



Jacques NOËL

University Professor, class 1
Université Côte d'Azur
Nice, France

Born on 08 June 1965
58 years old, married, 3 children

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At the lab

Institut de Pharmacologie Cellulaire et Moléculaire
UMR 7275 CNRS - UCA
Team Ion channels and pain
660 Route des Lucioles
06560 Valbonne Sophia Antipolis
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Teaching at the Biological Engineering Department

Polytech' Nice-Sophia, University engineering school
Université Côte d'Azur
930 Route des Colles
BP145 06903 Sophia Antipolis Cedex
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Career experience

University Full Professor position, September 2010, in the Biological Engineering Department of the Polytech'Nice Sophia School of Engineering at the Université Côte d'Azur

Researcher at the Institute of Molecular and Cellular Pharmacology since 2005, in the team "Ion channels and pain", where I investigate the role of potassium channels and Acid Sensing Ion Channels in the somatosensory and nociceptive nervous systems.

Assistant Professor, September 1999, at the Faculty of Sciences of the University of Nice Sophia Antipolis.

Research assistant at the MRC centre for Synaptic Plasticity at the University of Bristol, UK, between 1996 and 1999, in the lab of Prof. Graham Collingridge, where I studied Glutamate receptors in synaptic plasticity and hippocampal synapse development.

Marie Curie fellowship, at the Scientific Institute San Raffaele, dipartimento di biotecnologie, Milan, Italy, between 1993 and 1996, in the lab of Prof. Jacopo Meldolesi, with Dr. Antonio Malgaroli, where I studied synaptic plasticity in the hippocampus.

PhD from the University of Paris-Sud Orsay, defended in March 1993. "Mechanisms of regulation and study of fluctuations in free cytosolic calcium concentration in isolated guinea pig hepatocytes". With honours. Supervisor Dr. Thierry Capiod. Inserm-UPS U442.

Research projects & Main scientific publications

Principal Investigator (PI) studying the role of potassium channels in sensory perception and pain at the Institute of Molecular and Cellular Pharmacologie of the CNRS (UMR 7275 CNRS). Recent project studies the impact of lipid diets composition on the peripheral sensory and nociceptive nervous system, and the role of Acid Sensing Ion Channel 3. My projects were funded by the ANR (ANR RANTES), FRC, SFETD, Sentinelle Nord with Laval University, Université Côte d'Azur Academy 3.

My areas of expertise are in neuroscience, pharmacology, electrophysiology, synaptic plasticity, peripheral and central mechanisms of nociception and behavioural studies on laboratory animals rat and mice.

Short list of the main scientific publications in peer-reviewed journals

<https://scholar.google.fr/citations?user=BANF6MIAAAAJ&hl=fr> (h index 29; citations G.Scholar +5000)

