Supplementary materials

Table S1 Group sizes of animals for in the studies

Method	Model	Spinal treatment	Group Size	No. of neurones analysed	Exclusions
Electro-physiology	Intraplantar saline	PBS	5	5	
	Intraplantar saline	AT-RvD1	10	10	
	Intraplantar carrageenan	PBS	10	10	
	Intraplantar carrageenan	AT-RvD1	10	9	Excluded 1 neurone - facilitated
	Intraplantar carrageenan	BOC-2	9	9	
	Intraplantar carrageenan	BOC-2-AT-RvD1	9	8	Excluded 1 neurone - inhibited
		Total	53		
	Intra-articular saline	AT-RvD1-Morphine	9	7	Excluded 1 neurone outlier and 1 neurone incomplete data set (no morphine)
	Intra-articular MIA	AT-RvD1-Morphine	11	9	Excluded 1 neurone outlier and 1 neurone incomplete data set (no morphine)
		Total	20		
Gene expression	Intraplantar saline	N/A	6	N/A	
	Intraplantar carrageenan	N/A	5	N/A	
		Total	11	N/A	
		Total	84	67	

Table S2 Sequences of primers and probes used in gene expression study

Gene	Forward primer	Reverse primer	Taqman probe
Beta actin	AGGCCATGTACGTAGCCATCCA	TCTCCGGAGTCCATCACAATG	TGTCCCTGTATGCCTCTGGTCGTACCAC
ALX	CTTGGACCGCTGCATTTGT	CCTTCCTAGCCAGGCTCACA	CAGTCTGGGCTCAGAACCACCGC
ChemR23*	AGGACCTACCCTCGAGTTCTATTCT	CGTAGATGCTGGAGTCGTTGTAA	TCCAAAGAGATGGAGTACGA
COX-2	GGCACAAATATGATGTTCGCA	CTCGCTTCTGATCTGTCTTGA	TCTTTGCCCAGCACTTCACTCATCAGTTT
FLAP	CCCCACTTTCCTTGTGGTACTC	TGCCTCACGAACAGATACATCAG	AGCCAAGTCCCCGCCGCCT
IL-10	GAAGCTGAAGACCCTCTGGATACA	CCTTTGTCTTGGAGCTTATTAAAATCA	CGCTGTCATCGATTTCTCCCCTGTGA
5-LOX*	TGGTGTCTGAGGTGTTCGGTAT	GGCAATGGTGAACCTCACATG	CCCTTTTCAAGCTGCTG
15-LOX	TGATGCCTGATGGACAACTCTT	CCG AGG GCG TGA AAA TAG G	CCATAGCCATCCAGCTTGAACTTC CCA

