Curriculum Vitae

General Information

Work Address	Institut des Neurosciences de Grenoble Centre de Recherche Inserm U.1216-UGA-CEA-CHU Bâtiment Edmond J. Safra - Chemin Fortuné Ferrini Université Joseph Fourier - Site Santé La Tronche 38042 GRENOBLE Cedex 9 - France e-mail: veronique.coizet@univ-grenoble-alpes.fr Tel : (33) (0)4 56 52 06 88
Home Address	15 chemin des sources, Appartement B41 38240 Meylan France tel: (33) (0)6 31 89 12 80
Date of Birth	March 26, 1972
	Two children (Emile, 26/10/98; Isaline, 03/03/03)

I completed my PhD in the Laboratory of Behavioral and Cognitive Neuroscience (LN2C, UMR 752, University Louis Pasteur, Strasbourg) on an animal model of Alzheimer disease. In humans, this disease is characterized by a progressive degeneration of cholinergic neurons localized in the septum innervating the hippocampus and associated by important memory impairments. We used a rat model of the disease to test different strategies to reduce and restore the cholinergic loss and subsequent behavioral deficits. I then became a post-doctoral research assistant with Peter Redgrave and Paul Overton in Sheffield (UK). My research focused in large part on the basal ganglia and related structures, especially sensori-motor structures from the brainstem. Two main questions have been approached during my post-doc. The first one concerns the role of visual short latency phasic responses of dopamine neurons while the second one was around the wider role of the basal ganglia. In a technical point of view, my post doc has allowed me to acquire much wider skills. The behavioral pharmacological technique learned during my PhD has been completed by those of neuroanatomy and electrophysiology.

I have been appointed an INSERM permanent research position at the Grenoble institute of neuroscience in 2009. My research project focused on the anatomical and functional link between the sensori-motor structures from the brainstem and the subthalamic nucleus. In Grenoble, I have established multi sites in vivo single unit and field potential recordings within this network and equipped the laboratories for all kind of sensory stimulations (visual, audition, pain …). These electro-physiological techniques are routinely combined with neuroanatomical tract tracing and immuno-histochemistry. I took advantage of my new working

environment favoring clinical and pre-clinical research to study this network in Parkinson's disease and animal models of this disease. This research combines electrophysiology with neuroimaging (functional magnetic resonance imaging) via well-established collaborative national and international collaborators.

Education

HDR Neurosciences	2019	University Grenoble Alpes
PhD. Neurosciences	2000	University of Strasbourg, France
D.E.A. Neurosciences	1996	University of Strasbourg, France
M.Sc. Cognitive Psychology	1995	University of Strasbourg, France
Licence Psychology	1994	University of Strasbourg, France
D.E.U.G. Psycholgy	1993	University of Strasbourg, France
High School Diploma	1990	Académie de Besançon, France

Teaching Experience

Teaching

2015-	Université Grenoble Alpes, UFR Biologie, France Master 1, lecture on « Brain anatomy ».
2007	University of Sheffield, School of Medicine, United-Kingdom Second Year, Tutorials on Human Brain Dissection.
2006-07	University of Sheffield, Department of Psychology, United-Kingdom Third Year, lectures on "Movement disorders"

University of Sheffield, Department of Psychology, United-Kingdom
Second Year, lectures on “Brain Anatomy” and “Visual System”.

University of Sheffield, Department of Psychology, United-Kingdom
Master Computational Neuroscience, lecture on “Visual System”.

2005-07 University of Sheffield, Department of Psychology, United-Kingdom
Third Year, lecture on “Parkinson disease".

1998 University of Strasbourg, Department of Psychology, France
D.E.U.G. 1 Psychology, Tutorials

University of Strasbourg, Department of Psychology, France
M.Sc Cognitive Psychology, “learning and memory”

Research Supervision

2023
Mathilde Roux, PhD Biotechnology
Rémi Souternon, Master 2 Biology
Carla Burnet-Merlin, Master 1
Emeline Perez, Master 1

2022
Racha Al Tannier, PhD
Arnaud Pautrat, Post-doc
Nacera El bakdouri, Research Engineer
Laurène Villemey, Master 2 Biology
Mathilde Roux, Master 2 Biotechnology
Rémi Souternon, Master 1 Biology

2021
Racha Al Tannier, PhD
Arnaud Pautrat, Post-doc
Nacera El bakdouri, Research Engineer
Antoine Paccard, Technician
Rémi Souternon, Technician
Juliette Contadini, Master 1 Biology
Capucine Gros, Master 1 Biology

