

# Anne Lise Giraud – CV

## 1. PERSONAL DATA

### HOME ADDRESS

Rue Madame de Stael, 3. 1201 Geneva, Switzerland.

### WORK ADDRESS

Department of Neuroscience  
Biotech Campus  
9, chemin des Mines  
1211 Geneva, Switzerland  
Tel: +41(0)223795547  
Fax: +41(0)223795452

**DATE AND PLACE OF BIRTH** 18.12.1968, Lyon, France.

**NATIONALITY** French

**FAMILY STATUS** Married. Children born in 1994, 2001 (deceased), 2002 and 2008.

**LANGUAGES** French, English, German.

## 2. PRESENT POSITION

Full professor, Neuroscience Departement, University of Geneva

## 3. DIPLOMAS

1986	B.A (Maths & Physics), Lyon.
1990	Eq Bachelor Biochemistry
1992	M. Sc. Neuroscience (Claude Bernard university, Lyon-1)
1997	PhD. Neuroscience (Claude Bernard university, Lyon-1)
2006	Habilitation (Pierre & Marie Curie university, Paris-6)

## 4. TRAINING

1992	Training at Laboratoire de Sciences Cognitives et Psycholinguistique.
1993	Training in Neuroanatomy, Inserm, Université Claude Bernard, Lyon-1
1993-97	Doctoral Training, UMR CNRS 5020, Université Claude Bernard, Lyon-1.

## 5. POST-DOCTORAL TRAINING AND POSITIONS

1997-99	Post-doctoral scientist. Wellcome Department of Imaging Neuroscience, UCL, London.
1999-02	Post-doctoral scientist. Phys. Institut III, Goethe University, Frankfurt/Main, Germany.
2002-04	Leader of the Auditory Language Group at Brain Imaging Centre, Frankfurt, Germany.
2003-04	Invited Professor. Département d'Etudes Cognitives, Ecole Normale Supérieure, Paris.
2004-08	Permanent research position at CNRS (CR1), Inserm U742 Ecole Normale Supérieure, Paris.
2008-13	Research Director at CNRS (DR2), Inserm U960 Ecole Normale Supérieure, Paris.
2009-13	Director of Inserm Team « Communication parlée » (AERES/Inserm rank A+).

2012- Full professor, University fo Geneva.

## 6. FUNDING ID

1993-97 Doctoral grant from MENRT (French Government), France.  
1997-98 Post-doctoral grant from Fyssen foundation.  
1998-99 Post-doctoral grant from the European Commission (Marie Curie Fellowship).  
2000-01 Action Concertée Incitative Cognitive, MENRT, France (with C. Lorenzi).  
2001-02 Post-doctoral grant from the Alexander von Humboldt foundation.  
2003-05 Project grant from the BMBF (German Research Ministry, 300k€).  
2004-05 Subvention de recherche (Fyssen Foundation, 30k€).  
2007-08 Research funding from Collin ORL-CMF (50 k€).  
2007-08 Research funding from Cochlear © (50 k€).  
2007-08 Research grant from Fondation pour l'Avenir (26 k€)  
2007-10 Research grant from Agence Nationale pour la Recherche (340k€)  
2009-12 Funding for a PhD grant by Advanced Bionics © (CIFRE contract; 100k€)  
2009-10 Funding by Ecole des Neurosciences de Paris (MR-compatible EEG; 120k€).  
2008-11 Several fundings for post-docs in the team by FRM, Orange and NeRF.  
2011-15 European Research Council (Starting Grant, consolidator level, 1.5 M€).  
2011-15 Agence Nationale pour la Recherche (20%, 0.5M€, coordonator Franck Ramus).  
2011-14 PhD funding for three years by Orange Foundation (100 k€).  
2012 Dual Career Couple, Switzerland (50 kCHF).  
2013-14 Swiss National Fund, Workshop (11 kCHF).  
2013-2015 Swiss National Fund, Individual project (480 kCHF).  
2015-2017 Language and Communication Consortium of the UNIGE (200kCHF).  
2015-2018 Swiss National Fund, Individual project (850 kCHF).  
2017-2021 European Commission – Future and Emerging Technologies (1M€)

## OTHER SCIENTIFIC APPOINTMENT

- 1- Member of the international scientific advisory board of "Voir & entendre" foundation.  
[http://www.fondave.org/index.php?option=com\\_flexicontent&view=items&cid=3&id=23&Itemid=19&lang=fr](http://www.fondave.org/index.php?option=com_flexicontent&view=items&cid=3&id=23&Itemid=19&lang=fr)
- 2- Member of the international scientific advisory board of the Institute of Language and Communication in the Brain. (Aix-Marseille University, France). <http://www.ilcb.fr/>
- 3- Member of the international advisory board of Neurospin.  
<http://i2bm.cea.fr/drf/i2bm/Pages/NeuroSpin.aspx>