*conjugated minor groove binder (MGB) probe

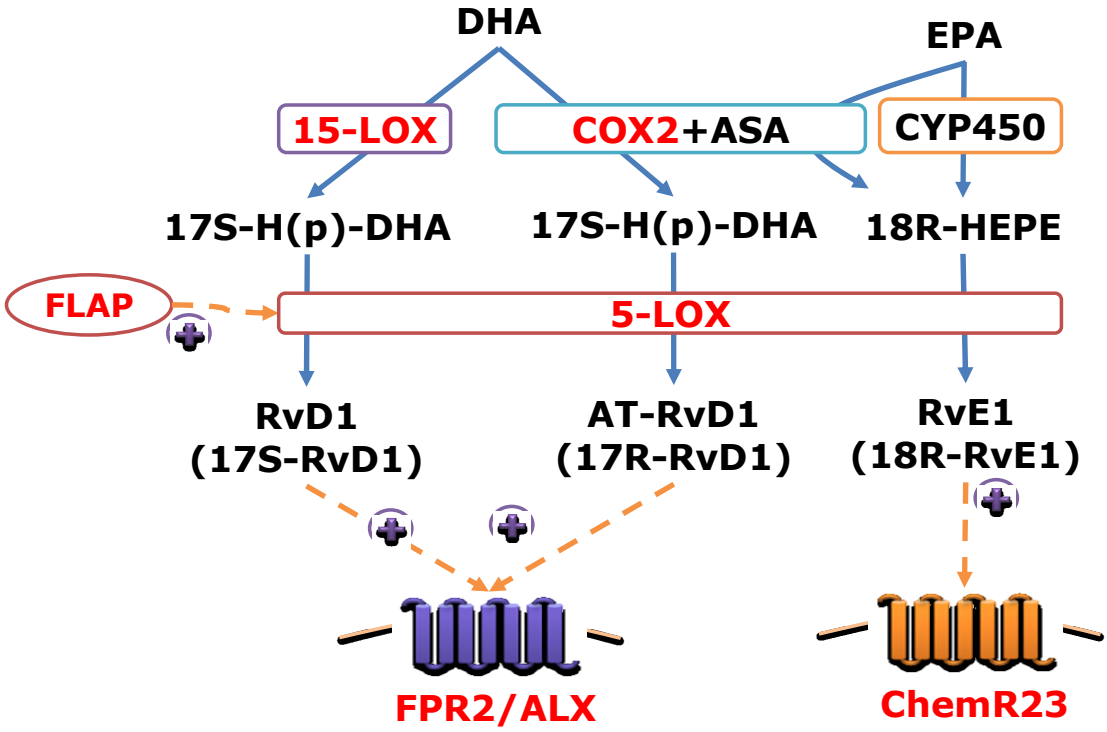

Figure S1 Diagram illustrating resolvin biosynthetic pathways of resolvin D1 (RvD1 or 17S-RvD1), AT-RvD1 (17R-RvD1) and RvE1 (18R-RvE1) and their receptors. Genes of interest in the present study are indicated in red. Note that AT-RvD1 in the studies was exogenously administered. Abbreviations; ASA: acetyl salicylic acid or aspirin, ChemR23: chemerin receptor, COX-2:cyclooxygenase, CYP450:cytochrome P450, DHA: docosahexaenoic acid, FPR2/ALX: formylpeptide receptor 2, 17R-H(p)-DHA:17-R-hydroperoxy docosahexaenoic acid, 17S-H(p)-DHA:17S-hydroperoxy docosahexaenoic acid, 15-LOX:15-lipoxegenase, 5-LOX:5-lipoxegense.