2020
Racha Al Tannier, PhD
Arnaud Pautrat, Post-doc
Nacera El bakdouri, Research Engineer
Antoine Paccard, Technician

2019	Racha Al Tannier, Master 2 Biology Andrea Zarrate, Master 1 Biology Antoine Paccard, Technician
2018	Estelle Vendramini, Master 2 Biology Antoine Paccard, Technician
2017	Estelle Vendramini, Master 1 Biology Anne-Claire Lestoille, Master 1 Medical school Dalila Gahfez, Master 1 Medical school
2016	Gwenoline Damier, Master 1 Medical school
2015-2019	Arnaud Pautrat, PhD
2015	Arnaud Pautrat, Master 2 Biology Marie Bugnon, Master 1 Medical school
2014	Margaux Barthelemy, Master 1 Biology Benjamin Naffrechoux, Master 1 Medical school
2013-2017	Emmanuelle Bellot, PhD
2013	Rolland Marta, Master 2 Biology
2012	Rolland Marta, Master 1 Biology
2007-2008	Lauren Haye, PhD (with Prof. Peter Redgrave) Craig Bertam, PhD (with Dr Paul Overton)
2006	Craig Bertram, Third year Project (With Prof. Peter Redgrave)
2005	Joanna Ledger, Third year Project (With Prof. Peter Redgrave).
2002-2005	Ellie Dommett, PhD (With Prof. Peter Redgrave and Dr. Paul Overton).
2002	Jody Aked, MS (With Dr. Paul Overton).

Formations

1999 - 2009 Post-doctoral position. Department of psychology, University of Sheffield with Peter Redgrave and Paul Overton on the following projects:

1- The tectonigral projection: a potential source of short latency visual input to dopaminergic neurons.
2 - Short-latency auditory and somatosensory input to dopaminergic neurons.
3 - Subcortical loops through the basal ganglia

Grant and Fellowship

2022-2026 ANR PPNet. Coordinator: Michel Barrot (Strasbourg), Network insight of nociception and pain in Parkinson's disease. PI at the GIN (650 k€).

2022- my Health Companions, Cross Disciplinary Tools, Idex University Grenoble Alpes (Partner) (500 k€).

2020-2022 Fondation de France – Call Parkinson's disease (Coordinator) Pain Hyper- and hypo sensitivity in Parkinson's disease: link with the dopaminergic systems. Partner Michel Barrot (Strasbourg) (163 k€).

2020-2023 Centre of Excellence in Neurodegeneration (CoEN) (Coordinator) Can a dysfunction of the basal ganglia and related low level nociceptive network underlie some central neuropathic pain symptoms in Parkinson's disease? (650 k€).

2020-2022 Human Brain Project (wp2-2020) Partner of Olivier David (PI) - fMRI in animal models of brain state transitions (130 k€).

2019-2021 SATT-Linksium – Partner of TIMC Institute (PI) – ENDOBIOCRINE. Implantable source of molecular hydrogen (291 k€).

2018-2019 Subvention France Parkinson – Neuroadaptative mechanisms characterization within the parabrachial nucleus in a rodent model of Parkinson's disease. PI (18k€).

2017- H2020 European Research Council (ERC) – Proof of Concept (PoC). "EXCITATOR: Active probing of brain excitability by electrical micro-stimulations for drug discovery". Partner of O. David (PI) (150 k€).

2017-2019 Fonds innovation Région Rhône Alpes – Excilab. Partner of O. David (PI) (96 k€).

2016 AGIR – POLE – Grenoble Alpes University – Subcortical sensory dysfunction in Parkinson's disease, with Michel Dojat (15 k€).

2015-2018 ADR 2015 Communauté de Recherche Académique.
« Qualité de Vie et Vieillissement » - PhD fellowship – PI (100 k€).

2014 Award - Fondation de l'Avenir « Emerging team » - « The superior colliculus in Parkinson's disease: a possible biomarquer? » with Elena Moro (MD).

2013 -2016 Université Joseph Fourier – AGIR funding- Visual deficits in Parkinsons's disease with Elena Moro (PI) (115 k€).

2010 - 2011 Fondation de France. Project grant – Visual deficits in Parkinson's disease. PI (31 k€).

2007-2008 The Wellcome Trust, with Prof. Peter Redgrave and Dr. Paul Overton – project grant and post-doctoral position – The subcortical loops through the basal ganglia.

2006 BBSRC, with Dr. Paul Overton and Prof. Peter Redgrave – project grant and post-doctoral position – Short latency auditory and somatosensory input to dopamine cells.

