

Curriculum vitae

Anton Fernand, *15.03.1954

Professor of Biological Psychology at the UL (since 01/2000)

Education and training

1976	Diplôme de fin d'études secondaires, Lycée de Garçons, Esch-sur-Alzette
1976-1983	Psychology studies at the university of Innsbruck
1981-1983	Doctoral student and assistant, II nd Institute of Physiology (Neurophysiology), Faculty of Medicine, University of Heidelberg
10/1983	Award of the PhD-degree, thesis submitted at the Faculty of Natural Sciences, (Dept. of Psychology), University of Innsbruck: „Psychophysical and neurophysiological correlates of longlasting experimental pain stimuli“
1983-1985	Post-doctoral fellow (DFG) at the II nd Institute of Physiology (Neurophysiology), Faculty of Medicine, University of Heidelberg
1985-1987	Visiting fellow at the Neurobiology and Anesthesiology Branch, NIDR, NIH, USA

Professional appointments

1987-1994	Assistant professor (C1-level) at the Institute of Physiology and Experimental Pathophysiology, Faculty of Medicine, University of Erlangen-Nuremberg Research topic: „Neurophysiological mechanisms of trigeminal pain processing“
01/1994	Habilitation in physiology at the Medical Faculty, University of Erlangen-Nuremberg Thesis title: „ Stimulation of the nasal mucosa with defined CO ₂ -pulses – a model for quantitative neurobiological studies of chemically induced pain. “
1994-1999	Scientist at the „Centre de Recherche Public de la Santé“, Luxembourg Clinical psychologist, pain clinic, Centre Hospitalier de Luxembourg
01/2000	Appointment as professor of biological psychology at the „Centre Universitaire de Luxembourg“, now the University of Luxembourg
2002-2007	Joint appointment as professor of neurophysiology, graduate school of psychobiology, University of Trier

Awards

1984	Price of the Austrian Society for Biomedical Technology for research on „Vascular reactions correlated with pain due to cold“, together with the co-authors H. Gilly, H.O. Handwerker and A. Kreh
1985-1987	Fulbright travel grants and Fogarty stipend for the research period at NIH
1988	NATO grant to participate at the NATO Advanced Research Workshop: „Processing of sensory information in the superficial horn of the spinal cord“, El Escorial, Spain

Research grants

- DFG (Deutsche Forschungsgemeinschaft), 1987-1988: Project An 131/1-1
- DFG, 1989-1991, Project An131/1-2
- Universitätsbund Erlangen-Nürnberg, 1989
- DFG, Sonderforschungsbereich (SFB) 353, 1992-1994: "Pathophysiologie der Schmerzentstehung und Schmerzverarbeitung"
- Centre de Recherche Public de la Santé, 1998-2000, Ministère de la Culture, de l'Enseignement Supérieur et de la Recherche (MCESR), Project 96/10
- MCESR, University of Luxembourg (since 2002), 3 internal research projects on psychobiology and neurophysiology of pain (review process by external experts)
- IRTG training grant (DFG, 2008) in collaboration with the universities of Trier and Leiden: GRK 1389: Die Psychoneuroendokrinologie des Stresses: Vom Molekül und Gen zu Affekt und Kognition. (co-applicant)
- INTER FNR/DFG, 2011 (Fonds National de la recherche, Luxembourg, Deutsche Forschungsgemeinschaft, Germany) project (PASCOM). Examination of a new transdisciplinary framework on pain and suffering by integrating philosophical, psychological, and neuroscientific perspectives (co-applicant with Prof Herta Flor. Mannheim/Heidelberg)
- Nevro Corporation (2017): Collaborative project between the Nevro company, the neurosurgery department of the Centre Hospitalier de Luxembourg and our laboratory: High frequency stimulation of the spinal cord (HF10 therapy) in patients suffering from chronic pain: non-invasive investigation of underlying mechanisms via quantitative sensory testing (QST)

Research administration/management

- Member of the University Council (2003-2008)
- Member of the « Comité de Pilotage du Bachelor en Psychologie »
- Member of the « Comité de Pilotage du Master en Psychothérapie »
- Within the Institute for Health and Behaviour: Head of the Group "Stress, Pain and Pain Modulation"
- President of the "Association des Enseignants et Chercheurs des Etablissements de l'Enseignement Supérieur au Luxembourg, AECS (2001-2011)
- Member of the "Comité National d'Ethique de Recherche (CNER), Luxembourg
- Organizer of the international summerschool „Psychobiology of Pain, Luxembourg, 09/2005

