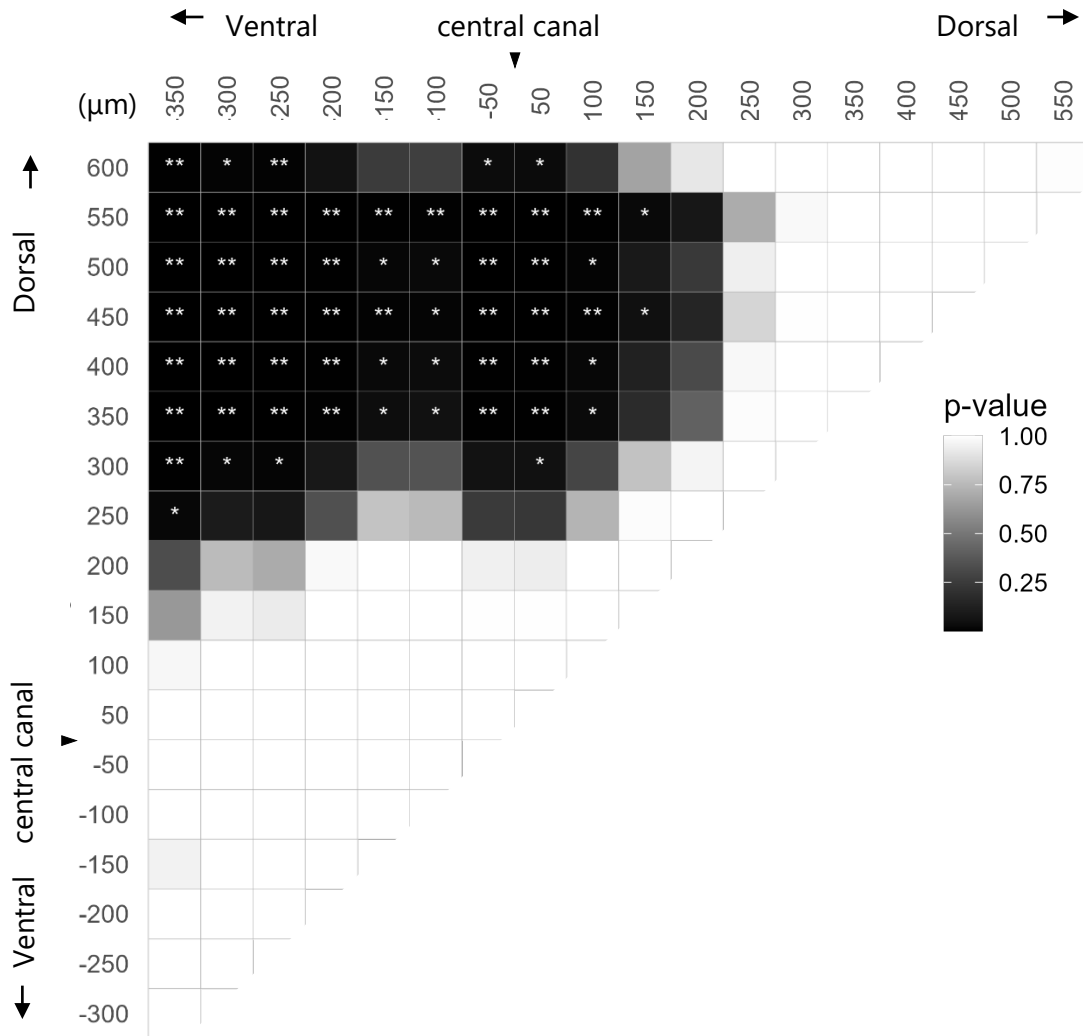


Pairwise p -values in dendrite OI



Supplementary Fig. 1.

Grayscale heatmaps showing pairwise p -values in orientation index for dendrites from Tukey's multiple comparisons across dorsoventral positions. Asterisks indicate significance levels (* $p < 0.05$, ** $p < 0.01$).