- 2023 A Negm, K Stobbe, S Ben Fradj, C Sanchez, A Landra Willm, M Richter, L Fleuriot, D Debayle, E Deval, E Lingueglia, C Rovere, J Noël. Acid-Sensing Ion Channel 3 mediates pain hypersensitivity associated with high fat diet consumption in mice. *Pain*.
- 2019 Busserolles J., Gasull X., Noël J. Potassium Channels and Pain. In *The Oxford Handbook of the Neurobiology of Pain*, ed. John Wood. Oxford University Press. UK.
- 2016 Marra S, Ferru-Clément R, Breuil V, Delaunay A, Christin M, Friend V, Seville S, Cognard C, Ferreira T, Roux C, Euler-Ziegler L, Noël J, Lingueglia E, Deval E. Non-acidic activation of pain-related Acid-Sensing Ion Channel 3 by lipids. *EMBO J.*, 35(4):414-28.
- 2016 S. Lolignier, D. Gkika, D. Andersson, E. Leipold, I. Vetter, F. Viana, J. Noël, J. Busserolles. New insight in cold pain: role of ion channels, modulation, and clinical perspectives. *Journal of Neuroscience* 36 (45), 11435-11439
- 2015 Lolignier S, Bonnet C, Gaudio C, Noël J, Ruel J, Amsalem M, Ferrier J, Rodat-Despoix L, Bouvier V, Aissouni Y, Prival L, Chapuy E, Padilla F, Eschalier A, Delmas P, Busserolles J. The Nav1.9 channel is a key determinant of cold pain sensation and cold allodynia. *Cell Reports*, 11(7):1067-78.
- 2015 François A, Schüetter N, Laffray S, Sanguesa J, Pizzoccaro A, Dubel S, Mantilleri A, Nargeot J, Noël J, Wood JN, Moqrich A, Pongs O, Bourinet E. The Low-Threshold Calcium Channel Cav3.2 Determines Low-Threshold Mechanoreceptor Function. *Cell reports*, 10 (3), 370-382.
- 2014 Pereira V, Busserolles J, Christin M, Devilliers M, Poupon L, Legha W, Alloui A, Aissouni Y, Bourinet E, Lesage F, Eschalier A, Lazdunski M, Noël J. Role of the TREK2 potassium channel in cold and warm thermosensation and in pain perception. *Pain* 155(12), 2534-2544.
- 2013 Devilliers M, Busserolles J, Lolignier S, Deval E, Pereira V, Alloui A, Christin M, Mazet B, Delmas P, Noël J, Lazdunski M, Eschalier A. Activation of TREK-1 by morphine results in analgesia without adverse side effects. *Nature communications* 4:2941.
- 2013 Hao J, Padilla F, Dandonneau M, Lavebratt C, Lesage F, Noël J, Delmas P. Kv1. 1 channels act as mechanical brake in the senses of touch and pain. *Neuron* 77 (5), 899-914.
- 2012 Delaunay A, Gasull X, Salinas M, Noël J, Friend V, Lingueglia E, Deval E. Human ASIC3 channel dynamically adapts its activity to sense the extracellular pH in both acidic and alkaline directions. *Proc. Natl. Acad. Sci USA* 109 (32), 13124-13129.
- 2011 Noël J, Sandoz G, Lesage F. Molecular regulations governing TREK and TRAAK channel functions. *Channels* (Austin), Sep 1;5(5):402-9.
- 2011 Descoeur J, Pereira V, Pizzoccaro A, Francois A, Ling B, Maffre V, Couette B, Busserolles J, Courteix C, Noël J, Lazdunski M, Eschalier A, Authier N, Bourinet E. Oxaliplatin-induced cold hypersensitivity is due to remodelling of ion channel expression in nociceptors. *EMBO Mol Med.*, 3(5):266-78.
- 2009 Noël J*, Zimmermann K*, Busserolles J*, Deval E, Alloui A, Diochot S, Guy N, Borsotto M, Reeh P, Eschalier A, Lazdunski M. The mechano-activated K⁺ channels TRAAK and TREK-1 control both warm and cold perception. *EMBO J.*, 28, 1308-1318. *co-first authors. Qualified 'Must Read' by the 'Faculty of 1000 Biology' (F1000 Factor 6.0) (<http://www.f1000biology.com/>).
- 2008 Deval E*, Noël J*, Lay N, Alloui A, Diochot S, Friend V, Jodar M, Lazdunski M, Lingueglia E. ASIC3, a sensor of acidic and primary inflammatory pain. *EMBO J.*, 27, 3047-3055. *co-first authors.

