

## CURRICULUM VITAE

### 1. PERSONAL INFORMATION

Family name, first name: Jabaudon, Denis

Researcher unique identifier (ResearcherID): B-8802-2014 ; <http://orcid.org/0000-0003-2438-4769>

### 2. EDUCATION

- 1996-2000 MD, PhD, Brain Research Institute, University of Zurich, Switzerland. Thesis director: Prof. Beat Gähwiler.
- 1995-1996 Masters in Molecular Biology and Neurosciences, Lausanne University, Switzerland
- 1989-1995 Medical Degree, Lausanne University, Switzerland.
- 1987-1989 Scientific Baccalaureate, La Tour de Peilz, Switzerland.

### 3. EMPLOYMENT HISTORY

#### Current

- 2023- Associate Professor, Université Paris Cité.
- 2015- Full Professor, Dept. Basic Neurosciences, Faculty of Medicine, Geneva University.
- 2009- Attending Physician (Médecin Hospitalo-Universitaire), Neurology FMH, Dept. of Clinical Neurosciences, Geneva University Hospital (HUG).

#### Past

- 2009-15 Assistant Professor at the Dept. Basic Neurosciences, Faculty of Medicine, Geneva University.
- 2008-09 Chef de Clinique, Department of Neurology, Geneva University Hospital (HUG).
- 2008-09 Junior Group Leader ("Chef de Clinique Scientifique"), Dpt. of Basic Neurosciences, Faculty of Medicine, Geneva University.
- 2004-08 Postdoctoral Research Fellow, Harvard Medical School, Cambridge MA, USA, Lab. Prof. Jeffrey Macklis.
- 1999-04 Clinical Neurology Resident, Geneva U. Hospital (HUG) and Lausanne U. Hospital (CHUV), *Program Head*: Prof. Theodor Landis.

### 4. INSTITUTIONAL RESPONSIBILITIES

- 2018- Director, Dept. of Basic Neurosciences, Faculty of Medicine, University of Geneva
- 2017-22 Director, Geneva University Neurocenter.
- 2017- Council member, Neuroscience teaching unit ("PEC")
- 2016-18 Member of the "Relève et Recherche" Council, Faculty of Medicine, Geneva University.
- 2011-15 Member of the Faculty Council "Conseil Participatif", Faculty of Medicine, Geneva University.

### 5. AWARDS AND HONORS

- 2023 Roger De Spoelberch Prize
- 2022 Krieg Cortical Discoverer Award
- 2022 Joseph Altman Award in Developmental Neuroscience
- 2020 ERC Advanced GRANT
- 2017 Max Cloëtta Prize
- 2014 Freedman Award from the Brain and Behavior Foundation (NARSAD) for « Exceptional Basic Research in Neuroscience».
- 2014 Robert Bing Prize from the Swiss Academy of Medical Sciences.
- 2014 Pfizer Research Prize, Basic Neuroscience, with co-authors Andres De La Rossa and Camilla Bellone.
- 2012 Leenaards Foundation Award.
- 2011 NARSAD (Brain and Behavior Research Foundation) Young Investigator Award.
- 2010 Gertrud von Meissner Research Award (for research in developmental neurosciences).
- 2009 Swiss National Science Foundation (SNF) Professor Grant.
- 2000 Honors for MD-PhD thesis.
- 1997 MD-PhD Fellowship, SNF.

## MAJOR SCIENTIFIC ACHIEVEMENTS

My research interest is in the input-dependent and genetic mechanisms that control the developmental assembly of forebrain neurons into circuits. Specifically, my work focuses on identifying the gene expression programs that enable distinct subtypes of neocortical and thalamic neurons to assemble into specific functional circuits, and understanding how sensory experience regulates these differentiation programs during development.