Reviewing Activities

Funding Institutions

- Social Sciences and Humanities Research Council of Canada
- Fonds National de la Recherche Scientifique, Belgium
- Israel Science Foundation
- Leading Fellows Postdocs Programme, TU Delft, Netherlands
- Wellcome Trust, London, UK

Scientific Journals

BMC Research Notes
Brain Research
Der Schmerz
European Journal of Clinical Investigation
European Journal of Neuroscience
European Journal of Pain
Frontiers in Neuroscience
Fundamental and Clinical Pharmacology
Haptics 2018 Symposium
International Journal of Environmental Research and Public Health
Journal of Comparative Neurology
Journal of Neurophysiology
Journal of Psychosomatic Research
Journal of the Autonomic Nervous System
Neuroscience
Neuroscience Letters
Pain
Plos One
Psychoneuroendocrinology
Psychophysiology
Psychotherapy and Psychosomatics
Transactions on Haptics

Membership in scientific societies

- International Association for the Study of Pain (IASP)
- New York Academy of Sciences (NYAS)
- Cercle Luxembourgeois d'Algologie (CLA)

Supervision of theses

Diploma theses

Biology, University of Erlangen-Nuremberg

- Petra Peppel (1988)
- Andrea Ebersberger (1990)

Psychology, University of Trier

- Keim-Kullmann Monika (1995)
- Arndt Monika (1996)
- Kipchen Manon (1997)
- Schröder Markus (1998)
- Michaux Gilles (1999)
- Sakewitz Falk (1999)
- Thomas Andreas (2001)
- Sadewasser Jan (2001)

PhD theses

Biology, University of Erlangen-Nuremberg

- Petra Peppel (1993)

Biological Psychology, University of Trier

- Andrea Geiss (2001)
- Gilles Michaux (2004)

Biological Psychology and Neurophysiology, University of Luxembourg

- Pierre-Eric Juif (2009) (collaboration with the University of Strasbourg)
- Nathalie Erpelding (2009)
- Linn K. Kühl (2010) (collaboration with the University of Trier)
- Anouk Streff (2010)
- Vivien Zell (2013) (collaboration with the University of Strasbourg)
- Glenn Marie Le Coz (2013)
- Raymonde Scheuren (2014)
- Julien Genty (2018)

Publications

Peer-reviewed original publications

- 1) Kreh A, Anton F, Gilly H, Handwerker HO. Vascular reactions correlated with pain due to cold. *Experimental Neurology* 83:533-546 (1984)
- 2) Handwerker HO, Anton F, Reeh PW. Discharge patterns of afferent cutaneous nerve fibers from the rat's tail during prolonged noxious mechanical stimulation.. *Experimental Brain Research* 65:493-504 (1987)
- 3) Kocher L, Anton F, Reeh PW, Handwerker HO. The effect of carrageenan-induced inflammation on the sensitivity of unmyelinated skin nociceptors in the rat. *Pain* 29:363-373 (1987)
- 4) Handwerker HO, Anton F, Kocher L, Reeh PW. Nociceptor functions in intact skin and in neurogenic or non-neurogenic inflammation. *Acta Physiologica Hungarica* 69:333-342 (1987)
- 5) Szolcsányi J, Anton F, Reeh PW, Handwerker HO. Selective excitation by capsaicin of mechano-heat sensitive nociceptors in rat skin. *Brain Research* 446:262-268 (1988)