- 2006 Alloui A, Zimmermann K, Mamet J, Duprat F, **Noël J**, Chemin J, Guy N, Blondeau N, Voilley N, Rubat-Coudert C, Borsotto M, Romey G, Heurteaux C, Reeh P, Eschalier A, Lazdunski M. TREK-1, a K⁺ channel involved in polymodal pain perception. *EMBO J*, 25, 2368-2376.
- 2001 Fitzjohn S.M., Pickard L., Duckworth J.K., Molnar E., Henley J.M., Collingridge G.L., **Noël J**. An electrophysiological characterisation of long-term potentiation in dissociated hippocampal neurons. *Neuropharmacology*, 41, 693-699.
- 2000 Pickard L.*, **Noël J.***, Henley, J.M., Collingridge G.L., Molnar E. Developmental Changes in Synaptic AMPA and NMDA Receptor Distribution and AMPA Receptor Subunit Composition in Living Hippocampal Neurons. *J. Neurosci.*, 20 (21), 7922-7931* copremiers auteurs.
- 2000 Cho K., Kemp N., **Noël J**, Aggleton J.P., Brown M.W., Bashir Z.I. A new form of long-term depression in the perirhinal cortex. *Nature Neuroscience*, 3, 150-156.
- 1999 **Noël J**, Ralph G.S., Pickard L., Williams J., Molnar E., Uney J.B., Collingridge G.L., Henley J.M. Surface expression of AMPA receptors in hippocampal neurons is regulated by an NSF-dependent mechanism. *Neuron*, 23, 365-376. Citations > 300
- 1998 Nishimune A., Isaac J., Molnar E., **Noël J**, Nash S.R., Kidd F., Tagaya M., Collingridge G.L., Nakanishi S., Henley J.M. NSF binding to GluR2 regulates synaptic transmission. *Neuron*, 21, 87-97. Citations > 500

Responsibilities for research and teaching at University

Founder of the Master in Neuroscience at the University Cote d'Azur. Due to open in 2024.

Elected member of the CoNRS evaluation section 25 Molecular and cellular neurobiology, neurophysiology, 2021 - .

Elected member of the Scientific and Education Steering Committee of the Graduate School EUR Life of the Université Côte d'Azur, 2021 - .

Elected member of the Scientific Council of the Mediterranean Neuroscience Society (MNS), 2019 - .

Treasurer of the Mediterranean Neuroscience Society, 2023

Scientific Officer at the French Agency for the Evaluation of Higher Education and Research (AERES), 2014 - 2016, in charge of Steering (Conseiller Scientifique Pilotage) for the evaluation of neuroscience at the French Centre for the Evaluation of Research Units (Hcéres), 2016 - 2019. I contributed to the evaluation of research units in Neuroscience and Neurology and the evaluation of Masters Diploma and doctoral schools (11).

Director of the research Master in Life & Health Sciences at the University of Nice Sophia Antipolis, 2008 - 2012, and the Master program in Pharmacology, Physiopathology and Neuroscience 2006 - 2008 and 2012 - 2018.

Member of the educational committee of the international Euro-Mediterranean Master in Neurosciences - Online (EMN-Online) (Tempus and ERASMUS+) since 2009.

Head of neuroscience and pharmacology courses at the Polytech'Nice Sophia engineering school at the Université Côte d'Azur.

Head of the Professional Bachelor's degree in Biological Engineering Microscopy and Quality at the University of Nice Sophia Antipolis, 2005 - 2006.

Scientific society's membership

- Mediterranean Neuroscience Society
- Society for Neuroscience, USA
- Société des Neurosciences Françaises
- Federation of European Neuroscience Society (FENS)
- Société Française d'Etude et de Traitement de la Douleur

Scientific awareness to the lay public

Co-chairman of the Brain Awareness Week on the Côte d'Azur since 2014. Winner of the "Brain Awareness Week Excellence Award 2018" awarded by FENS and the DANA Foundation for Neuroscience (FENS meeting, Berlin). DANA Foundation Award for Brain Awareness Week 2014, 2015, 2016, 2017 and 2018. Organisation of Brain Awareness Week in Sherbrooke, Canada, 2017. Annual organisation of scientific culture events on the Brain on the French Riviera Côte d'Azur: +70 events and 9,000 participants. Multimedia broadcasting (+ 50 per year): YouTube, interviews/reports France 3 Côte d'Azur, Azur TV, Radio Bleue, RCF, Nice Matin, Facebook, Instagram, Tweeter.