Towards this aim, we have been able to genetically re-engineer specific neuronal circuits by reprogramming postmitotic cortical neurons *in vivo* (**De La Rossa et al., Nature Neuroscience 2013**). Conversely, we have shown that external stimuli determine neuronal diversity in select visual circuits (**Golding et al., Neuron 2014**), and that thalamocortical input acts to instruct the identity of their postsynaptic cortical partners during development (**Pouchelon et al., Nature 2014**). Likewise, descending input onto thalamocortical neurons instruct their genetic identity (**Frangeul et al., Nature 2016**). Genetic and input-dependent processes are thus tightly intertwined during circuit assembly. We have recently been able to isolate specific subtypes of neuron as they are being born and identify their developmental transcriptional programs (**Telley et al., Science 2016; Telley et al. Science 2019**). This latter work revealed a dynamic developmental transcriptional matrix onto which input-dependent factors can act to determine final neuronal identity. Recently we have shown that beyond strictly genetic programs, bioelectrical parameters are critical to define the fate of progenitors of the neocortex, further emphasizing the cross-talk between extrinsic and intrinsic factors at play during development (**Vitali et al., Cell 2018**). Likewise, dynamic differences in the expression levels of a largely generic set of genes, rather than fundamental differences in the identity of developmental genetic programs, may account for the emergence of intra-type diversity in cortical neurons (**Klingler et al., Nature 2021**). Finally, we have shown that apical progenitors are temporally plastic and can re-enter past molecular, electrophysiological and neurogenic states when exposed to an earlier-stage environment by sensing dynamic changes in extracellular Wnt (**Oberst et al., Nature 2019**). Together, these findings have enabled us to understand how input-dependent and cell-intrinsic factors interact during circuit assembly in the mammalian neocortex.

## RESEARCH OUTPUT

### 1. Publications in peer-reviewed journals

Past five years only. Full publication list available at <https://goo.gl/hq7u1j> or <http://orcid.org/0000-0003-2438-4769>