Supplementary Table S1. Experimental animals

Animal ID		Age at perfusion	\$Injection area and coordinates for injection of AAV-EYFP	\$Injection area and coordinates for injection of AAV-mCherry	Fig.
*L419a1	Male	P76	S1 (-0.4, 2.2, 0.8)	M1 (+0.3, 1.2, 0.8)	Fig. 1, 5 and 6
*L419a2	Male	P76	S1 (-0.4, 2.2, 0.8)	M1 (+0.3, 1.2, 0.8)	Fig. 4, 5 and 6
*L419a3	Female	P76	S1 (-0.4, 2.2, 0.8)	M1 (+0.3, 1.2, 0.8)	Fig. 2, 3, 5 and 6
*L420a1	Male	P78	S1 (-1.3, 2.1, 0.7)	M1 (+0.3, 1.2, 0.8)	Fig. 5-8
*L420a4	Male	P78	S1 (-0.4, 2.2, 0.8)	M1 (+0.3, 1.2, 0.8)	Fig. 5, 6 and 8
†F018	Male	P80	S1 (-0.5, 2.5, 0.8)	-	Fig. 5-6
†F012	Male	P79	M1 (+0.3, 1.2, 0.8)	-	Fig. 5-6
†F014	Male	P79	M1 (+0.3, 1.2, 0.8)	-	Fig. 5-6
#L420a3	Male	P78	S1 (-0.4, 2.2, 0.8)	S1 (-1.3, 2.1, 0.7)	Fig. 8

\$Parentheses indicate rostrocaudal and mediolateral coordinates (mm) from bregma and depth from the dura surface (mm).

*Animals received AAVs in both S1 and M1 cortices.

†Animals received AAV in either S1 or M1 cortex

#Animal received AAVs in two different locations within the S1 cortex.

Supplementary Table S2.

Landmarks on the outline of the spinal gray matter used for registration

Point number	Side	Description
Magenta points		
1		Ventralmost point of the dorsal funiculus
2		Dorsalmost point of the ventral funiculus
3	Right	Mediodorsal extremity of the dorsal horn
4	Left	Mediodorsal extremity of the dorsal horn
5	Right	Lateralmost point of the dorsal horn
6	Left	Lateralmost point of the dorsal horn
7	Right	Ventrolateral point of lamina V
8	Left	Ventrolateral point of lamina V
9	Right	Ventromedial extremity of the axial motor neuron pool
10	Left	Ventromedial extremity of the axial motor neuron pool
11	Right	Center of the forelimb motor neuron pool
12	Left	Center of the forelimb motor neuron pool
13	Right	Ventralmost point of the ventral horn
14	Left	Ventralmost point of the ventral horn
Cyan points		
15	Right	Point at one-third of the mediolateral distance from point 3 toward point 5
16	Left	Point at one-third of the mediolateral distance from point 4 toward point 6
17	Right	Point at two-thirds of the mediolateral distance from point 3 toward point 5
18	Left	Point at two-thirds of the mediolateral distance from point 4 toward point 6
19	Right	Point at one-third of the dorsoventral distance from point 1 toward point 3

20	Left	Point at one-third of the dorsoventral distance from point 1 toward point 4
21	Right	Point at two-thirds of the dorsoventral distance from point 1 toward point 3
22	Left	Point at two-thirds of the dorsoventral distance from point 1 toward point 4
23	Right	Point at one-third of the dorsoventral distance from point 7 toward point 11
24	Left	Point at one-third of the dorsoventral distance from point 8 toward point 12
25	Right	Point at two-thirds of the dorsoventral distance from point 7 toward point 11
26	Left	Point at two-thirds of the dorsoventral distance from point 8 toward point 12
27	Right	Point at one-third of the dorsoventral distance from point 2 toward point 9
28	Left	Point at one-third of the dorsoventral distance from point 2 toward point 10
29	Right	Point at two-thirds of the dorsoventral distance from point 2 toward point 9
30	Left	Point at two-thirds of the dorsoventral distance from point 2 toward point 10
31	Right	Point at the ventral boundary of the dorsal horn and aligned mediolaterally with point 15
32	Left	Point at the ventral boundary of the dorsal horn and aligned mediolaterally with point 16
33	Right	Point at one-third of the mediolateral distance from point 13 toward point 9
34	Left	Point at one-third of the mediolateral distance from point 14 toward point 10
35	Right	Point at two-thirds of the mediolateral distance from point 13 toward point 9
36	Left	Point at two-thirds of the mediolateral distance from point 14 toward point 10

37	Right	Point at one-third of the mediolateral distance from point 11 toward point 13
38	Left	Point at one-third of the mediolateral distance from point 12 toward point 14
39	Right	Point at two-thirds of the mediolateral distance from point 11 toward point 13
40	Left	Point at two-thirds of the mediolateral distance from point 12 toward point 14

All landmarks were defined on the outline of the spinal gray matter. Blank entries in the “Side” column indicate midline landmarks.