

FRM BIOGRAPHICAL SKETCH: JULIEN BASTIN

Last name, First name: BASTIN, JULIEN	Date of birth: 16/04/1980	ORCID iD: 0000-0002-0533-7564	Current position : DR2- Inserm
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EDUCATION (add/delete rows as necessary)

Institution and location	Degree	Completion date	Field of study
Inserm U1216, Univ. Grenoble Alpes	HDR	11/2014	Invasive electrophysiology and computational psychiatry
UMR CNRS7287, Aix-Marseille II	PhD	09/2006	Integrative neuroscience (behaviour and modelling)

1- Summary of the scientific background

One of the main goals of neuroscience is to discover the mechanisms underlying the functioning of the human brain and to develop methods for repairing pathological brain damage. One of the keys to understanding its functioning is to study the electrical activity of neuronal populations. For obvious ethical reasons, the existing work in this field is mainly based on animal research as research in humans is hindered by the limited temporal/spatial resolution of classic neuroimaging techniques. My team aims at overcoming these limitations by developing direct human brain electrophysiological/stimulation studies. Such rare data can only be obtained by performing experiments in patients with refractory neuropsychiatric diseases requiring the invasive clinical treatments such as subthalamic deep brain stimulation (in obsessive-compulsive disorder) or resection surgery (in epilepsy). I was an assistant professor during 15 years (MCU position from 2007-2022). I obtained an excellence chair (2016) that doubled the time I could dedicate to research, and this allowed me to be awarded by (i) an ANR-JCJC thanks to which (2018), (ii) recent high visibility publications begin to aggregate (Senior author: Nature Comms 21;23; eLife 22; Jama Psychiatry 23), (iii) I obtained an Inserm label for my team in 2021), (iv) I managed to get an Inserm research director position last year (DR2 in 2022). At the fundamental level, our projects combine cognitive paradigms, behavioral data, computational modeling and invasive experiments from neuro-psychiatric patients to offer invaluable data to better understand human motivation and decision-making processes. At the clinical level, the team aims at better anticipating post-surgical cognitive impairments in epilepsy and at improving the clinical efficacy of deep brain stimulation for patients with resisting obsessive compulsive disorders.

2- Positions and scientific appointments

2022 : DR2 Inserm, Grenoble institut des neurosciences

2021: Inserm team leader "Brain, behavior and neuromodulation"

2007-2022: MCU at Univ. Grenoble Alpes (Grenoble institut des neurosciences)

2006-2007: Post-doc at Collège de France, LPPA (physiologie de la perception de l'action, Collège de France ; supervision by Alain Berthoz and Guy Orban)

3- Honors and Awards (add/delete row as necessary)

2013 2017 2021	PEDR/PES (scientific excellence and doctoral supervision prizes)
2022-2026	RIPEC C3 (competitive scientific excellence grant from Inserm)
2016-2019	Chaire Institut Universitaire (project WISDOM)

4- Supervision of students and postdoctoral fellows during the last 10 years, please list the PMIDs of the publications produced during their PhD, postdoc.

6 PhD defended.

2011-14: D. Benis (PMIDs: 26796212, 27745848, 23761907, 24368260; first author in Neuroimage and Cortex)

2014-17: M. Gueguen (PMIDs: 34099678, 26796212; first author in Nature Communications 2021)

2017-21: R. Cecchi (PMID: 35822700: first author in eLife 2022)

2020-23: M. Laquitaine (under review for Nature Comms)

2020-23: A. Pouchon (PMID: 37591352): first author in Journal of affective disorders 2023

PI

2020-23: A. Kist (2 papers are in prep. For 2024)

2 ongoing PhD.

2021-2024: C. Baratin

2021-2024: E. Blouzard (PMID: **37043223**; first author in *Jama Psychiatry*)

2 post-doc fellows supervised:

2021-2022: A. Collomb-Clerc (PMID: 37848435), first author in *Nature Communications* 2023

2019-2020: E. Combrisson (PMID: 33301439, 35660460 + 1 *eLife* 2023 in press)

5- Major grants obtained over the last 10 years (specify if coordinator, principal investigator or partner and the starting – finishing dates of the grants)

PI for three regional/university projects: **315 k€** (PhD funding(s) on scientific projects)

ANR-Idex-UGA: 2020-23 (smart-DBS: 105 k€); 2021-2024 (Motischiz: 110 k€)

1 ADR funded by region rhônes alpes (2014-17: 100 k€)

PI (ANR JCJC): 2018-2023: **285 k€**

Partner (ANR calls): > **1 M€** in the field of (1) *Epilepsy and cognition*: 2022-26 (EPICOG: 344 out of 585 k€ for the team); 2019-24 (Causal: 120 / 600 k€); 2014-19 (Force: 200/565 k€) or (2) *OCD and cognition*: 2024-2028 (NEUROCD: 350/590 k); 2014-19 (Physiobs: 235/590 k€)

PI of European calls: 2024-2026 (Ebrains: 37 M€ in total; **150 k€** for the team)

PI Equipment-call: **260 k€** (related to this FRM call: amplifier to record human single-cell data). PI: FRC-Neurodon (2022): **140 k€**; UGA-Idex MAHFO (2022): **120 k€**

6- Major invited conferences (specify if keynote lectures, lecture during symposium, etc.) over the last 10 years

2022 (congress and conf. organization): GIN-Brain and Mind Institute workshop: "From neuronal circuits to brain health: strengthening the Grenoble-Geneva- Lausanne network of excellence"

2022: Workshop MICROMACRO (Cerco, Toulouse): Symposium "Micro-macro electrodes in epilepsy and human cognition": "Intracerebral correlates of value-based decisions", (Toulouse, FR)

2020: Biomag2020: is the most famous international conference on biomagnetism (MEG): Symposium "Time-resolved cortico-subcortical connectivity in patients with deep brain recordings": "Theta rhythm in the prefrontosubthalamic circuit: insights from MEG-LFP" (Birmingham, UK)

2018: Natural Intelligence at the heart of Artificial Intelligence (invited conference to prepare the MIAI call for which Grenoble university was successful): "Reinforcement learning process, the brain and artificial intelligence" (Grenoble, FR)

2017: Workshop on Intracranial Recordings in humans: Epilepsy,DBS (Paris, FR)

2014: Invited two weeks in Laboratory of Neural Circuits, Santiago, Chili: oral presentation "Dynamics of decision making processes"

2013: Congrès de la société des neurosciences française, Symposium « From physiological to pathological neuronal oscillations»: "The role of subthalamic nucleus oscillations for executive control in obsessive compulsive disorder" (Lyon, FR)

7- Other activities (executive board, teaching, memberships in panels or individual scientific reviewing activities, ...)

2012-2016: Elected member of CSS Inserm Neurosciences

2016-now: Member of the steering committee of the doctoral school (Ecole Doctorale Grenoble cognition)

2017-2022: Member of the steering committee of the Université (UFR-STAPS)

2020-now: Member of the steering committee of the laboratory (GIN, Inserm U1216)

2022-2026: ITMO Neuroscience nominee for the CSS Inserm Neuroscience

2023-now: Member of the scientific committee of the Labex Cercog (Labex UGA)

Reviewer for *Brain*, *Journal of Neuroscience*, *Neuroimage*, *Cortex*, *Cerebral Cortex*, *Communication Biology*...

Since 2007: Teaching in Neuroscience, biology, psychology and statistics (>1000 hours over the last 15 years, i.e. >100 h/year). Since I am DR2 Inserm, I teach about 20 hours/year.