1. Santinha AJ, Klingler E, Kuhn M, Farouni R, Lagler S, Kalamakis G, Lischetti U, **Jabaudon D**, Platt RJ. (2023). AAV-mediated single-nucleus CRISPR screening of DiGeorge syndrome in vivo. **Nature**, 371(6527), eaba4517. <https://doi.org/10.1126/science.aba4517>.
2. Gomez L, Cadilhac C, Prados J, Mule N, **Jabaudon D**, Dayer A. (2023) Developmental emergence of cortical neurogliaform cell diversity. **Development**, 150(15):dev201830. doi: 10.1242/dev.201830.
3. Pipicelli F, Baumann N, Di Giaimo R, Forero-Echeverry A, Kyrousi C, Bonrath R, Maccarrone G, **Jabaudon D**, & Cappello, S. (2023). Non-cell-autonomous regulation of interneuron specification mediated by extracellular vesicles. **Science advances**, 9(20), eadd8164. <https://doi.org/10.1126/sciadv.add8164>
4. Marcy G, Foucault L, Babina E, Capeliez T, Texeraud E, Zweifel S, Heinrich C, Hernandez-Vargas H, Parras C, **Jabaudon D**, & Raineteau O. (2023). Single-cell analysis of the postnatal dorsal V-SVZ reveals a role for Bmpr1a signaling in silencing pallial germinal activity. **Science advances**, 9(18), eabq7553. <https://doi.org/10.1126/sciadv.abq7553>
5. Gerstmann K., Kindbeiter K., Telley L., Bozon M., Reynaud F., Théouille E., Charoy C., **Jabaudon D**, Moret F., & Castellani V. (2022). A balance of noncanonical Semaphorin signaling from the cerebrospinal fluid regulates apical cell dynamics during corticogenesis. **Science advances** 2022 8(46), eabo4552. <https://doi.org/10.1126/sciadv.abo4552>
6. Magrinelli E., Baumann N., Wagener R. J., Glangetas C., Bellone C., **Jabaudon D**, & Klingler E. Heterogeneous fates of simultaneously-born neurons in the cortical ventricular zone. **Scientific reports**, 2022 12(1), 6022. <https://doi.org/10.1038/s41598-022-09740-6>.
7. Tomasello U, Klingler E, Niquille M, Mule N, Santinha AJ, de Vevey L, Prados J, Platt RJ, Borrell V, **Jabaudon D**, Dayer A. miR-137 and miR-122, two outer subventricular zone non-coding RNAs, regulate basal progenitor expansion and neuronal differentiation. **Cell Rep** 2022 Feb 15;38(7):110381. doi: 10.1016/j.celrep.2022.110381.
8. Tzanoulinou S, Musardo S, Contestabile A, Bariselli S, Casarotto G, Magrinelli E, Jiang YH, **Jabaudon D**, Bellone C. Inhibition of Trpv4 rescues circuit and social deficits unmasked by acute inflammatory response in a Shank3 mouse model of Autism. **Mol Psychiatry** 2022 Jan 12. doi: 10.1038/s41380-021-01427-0.
9. Klingler E, Tomasello U, Prados J, Keschull JM, Contestabile A, Galiñanes GL, Fièvre S, Santinha A, Platt R, Huber D, Dayer A, Bellone C, **Jabaudon D**. Temporal controls over inter-areal cortical projection neuron fate diversity. **Nature** 2021 Nov;599(7885):453-457. <https://doi.org/10.1038/s41586-021-04048-3>.
10. Sahni V, Shnyder SJ, **Jabaudon D**, Song JHT, Itoh Y, Greig LC, Macklis JD. Corticospinal neuron subpopulation-specific developmental genes prospectively indicate mature segmentally specific axon projection targeting. **Cell Rep** 2021 Oct 19;37(3):109843. doi: 10.1016/j.celrep.2021.109843.
11. Pal S, Dwivedi D, Pramanik T, Godbole G, Iwasato T, **Jabaudon D**, Bhalla US, Tole S. An early cortical progenitor-specific mechanism regulates thalamocortical innervation. **J Neurosci** 2021, 41 (32) 6822-6835. DOI: 10.1523/JNEUROSCI.0226-21.2021.
12. Limoni G, Murthy S, **Jabaudon D**, Dayer A, Niquille M. PlexinA4-Semaphorin3A-mediated crosstalk between main cortical interneuron classes is required for superficial interneuron lamination. **Cell Report** 2021, 26;34(4):108644. <https://doi.org/10.1016/j.celrep.2020.108644>.
13. Oberst P, Fièvre S, Baumann N, Concetti C, Bartolini G, **Jabaudon D**. Temporal plasticity of apical progenitors in the developing mouse neocortex. **Nature** 2019, 573(7774):370-374. doi:10.1038/s41586-019-1515-6.
14. Telley\* L, Agirman\* G, Prados J, Amberg N, Fièvre S, Oberst P, Bartolini G, Vitali I, Cadilhac C, Hippenmeyer S, Nguyen L, Dayer A, **Jabaudon D**. Temporal patterning of apical progenitors and their daughter neurons in the developing neocortex. **Science** 2019, 364(6440). doi: 10.1126/science.aav2522. \*equal contributors.
15. Klingler E, De la Rossa A, Fièvre S, Devaraju K, Abe P, **Jabaudon D**. A Translaminar genetic logic for the circuit identity of intracortically projecting neurons. **Current Biology** 2019, 29(2):332-339.e5. doi: 10.1016/j.cub.2018.11.071.
16. Soiza-Reilly M, Meye FJ, Olusakin J, Telley L, Petit E, Chen X, Mameli M, **Jabaudon D**, Sze JY, Gaspar P. SSRIs target prefrontal to raphe circuits during development modulating synaptic connectivity and emotional behavior. **Mol Psychiatry** 2019; 24(5):726-745. doi:10.1038/s41380-018-0260-9.