2005 The Wellcome Trust VIP award

2002-2005 The Wellcome Trust, with Prof. Peter Redgrave and Dr. Paul Overton – project grant and post-doctoral position – The tectonigral projection: a potential source of short latency visual input to dopaminergic neurons.

Invited Talks

- University of Sheffield (2000) Department of Psychology. Invited seminar
- University of Sheffield (2003) Department of Biomedical Science. Invited seminar
- University of Provence (2005) Marseille I, Laboratory of Neurobiology and Cognition. Invited seminar
- Parkinson Disease Association (2006), Sheffield. Invited seminar.
- IBAGS, 9th Triennial Meeting of the International Basal Ganglia Society, Egmond aan Zee, The Netherlands, 2nd-6th September 2007. "The tecto-subthalamic projection: a source of short latency visual input to the subthalamic nucleus in plenary session entitled "Respecting your elders: Why subcortical connections with the basal ganglia are important". Invited conference.

- School of medicine, University of Grenoble, “Les Vendredi de la Neurology” (2010). Invited seminar.
- COST-SYRA - Emerging applications of microbeams - 3-4 March, 2016 - Milano, Italy. “Microbeam irradiation for functional investigations of neuronal networks, pre-clinical and clinical perspectives”. Invited conference.
- University of Oxford (2016), MRC Brain Network Dynamics Unit, Prof Pete J. Magill. Invited seminar.
- SOFMA CGB – Nice, 21 septembre 2019. Invited conference.
- Institut de Neurosciences des Systèmes, Marseille, 7 novembre 2019. Invited seminar.
- Réseau Français de Recherche sur la douleur, Bordeaux, 13-14 mars 2020. Invited conference.
- SFETD - Un nouveau réseau cérébral relié à la douleur chronique dans la maladie de parkinson – 27-29 Novembre 2019, Strasbourg. Invited conference.
- INCI - Institute of Cellular and Integrative Neuroscience, Team Neuroanatomy, Pain and Psychopathology Kaufling Jennifer. Invited seminar.
- Neurofrance, 19-21 mai 2021. Invited conference.
- Interview pour l’Association Fédérative Nationale des Étudiant.e.s Universitaires Scientifiques (AFNEUS) pour le projet projet « Femmes En Sciences » 21 mai 2021.
- Table ronde « Sciences : un domaine de femmes » 26 juin 2021.
- Sommet francophone de la recherche sur la douleur, organisé par le centre Alan-Edwards de recherche sur la douleur et le réseau québécois de la recherche sur la douleur. 16-17 septembre 2022, Montréal, Québec. Invited conference.

Publications

1. Pautrat A, Gimenez U, Serduc R, Studer F, Braeuer-Krisch E, Esteve F, Lahrech H, Overton P.G, Bastin J, David O and **Coizet V** (in preparation) The subthalamic nucleus auditory responses: habituation, sensitization and multi-sensory integration.

2. Pautrat A*, Al Tannir R*, Perney-Galley K, Sinniger V, Overton PG, David O and **Coizet V** (2023) Altered parabrachial nucleus nociceptive processing may underlie central pain in Parkinson’s disease. Accepted in NPJ Parkinson
   * these authors contributed equally to this work.

3. Coizet V, Al Tannir, Pautrat A and Overton P.G. (2023) Separation of channels subserving approach and avoidance/escape at the level of the

basal ganglia and related brainstem structures. Accepted in Current Neuropharmacology

4. Nicolas Vautrelle*, **Veronique Coizet***, Mariana Leriche, Lionel Dahan, Jan M. Schulz, Yan Feng Zhang, Abdelhafid Zeghbib, Paul G. Overton, Enrico Bracci, John N.J. Reynolds and Peter Redgrave (2023) Sensory reinforced corticostriatal plasticity. * these authors contributed equally to this work. Accepted un Current Neuropharmacology.

5. Al Tannir R, Pautrat A, Baufreton J, Overton PJ and **Coizet V** (2023) The subthalamic nucleus: a hub for sensory control via short three-lateral loop connections with the brainstem? Current Neuropharmacology, 21(1):22-30.

6. Bellot E, Kauffmann L, Coizet V; Meoni S, Moro E and Dojat M (2022) Effective connectivity in subcortical visual structures in de novo Patients with Parkinson's Disease. Accepted in Neuroimage.

7. Gronlier E, Vendramini E, Volle J, Wozniak-Kwasniewska A, Antón Santos N, **Coizet V**, Duveau V, David O (2021) Single-pulse electrical stimulation methodology in freely moving rat. Accepted in Journal of Neuroscience Methods.