- 6) Forster C, Anton F, Reeh PW, Handwerker HO, Weber E. Measurement of the analgesic effects of aspirin with a new experimental algometric procedure. *Pain* 32:215-222 (1988)
- 7) Kenshalo DR Jr., Chudler EH, Anton F, Dubner R. SI nociceptive neurons participate in the encoding process by which monkeys perceive the intensity of noxious thermal stimulation. *Brain Research* 454:378-382 (1988)
- 8) Hylden JLK, Anton F, Nahin RL.-Spinal lamina I projection neurons in the rat: Collateral innervation of parabrachial area and thalamus. *Neuroscience* 28:27-37 (1989)
- 9) Kenshalo DR Jr. Anton F, Dubner R. The detection and perceived intensity of noxious thermal stimuli in monkey and human. *Journal of Neurophysiology* 62: 429-435 (1989)
- 10) Chudler EH, Anton F, Dubner R, Kenshalo DR Jr. Responses of nociceptive SI neurons in monkeys and pain sensations in humans elicited by noxious thermal stimulation - effect of interstimulus interval. *Journal of Neurophysiology* 63: 559-569 (1990)
- 11) Anton F, Peppel P, Handwerker HO. Central projections of trigeminal afferents innervating the nasal mucosa in the rat: a horseradish peroxidase study in the rat. *Neuroscience* 41: 617-628 (1991)
- 12) Anton F, Peppel P, Herdegen T, Leah JD. C-Fos like immunoreactivity in rat brainstem neurons following noxious chemical stimulation of the nasal mucosa. *Neuroscience* 41: 629-641 (1991)
- 13) Anton F, Peppel P, Euchner I, Handwerker HO. Controlled noxious chemical stimulation: responses of rat trigeminal brainstem neurons to CO₂ pulses applied to the nasal mucosa. *Neuroscience Letters* 123: 208-211 (1991)
- 14) Steen KH, Reeh PW, Anton F, Handwerker HO. Protons selectively induce lasting excitation and sensitization of nociceptors in rat skin. *Journal of Neuroscience*: 12(1): 86-95 (1992)
- 15) Anton F, Euchner I, Handwerker HO. Psychophysical examination of pain induced by defined CO₂pulses applied to the nasal mucosa. *Pain* 49: 53-60 (1992)
- 16) Peppel P, Anton F. Responses of rat medullary dorsal horn neurons following intranasal noxious chemical stimulation: effects of stimulus intensity, duration and repetition rate. *Journal of Neurophysiology* 70: 2260-2275 (1993)
- 17) Thomas DA, Anton F, Kenshalo DR Jr., Williams GM, Dubner R. Noradrenergic and opioid systems interact to alter the detection of noxious thermal stimuli and facial scratching in monkeys. *Pain* 55: 63-70 (1993)
- 18) Brecht S, Gass P, Anton F, Bravo R, Zimmermann M, Herdegen T. Induction of c-Jun and suppression of CREB transcription factor proteins in axotomized neurons of substantia nigra and covariation with tyrosine hydroxylase. *Molecular and Cellular Neurosciences*: 5(5): 431-441 (1994)
- 19) Ebersberger A, Tölle T, Anton F, Zieglgänsberger W. C-Fos-like immunoreactivity in rat brainstem neurons following noxious chemical stimulation of the nasal mucosa: effects of morphine, 5-HT₂ and 5-HT₃ antagonists.. *Brain Research*: 676: 336-342 (1995)
- 20) Geiss A, Varadi E, Steinbach K, Bauer HW, Anton F. Psychoneuroimmunological correlates of persisting sciatic pain in patients who underwent discectomy. *Neuroscience Letters*: 237(2-3): 65-68 (1997)
- 21) Rothermund K, Brandstädter J, Meiniger C, Anton F. Nociceptive sensitivity and control: hypo- and hyperalgesia under two different modes of coping. *Experimental Psychology*: 49(1): 57-66 (2002)