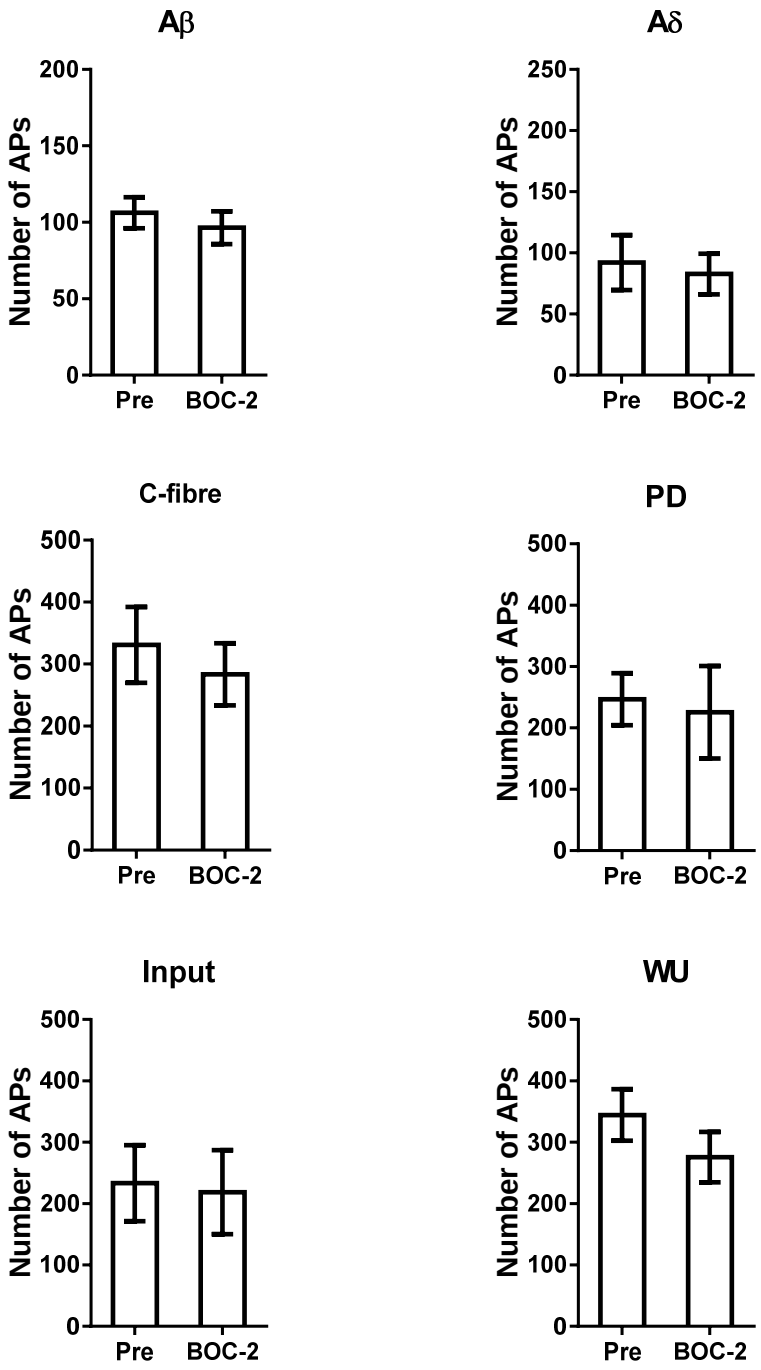

Figure S2 BOC-2 alone had no effect on spinal WDR neurone responses in carrageenan-treated rats. Spinal administration of BOC-2 50 μg 50/μl alone (n=9) did not alter electrically evoked firing of WDR neurones in carrageenan-treated rats when compared to pre-drug responses (pre).