8. Goutaudier R, **Coizet V**, Carcenac C, Carnicella S (2020) Compound 21, a two-edged sword with both DREADD-selective and off-target outcomes in rats. PLoS One. 15(9):e0238156.

9. **Coizet V** and Overton PG (2020) The neuropathological basis of anxiety in Parkinson's disease. Medical Hypotheses. 144:110048.

10. Barbier M, Chometton S, Pautrat A, Miguet-Alfonsi C, Peterschmitt Y, Datiche F, Gascuel J, Fellmann D, **Coizet V**, Risold P-Y (2020) Basal ganglia like organization of an insular cortex-central amygdala-hypothalamic network mediating feeding behavior. PNAS. 117(27):15967-15976.

11. Becq GJ-PC, Habet T, Collomb N, Faucher M, Delon-Martin C, **Coizet V**, Achard S, Barbier EL (2020) Under anesthesia, functional connectivity is preserved but reorganized. Neuro-image. 219:116945.

12. Moro E, Bellot E, Meoni S, Pellissier P, Hera R, Scelzo E, Dojat M, **Coizet V** (2020) Visual dysfunction of the superior colliculus in de novo Parkinsonian patients. Annals of Neurology 87(4):533-546

13. Goutaudier R, **Coizet V**, Carcenac C and Carnicella S (2019) DREADDs: the power of the lock, the weakness of the key. Favoring the pursuit of

specific conditions rather than specific ligands, eNeuro, 6(5) ENEURO.0171-19.2019.

14. Sherdil A; **Coizet V**, Pernet-Gallay K, David O, Chabardes S and Piallat B (2019) Implication of anterior nucleus of the thalamus in mesial temporal lobe seizures. Neuroscience, pii: S0306-4522(19)30424-5.

15. Pautrat A, Rolland M, Barthelemy M, Baunez C, Sinniger V, Piallat B, Savasta M, Overton PG, David O, **Coizet V** (2018) Revealing a novel nociceptive network that links the subthalamic nucleus to pain processing. Elife, pii: e36607. doi: 10.7554/eLife.36607.

16. Fernandes J, Vendramini E, Miranda A, Silva C, **Coizet V**, David O and Mendes PM (2018) Design and performance assessment of a solid-state microcooler for thermal neuromodulation, Micromachines, 27;9(2). pii: E47.

17. **Coizet V**, Heilbronner, S, Carcenac C, Mailly P, Lehman J, Savasta M, David O, Deniau J-M, Groenewegen H.J. and Haber S. N. (2017) The Rat prefronto-striatal and prefronto-thalamic bundles analysed in 3D: Evidence for a topographical organization. The journal of Neuroscience, 37(10):2539-2554.

18. Fouchard A, **Coizet V**, Sinniger S, Clarençon D, Karin PG , Bonnet S, David O (2017) Functional monitoring of peripheral nerves from electrical impedance measurements. Journal of Physiology (Paris), 110(4 Pt A):361-371.

19. Bellot E., **Coizet V.**, Moro E., Knoblauch K. and Dojat M. (2016) Effect of aging on low luminance contrast processing in humans, Neuroimage 139:415-426.

20. Etiévant A., Oosterhof C., Bétry C., Abrial E., Novo-Perez M., Rovera R., Scarna H., Devader C., Mazella J., Wegener G., Sánchez C., Dkhissi-Benyahya O., Gronfier C., **Coizet V.**, Beaulieu J.M., Blier P., Lucas G., Haddjeri N. (2015) Astroglial control of the antidepressant-like effects of prefrontal cortex deep brain stimulation, EBio Medicine, 2(8):896-906.

21. Rolland M., Carcenac C., Overton P.G., Savasta M. and **Coizet V**. (2013), Enhanced visual responses in the superior colliculus and subthalamic nucleus in an animal model of Parkinson's disease, Neuroscience, 12;252:277-88.

22. Redgrave P., **Coizet V.**, Comoli E., Mchaffie J.G., Leriche-Vazquez M., Vautrelle N., Hayes L.M. and Overton P.G., Interactions between the midbrain superior colliculus and the basal ganglia, Frontier in Neuroanatomy Review, (2010) 4: pii 132.

23. **Coizet V**., Dommett E.J., Klop E.M., Redgrave P and Overton P.G., The parabrachial nucleus is a critical link in the transmission of short latency nociceptive information to midbrain dopaminergic neurons, **Neuroscience** (2010) 168(1):263-72.

