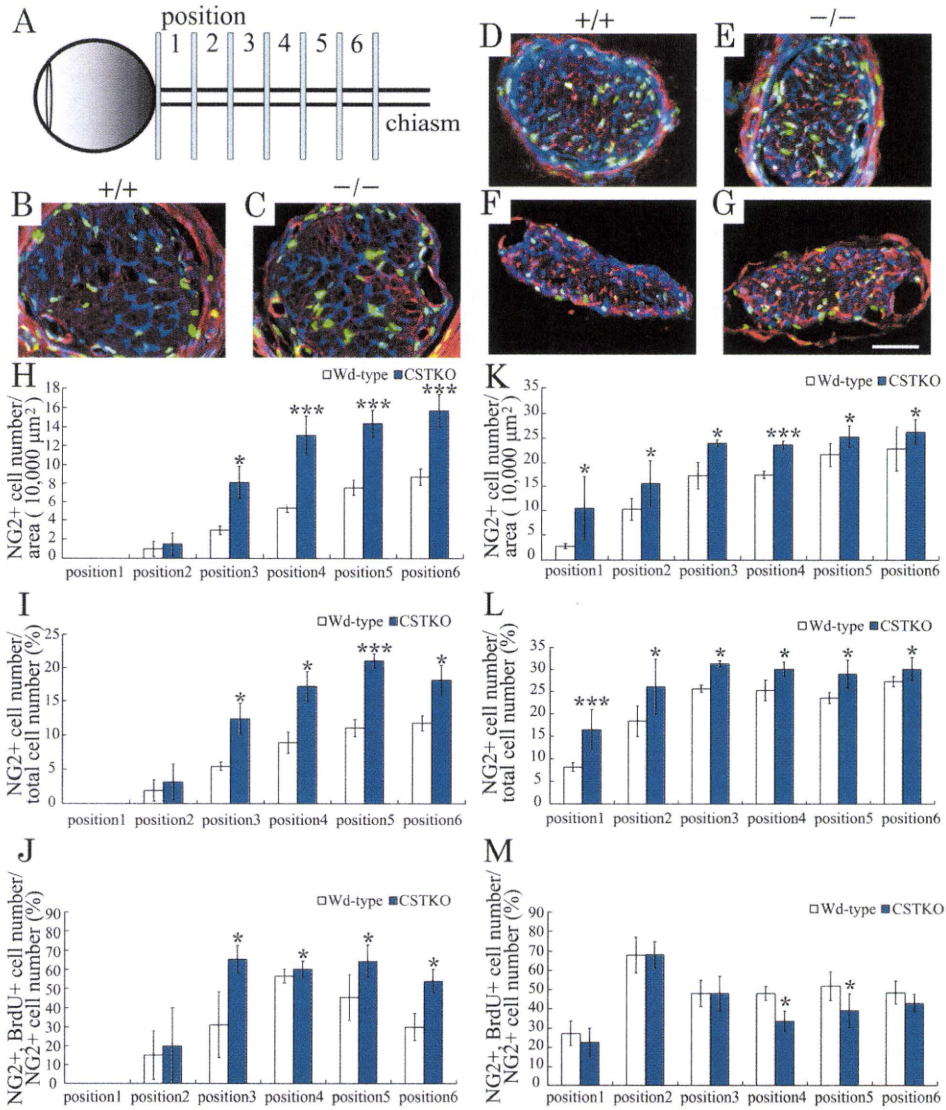


Fig 4 Kajigaya et al. Oligodendrocytes in sulfatide-null optic nerve. color



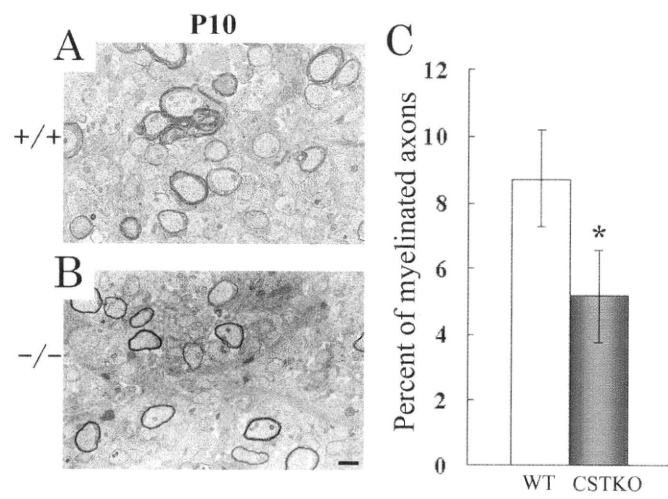


Fig. 6 Kajigaya et al. Oligodendrocytes in sulfatide-null optic nerve.
black and white