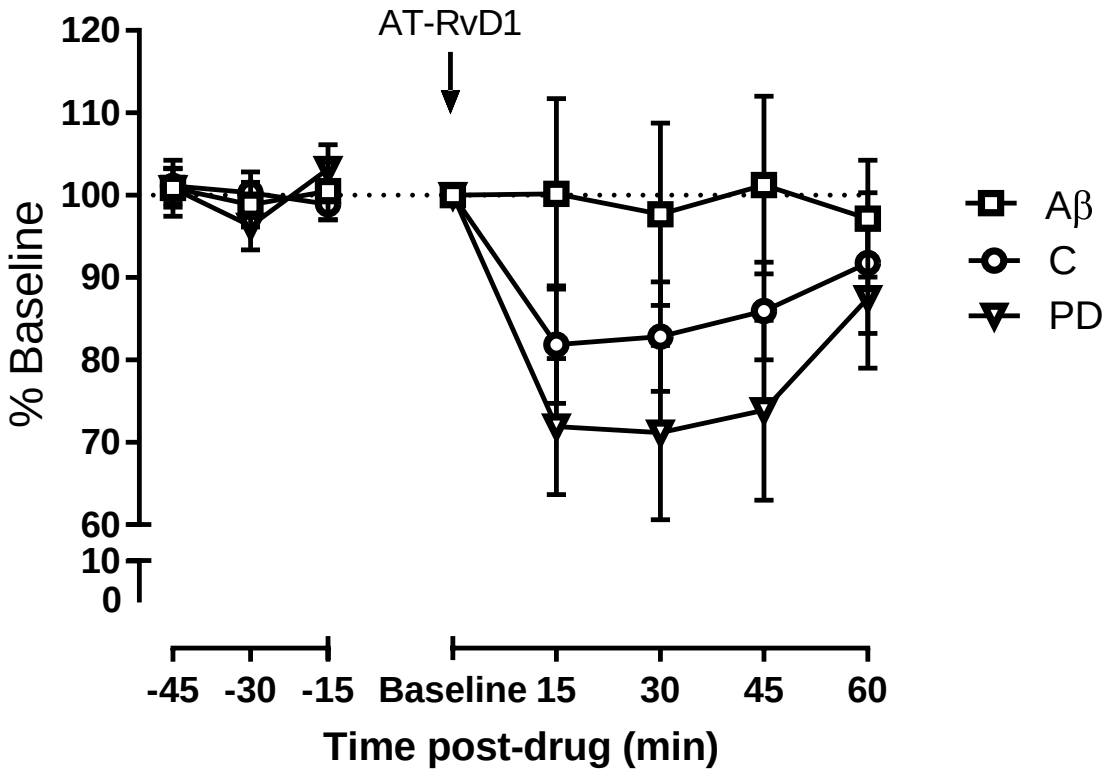

Figure S3 Timecourse of the effects of AT-RvD1 on electrically evoked responses of spinal WDR neurones in carrageenan-treated rats. AT-RvD1 15 ng/50µl was directly applied onto the exposed spinal cord after stable baseline responses were established. The inhibitory effects on C-fibre and post-discharge (PD) responses peaked at 15 min post application and returned toward control levels at 60 min. Aβ fibre responses remained comparable to the control level throughout the hour. n=9 neurones.

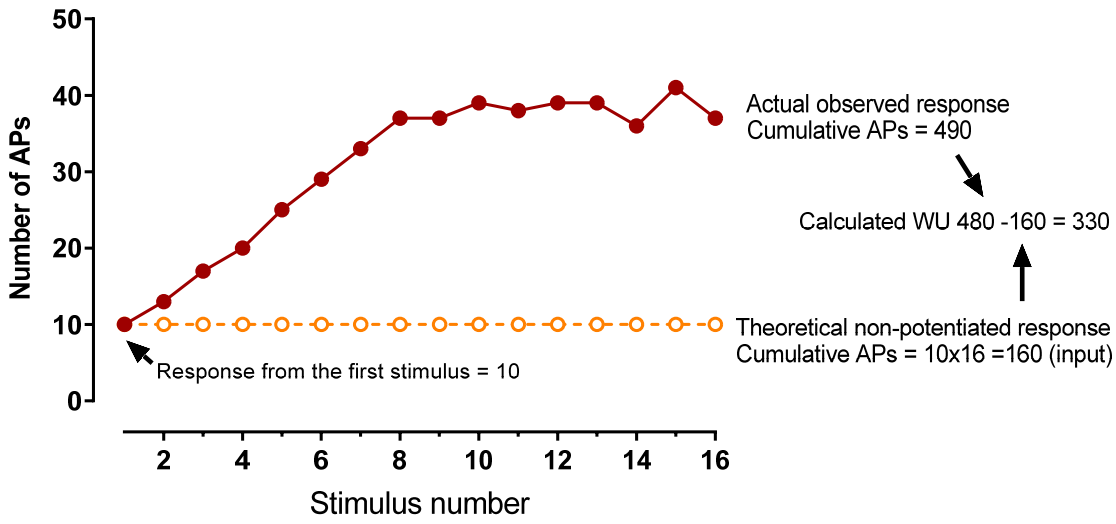

Figure S4 An explanation of input and wind-up (WU).
The graph illustrates responses in C-fibre and post discharge bands (90-800 ms post stimulus) of a WDR neurone following a train of 16-electrical stimulation (0.5 Hz, 2 ms pulse width at 3-times C-fibre threshold). If there is no potentiation, the responses will be flat, shown as the orange theoretical line. The input is calculated by taking the initial response (10) multiply by stimulus number (16) which results in 160. The input represents initial or non-potentiated response of neurones. However, in the actual experiment, a WDR neurone can display an increase in responsiveness after repetitive stimulation (shown as red line) which is a typical characteristic. This phenomenon is called wind-up (WU) which represents enhanced excitability. The cumulative number of action potentials evoked by the train of stimulation (490) minus input (160) results in calculated WU 330.