- 22) Geiss A, Rohleder N, Kirschbaum C, Steinbach K, Bauer HW, Anton F. Predicting the failure of disc surgery by a hypofunctional HPA axis: evidence from a prospective study on patients undergoing disc surgery. *Pain* 114:104-117. (2005)
- 23) Anton F. Chronic Stress and pain - a plea for a concerted research program. *Pain* 143(3): 163-164 (2009)
- 24) Streff A, Kühl LK, Michaux GP, Anton F. Differential physiological effects during tonic painful hand immersion tests using hot and ice water. *Eur J Pain* 14 (3), 266-272 (2010)
- 25) Kühl LK; Michaux GP; Richter S, Schächinger H, Anton F. Increased basal mechanical pain sensitivity but decreased perceptual wind-up in a human model of relative cortisolism. *Pain* 149 (3), 539-546 (2010)
- 26) Streff A, Michaux GP, Anton F. Internal validity of inter-digital web pinching as a model for perceptual diffuse noxious inhibitory controls- induced hypoalgesia in healthy humans. *Eur J Pain* 5 (1), 45-52 (2011)
- 27) Michaux GM, Magerl W, Anton F, Treede RD. Experimental characterization of the effects of acute stresslike doses of hydrocortisone in human neurogenic hyperalgesia models. *Pain* 153 (2), 420-428 (2012)
- 28) Juif PE, Anton F, Hanesch U. Pain behaviour and spinal cell activation due to carrageenan-induced inflammation in two rat strains with differential hypothalamic-pituitary-adrenal axis reactivity. *Physiol Behav* 105 (4), 901-908 (2012)
- 29) Geiss A, Rohleder N, Anton F. Evidence for an association between an enhanced reactivity of interleukin-6 levels and reduced glucocorticoid sensitivity in patients with fibromyalgia. *Psychoneuroendocrinology* 37 (5), 671-684 (2012)
- 30) Scheuren R, Anton F, Erpelding N, Michaux GP. Beep tones attenuate pain following Pavlovian conditioning of an endogenous pain control mechanism. *PLoS one* 9 (2), e88710 (2014)
- 31) Le Coz GM, Anton F, Hanesch U. Glucocorticoid-mediated enhancement of glutamatergic transmission may outweigh anti-inflammatory effects under conditions of neuropathic pain. *PLoS One* 2014; 9(3) DOI: 10.1371/journal.pone.0091393
- 32) Le Coz GM, Fiette C, Anton F, Hanesch U. Differential neuropathic pain sensitivity and expression of spinal mediators in Lewis and Fischer 344 rats. *BMC Neuroscience* 2014; 15(1): 35 doi:10.1186/1471-2202-15-35
- 33) Zell V, Hanesch U, Poisbeau P, Anton F, Darbon P. Plasma glucocorticoids differentially shape phasic and tonic GABA inhibition during early postnatal development in rat spinal lamina II. *Neurosci Lett* 2014; 578:39-43
- 34) Zell V, Juif PE, Hanesch U, Poisbeau P, Anton F, Darbon P. Corticosterone analgesia is mediated by the spinal production of neuroactive metabolites that enhance GABAergic inhibitory transmission on dorsal horn rat neurons. *Eur J Neurosci* 2014; 41(3): 390-397
- 35) Scheuren R, Sütterlin S, Anton F. Rumination and interoceptive accuracy predict the occurrence of the thermal grill illusion of pain. *BMC Psychology* 2014; 2(1), 22, doi:10.1186/2050-7283-2-22
- 36) Bustan S, Gonzalez-Roldan AM, Kamping S, Brunner M, Löffler M, Flor H, Anton F. Suffering as an independent component of the experience of pain. *Eur J Pain* 2015; DOI: 10.1002/ejp.709
- 37) Scheuren R, Duschek S, Schulz A, Sütterlin S, Anton F. Blood pressure and the perception of illusory pain. *Psychophysiol* 2016; DOI: 10.1111/psyp.12658
- 38) Scheuren R, Sütterlin S, Anton F. Vagally mediated heart rate variability promotes the perception of paroxysmal pain. *J Psychophysiol* 2016; DOI: 10.1027/0269-8803/a000175