17. Govindan S, Oberst P, **Jabaudon D**. In vivo pulse labeling of isochronic cohorts of cells in the central nervous system using FlashTag. **Nature Protocols** 2018;13(10):2297-2311. doi:10.1038/s41596-018-0038-1.
18. Vitali I\*, Fièvre S\*, Telley L, Oberst P, Bariselli S, Frangeul L, Baumann N, McMahon JJ, Klingler E, Bocchi R, Kiss JZ, Bellone C, Silver DL, **Jabaudon D**. Progenitor hyperpolarization regulates the sequential generation of neuronal subtypes in the developing neocortex. **Cell** 2018, 174(5), pp.1264–1276.e15. doi: <https://doi.org/10.1101/409458>. \*equal contributors.
19. Donega V, Marcy G, Lo Giudice Q, Zweifel S, Angonin D, Fiorelli R, Abrous DN, Rival-Gervier S, Koehl M, **Jabaudon D**, Raineteau O. Transcriptional Dysregulation in Postnatal Glutamatergic Progenitors Contributes to Closure of the Cortical Neurogenic Period. **Cell Rep.** 2018; 22(10):2567-2574. doi:10.1016/j.celrep.2018.02.030.
20. Frangeul L, Kehayas V, Sanchez-Mut JV, Fièvre S, Krishna-K K, Pouchelon G, Telley L, Bellone C, Holtmaat A, Gräff J, Macklis JD, **Jabaudon D**. Input-dependent regulation of excitability controls dendritic maturation in somatosensory thalamocortical neurons. **Nature Communications** 2017 Dec 8;8(1):2015. doi: 10.1038/s41467-017-02172-1.
21. Frazer S, Prados J, Niquille M, Cadilhac C, Markopoulos F, Gomez L, Tomasello U, Telley L, Holtmaat A, **Jabaudon D**, Dayer A. Transcriptomic and anatomic parcellation of 5-HT<sub>3A</sub>R expressing cortical interneuron subtypes revealed by single-cell RNA sequencing. **Nature Communications** 2017; 8:14219. Published 2017 Jan 30. doi:10.1038/ncomms14219.

## 2. Review and commentary articles

Past five years only. Full publication list available at <https://goo.gl/hq7u1j> or <http://orcid.org/0000-0003-2438-4769>

1. Puiggros SR, **Jabaudon D**. Light-dependent development is tailored in visual neurons. **Nature**. 2022 Feb 18. doi: 10.1038/d41586-022-00463-2.
2. **Jabaudon D**, Chédotal A. Editorial overview: Developmental neuroscience. **Curr Opin Neurobiol.** 2021; 66:iii-v. doi: 10.1016/j.conb.2021.03.006.
3. Klingler E, Francis F, **Jabaudon D**, Cappello S. Mapping the molecular and cellular complexity of cortical malformations. **Science** 2021 ; 22;371(6527):eaba4517. doi: 10.1126/science.aba4517 (*Review*)
4. Klingler E, **Jabaudon D**. Do progenitors play dice?. **Elife** 2020; 9:e54042. Published 2020 Jan 17. doi:10.7554/eLife.54042 (*Comment*)
5. Oberst P, Agirman G, **Jabaudon D**. Principles of progenitor temporal patterning in the developing invertebrate and vertebrate nervous system. **Curr Opin Neurobiol.** 2019; 56:185-193. doi:10.1016/j.conb.2019.03.004 (*Review*)
6. **Jabaudon D**, Lancaster M. Exploring landscapes of brain morphogenesis with organoids. **Development** 2018; 145(22):dev172049. Published 2018 Nov 19. doi:10.1242/dev.172049
7. Telley L, **Jabaudon D**. A mixed model of neuronal diversity. **Nature** 2018; 555(7697):452-454. doi:10.1038/d41586-018-02539-4 (*Comment*)
8. Govindan S, **Jabaudon D**. Coupling progenitor and neuronal diversity in the developing neocortex. **FEBS Lett.** 2017; 591(24):3960-3977. doi:10.1002/1873-3468.12846 (*Review*)
9. **Jabaudon D**. Fate and freedom in developing neocortical circuits. **Nat Commun.** 2017; 8:16042. Published 2017 Jul 3. doi:10.1038/ncomms16042 (*Review*)