loop adjusted the laser power. 8 subjects participated in this study. Stimulations were applied on the dorsum side and in the palm of the hand. Subjects were instructed to continuously rate the pain intensity. First the subject was stimulated using both a rising 35–45 °C staircase and a decreasing 45–35 °C staircase in both skin types; each staircase step was 1 °C and lasted for 15 s. Offset analgesia was tested by stimulating the hairy skin on the dorsum of the hand using two sequential temperature plateaus (48–48 °C, 48–49 °C, 49–48 °C and 49–49 °C). Each plateau was held for 5 s.

Results: For the staircase stimulations identical surface temperatures were perceived significantly higher in glabrous than in hairy skin ($p < 0.001$). The offset analgesia test showed that a decrease in temperature from 49 to 48 °C evoked a drop in the pain rating which was significantly lower than observed during a 48–48 °C stimulation ($p < 0.001$) indicating offset analgesia.

Conclusion: A non-contact thermal stimulator is able to evoke offset analgesia. Furthermore, it was noted that a high penetration laser causes higher pain ratings in glabrous skin than in hairy skin—a relationship which is opposite to low penetration lasers (CO_2 laser) and contact heat stimulation.

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Inhibition of FAAH reverses spinal LTP

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Objectives: Fatty-acid amide hydrolase (FAAH) is an enzyme that metabolizes several endocannabinoids and fatty acid amides important for human pain sensitivity. Here we examine how reduced FAAH activity affects maintenance of spinal long-term potentiation (LTP) and spinal expression of the transcription factor Zif.

Methods: Dorsal horn field potential recordings were performed in urethane anaesthetized SPD rats. LTP was induced by high frequency stimulation (HFS) conditioning applied to the sciatic nerve. To inhibit the enzymatic activity of FAAH, URB 597 was administered (1 mg/kg i.v.). Gene expression of the transcription factor Zif was examined by real time RT-PCR.

Results: A clear LTP was observed after HFS conditioning. The expression of LTP was, however, significantly reduced after i.v. administration of the FAAH inhibitor URB 597. A significant increase in the gene expression level of Zif was demonstrated in the ipsilateral dorsal horn after HFS compared to the corresponding control.

Conclusion: Our results demonstrated that inhibition of FAAH partly reverses spinal LTP. While the HFS conditioning caused a clear increase in Zif gene expression in the ipsilateral dorsal horn, HFS in combination with the FAAH inhibitor did not. We conclude that FAAH may be important for the neuronal mechanisms underlying maintenance of spinal LTP. Whether or not the increased gene expression of Zif is important for these mechanisms remains to be investigated.

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Hyperexcitable C-nociceptors in human paroxysmal pain

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Objectives: Spontaneously occurring paroxysmal pain is an important constituent of the symptomatology of neuropathic pain. While mechanisms of stimulus-evoked pain and also spontaneous ongoing pain have been studied for a long time, little emphasis has been put on the mechanisms of paroxysmal pain. The objective of the present study was to record from single C-nociceptive fibres in a patient presenting with pure paroxysmal pain.

Methods: A woman diagnosed with Ehler-Danlos syndrome was investigated clinically in two separate sessions with 1–2 years apart as well as with EMG/neurography, QST (assessment of thermal thresholds), QSART (quantitative sudomotor axon reflex test) and microneurography.

Results: At the time of the first investigation, the patient reported only spontaneous paroxysmal pain of high intensity several times daily, appearing all over the body. One–two years later the paroxysmal pain was unaltered, but she had during the last months developed an ongoing pain in the feet. On both occasions EMG/neurography and QSART were normal, whereas thermal thresholds on the dorsum of the feet were highly elevated. Microneurography from 29 C-nociceptive fibres showed a high amount of fibres with signs of hyperexcitability (spontaneous activity and sensitisation for mechanical stimulation).

Conclusion: Although the relationship between spontaneous paroxysmal pain, spontaneous ongoing pain and hyperexcitable peripheral C-nociceptors are unclear, the findings in this patient could represent an interesting contribution to the understanding of mechanisms underlying spontaneous paroxysmal pain.

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Pain sensitivity and experimentally induced sensitization in red haired women

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Pain sensitivity has been linked to the melanocortin-1 receptor (MC1R) gene. A mutation in MC1R can result in pale skin and red hair in humans. The aim of this study was to investigate pain sensitivity in redheads. Twenty healthy women with pale skin and red hair (mean age 32 years, range 20–55) and 20 healthy women with blond/dark hair (mean age 31 years, range 20–51) participated in this study. On the left arm pain tolerance threshold to heat and pressure stimulation was determined. On the right arm 0.075% topical capsaicin cream was applied for 30 min. Thereafter the secondary hyperalgesic area was estimated with a calibrated filament (von Frey hair, 15 g) and the allodynic area by a soft brush. This was done 0, 30, 60 and 90 min after removing the cream. There was no difference in either heat or pressure pain tolerance thresholds between the two groups (heat: $P = 0.8$; pressure: $P = 1.0$). The areas to pinprick were significantly smaller for red haired women than non-red haired women ($P = 0.014$). There were no significantly differences in the allodynic areas. Redheads were less sensitive to capsaicin induced hyperalgesia compared to non-redheads which could