- 39) Bossmann T, Brauner T, Lowak H, Anton F, Forster C, Horstmann T. Reliability of conditioned pain modulation for the assessment of endogenous pain control pathways. *Neurology, Psychiatry and Brain Research* 2016; 22 (3), 155-161
- 40) Van der Meulen M, Kamping S, Anton F. The role of cognitive reappraisal in placebo analgesia: an fMRI study. *Social Cognitive and Affective Neuroscience* 2017, DOI 10.1093/scan/nsx033
- 41) Van der Meulen M, Anton F, Petersen S. Painful decisions: how classifying sensations can change the experience of pain. *Eur J Pain* 2017, 21(9): DOI 0.1002/ejp.1061
- 42) Brunner M, Kamping S, Bustan S, Gonzalez-Roldan A, Anton F, Flor H. Assessing suffering in experimental pain models: psychological and psychophysiological correlates. *Zeitschrift für Psychologie* 2017, 225(1): 45-53
- 43) Le Coz GM, Genty J, Anton F, Hanesch U. Chronic social stress time-dependently affects neuropathic pain-relates cold allodynia and leads to altered expression of spinal biochemical mediators. *Front Behav Neurosci* (2017), <https://doi.org/10.3389/fnbeh.2017.00070>
- 44) Genty J, Tetsi-Nomigni M, Anton F, Hanesch U. Maternal separation stress leads to resilience against neuropathic pain in adulthood. *Neurobiology of Stress* 2017, DOI 10.1016/j.ynstr.2017.11.002
- 45) Bustan S, Gonzalez-Roldan AM, Schommer C, Kamping S, Löffler M, Brunner M, Flor H, Anton F. Psychological, cognitive factors and contextual influences in pain and pain-related suffering as revealed by a combined qualitative and quantitative assessment approach. *Plos One* (2018), <https://doi.org/10.1371/journal.pone.0199814>
- 46) Genty J, Tetsi Nomigni M, Anton F, Hanesch U. The combination of postnatal maternal separation and social stress in young adulthood does not lead to enhanced inflammatory pain sensitivity and depression-related behavior in rats. *Plos One* (2018), <https://doi.org/10.1371/journal.pone.0202599>
- 47) Löffler M, Kamping S, Brunner M, Bustan S, Kleinböhl D, Anton F, Flor H. The impact of controllability on pain and suffering. *Pain Reports* (2018), <http://dx.doi.org/10.1097/PR9.0000000000000694>

Book articles or chapters

- 48) Anton F, Kreh A, Reeh PW, Handwerker HO. Algesimetry using natural stimuli of long duration. In: Bromm B (Ed.): *Pain measurement in man*. Neurophysiological correlates of pain, Chapter 33, p. 455-461. Elsevier Science Publishers (1984)
- 49) Anton F, Handwerker HO, Kreh A, Reeh PW, Walter E, Weber E. Influence of acetylsalicylic and salicylic plasma levels on psychophysical measures of long standing natural pain stimuli. In: Fields HL, Dubner R, Cervero F (Eds.): *Advances in Pain Research and Therapy*, Vol.9:781-790 (1987)
- 50) Hylden JLK, Nahin RL, Anton F, Dubner R. Characterization of lamina I projection neurons: physiology and anatomy.. In: Cervero F, Bennett GJ, Headley PM (Eds.): *Processing of sensory information in the superficial dorsal horn of the spinal cord*. pp 113-128, Plenum Publ. Corp. (1989)
- 51) Anton F, Basbaum AI, Besson J-M, Dray A, Duggan AW, Fitzgerald DJ, Hamon MD, Handwerker HO, Post CT, Sandkühler J, Schaible H-G, Ward SJ, Weihe E, Wood JN. Discussions on the physiological and pharmacological bases of the transmission and control of nociceptive messages. In: Basbaum AI, Besson J-M (Eds.): *Towards a new pharmacotherapy of pain*. Dahlem Workshop Reports. Life Sciences Research Report 49. pp 105-120, Wiley & Sons (1991)
- 52) Anton F. Kapitel "Schmerzmessung" in "*Lehrbuch der Schmerztherapie*". Herausgeber: Prof. Dr. M. Zenz, Bochum, und Prof. Dr. I. Jurna, Homburg. Wissenschaftliche Verlagsgesellschaft. pp 35-44 (1993)

53) Waldvogel HH, Anton F. Von der Schmerzphysiologie zur Schmerztherapie. in: "*Analgetika, Antinozizeptiva, Adjuvantien-Handbuch für die Schmerzpraxis*", Herausgeber: Waldvogel HH, Springer Verlag, Heidelberg, Berlin, pp 3-174 (1996) (überarbeitete Neuauflage erschienen März 2001)

54) Geiss A, Engel R, Kirschbaum C, Rohleder N, Hellhammer DH, Anton F. Psychoneuroimmunologische Konzepte in der Schmerzchronifizierung. In: Hasenbring M, Frettlöh J, Schaub C (Hrsg): *Prävention der Schmerzchronifizierung: Zwischen Utopie und Notwendigkeit*, S.22, Lengerich: Papst Science Publishers (2001).