24. **Coizet V**, Graham J, Moss J, Bolam P, Savasta M, McHaffie J, Redgrave P and Overton P, Short-latency visual input to the subthalamic nucleus is provided by the midbrain superior colliculus. **Journal of Neuroscience**. (2009) 29(17): 5701-09.

25. May PJ, McHaffie JG, Stanford TR, Jiang H, Costello MG, **Coizet V**, Hayes L;, Haber SN and Redgrave P, Tectonigral Projections in the Primate: A Pathway for Pre-Attentive Sensory Input to Midbrain Dopaminergic Neurons. **European journal of Neuroscience** (2009) 29(3):575-87.

26. Gowan JD, **Coizet V**, Devonshire IM and Overton PG, D-Amphetamine depresses visual responses in the rat superior colliculus: a possible mechanism for amphetamine-induced decreases in distractibility. **Journal of Neural Transmission** (2008) 115(3): 377-87.

27. **Coizet V**, Overton PG and Redgrave P, Collateralisation of tectonigral pathway with major ouptut projections of superior colliculus in rat. **Journal of Comparative Neurology** (2007) 500(6):1034-49.

28. Redgrave P, **Coizet V**. (2007) Brainstem interactions with the basal ganglia.**Parkinsonism and Related Disorder**. 13 Suppl 3:S301-5. Review.

29. **Coizet V**, Dommett E, Overton PG and Redgrave P, Nociceptive responses of dopaminergic neurones modulated by experimental manipulations of the superior colliculus in rat. **Neuroscience** (2006) 139(4):1479-93.

30. McHaffie JG, Jiang H, May PJ, **Coizet V**, Overton PG, Stein BE and Redgrave P, A direct projection from superior colliculus to substantia nigra pars compacta in the cat. **Neuroscience** (2006) 138(1):221-34.

31. McHaffie JG, Stanford TR, Stein BE, **Coizet V** and Redgrave P, Subcortical loops through the basal ganglia. **Trends in Neuroscience** (2005) 28 (8): 401-407.

32. Aked J., **Coizet V**, Clark D and Overton PG., Local injection of a glutamate uptake inhibitor into the ventral tegmental area produces sensitization to the behavioural effects of d-amphetamine, **Neuroscience** (2005) 134 (2): 361-367.

33. Dommett E*, **Coizet V*,** Blaha CD, Martindale J, Lefebvre V, Walton N, Mayhew JEW, Overton PG and Redgrave P, How visual stimuli activate dopaminergic neurons at short latency. **Science** (2005) 307 : 1476-1479. * these authors contributed equally to this work.

34. Comoli E, **Coizet V**, Boyes J, Bolam P, Canteras NS, Quirk RH, Overton PG and Redgrave P, A direct projection from superior colliculus to substantia nigra for detecting salient visual events. **Nature Neuroscience** (2003) 6 (9): 974-980.

35. **Coizet V**, Comoli E, Westby GWM and Redgrave P, Phasic activation of substantia nigra and the ventral tegmental area by chemical stimulation of superior colliculus : An electrophysiological investigation in rat. **European Journal of Neuroscience** (2003) 17 (1) : 28-40.

Book chapters

1. Redgrave P, Coizet V, Dommett E, Comoli E and Overton PG (2006) Sensory control of dopaminergic neurones. In: Recent breakthroughs in basal ganglia research, Bezard E. (ed.), Nova Science Publishers: New York.

2. Phasic dopamine signaling and basal ganglia function. Redgrave P., Coizet V. and Reynolds J.N. In: Handbook of basal ganglia structure and function. Eds. Steiner, H and Tseng K.Y. 2010, pp 549-560, Academic Press, Burlington, MA.

Research expeditions

- Neuro-anatomy of the non-human primate with Suzanne Haber – University of Rochester, Rochester, USA

- Technique of Electron microscopy with Paul Bolam – University of Oxford, Oxford, United-Kingdom

Professional activity

- University: External examiner for Vivas in Neuroscience

- Journal: - Reviewer for:
  Nature Communications,

Cortex,
Brain,
Neuroscience,
NPJ Parkinson's disease nature,
Movement disorders,
Plos one,
Brain Research
Cell Reports

- Review editor on the editorial board of Frontiers Pharmacology and Frontiers neuroscience.
- Section Editor of Current Neuropharmacology

- Comity: President of the Grenoble ethic comity
  Member of the Grenoble Animal Well Being comity
  Elected representative of lecturers / researchers / clinician corporation in the Grenoble institute of neuroscience (
  Member of the scientific comity of the "Association France Parkinson"