## EDITORIAL ACTIVITY

- Associate editor at Frontiers in Auditory Cognitive Neuroscience  
([http://www.frontiersin.org/auditory\\_cognitive\\_neuroscience/editorialboard-](http://www.frontiersin.org/auditory_cognitive_neuroscience/editorialboard-)
- Member of the Editorial board of Neuroscience  
<http://journals.elsevier.com/03064522/neuroscience/editorial-board/>
- Member of the Editorial Advisory Board of Language, Cognition and Neuroscience.  
<http://www.tandfonline.com/toc/plcp21/current#.UybcSPSwYyF>
- Member of the Editorial board of Neuroimage Clinical.  
<http://www.journals.elsevier.com/neuroimage-clinical/editorial-board/>

## REVIEWING ACTIVITY

### *For research agencies*

Agence Nationale pour la Recherche (France)  
The Wellcome Trust (UK)  
The Medical Research Council (UK)  
DFG (Germany)  
BSF (United States-Israel Binational Science Foundation)  
Inserm (France)  
National Science Foundation (USA)  
Inserm (France)  
FNRS (Belgium)  
Swiss National Fund (Switzerland)

### *For scientific journals*

Audiology and Neuro-Otology, Brain, Brain and Language, Brain Research, Cerebral Cortex, Cognition, Cortex, Frontiers in Psychology, Frontiers in Human Neuroscience, Human Brain Mapping, Hearing Research, International Journal of Audiology, NeuroImage, Journal of the Acoustical Society of America, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Cognitive Neuroscience, Neurology, Neuron, Nature, Nature Neuroscience, Neuroscience Letters, Trends in Neuroscience, Trends in Cognitive Neuroscience, The Journal of Neuroscience, Cerebral Cortex, PloS Biology, PNAS, Science.

## PARTICIPATION IN ACADEMIC COMMITTEES (PAST 2 YEARS)

### *Professorship committees*

2015 Dimitri Van de Ville: associate professorship (Unige/EPFL)  
2015 Roman Sztajzel: associate professorship (Unige)  
2015 François Lazeyras: associate professorship (Unige)  
2015 Mary Rudner: full professor (University of Linköping, Sweden)  
2016 Philippe Millet, assistant professor (Unige).

### *Theses committees*

2016 Anthony Gentil (University of Montpellier, Inserm, France).  
2016 Loic Magrou (University Claude Bernard Lyon, Inserm; France)  
2016 Avril Treille (University of Grenoble, CNRS, France)  
2017 Stéphanie Martin (EPFL, Lausanne, Switzerland)  
2017 Alexandra Adam Darqué (UNIGE, Switzerland)

### *Other committees*

2015-present: PREM committee of the Medical Faculty of University of Geneva,  
2015-present: Task force of the reform of medical studies (Bachelor level) at the University of Geneva.  
2015-present: Scientific committee of Brain and Language Research Institute (Aix-Marseille, France).

## PUBLICATION LIST

h=39

a- Original articles in peer reviewed journals

1. Hovsepian S, Olasagasti I, Giraud AL. A predictive coding model of speech processing with and without theta oscillations. In prep.
2. Lehongre K, Ramus F, Giraud AL. Anomalies in beta/bold neural coupling reveal impaired fronto-temporal interactions in dyslexia. In prep.
3. Bolton T, Jochaut D, Giraud AL, Van De Ville D. Tracking dynamic functional connectivity during naturalistic movie viewing in autism spectrum disorders subjects. Submitted to NeuroImage.
4. Teixeira Borges AF, Giraud AL, Mansvelder H, Linkenkaer-Hansen K. Scale-free dynamics of neuronal oscillations tracks comprehension of accelerated speech. In revision J. Neuroscience.
5. Neumann K, Euler HA, Kob M, Wolff von Gudenberg A, Giraud AL, Kell CA. 2017. Assisted and unassisted recession of functional anomalies associated with dysprosody in adults who stutter. J. Fluency disorders, in press. **IF=2.2**
6. Hauke O, Giraud AL, Clarke A. 2017. Brain oscillations in language comprehension. Language Cognition and Neuroscience, 32: 533-5.
7. Ambert-Dahan E, Giraud AL., Samson S. Emotional recognition of dynamic facial expressions before and after cochlear implantation in adults with progressive deafness. Hearing research, In press.
8. Bouton S, Tyran R, Seeck M, Liégeois-Chauvel, C. Chambon V, Giraud AL. 2017. Focal versus distributed temporal cortex activity for speech sound category assignment. BioRxiv.
9. Pefkou M, Arnal L, Fontolan L, Giraud AL. 2017. Theta- and beta-band neural activity reflect independent syllable tracking and intelligibility of time-compressed speech. Accepted for publication in The Journal of Neuroscience. **IF=7**
10. Kell CA, Neumann K, Behrens M, von Gudenberg AW, Giraud AL. 2017. Speaking-related changes in cortical functional connectivity associated with assisted and spontaneous recovery from developmental stuttering. J. Fluency Disorders pii: S0094-730X(16)30094-8. doi: 10.1016/j.jfludis.2017.02.001. **IF=2.2**
11. Lazard DS, Giraud AL. 2017. Brain reorganization associated with fast processing of written-words in acquired deafness shapes cochlear implant outcome. Nature Communications, 8:14872. doi: 10.1038/ncomms14872. **IF= 11.5**
12. Arnal LH, Flinker A, Kleinschmidt A, Giraud AL, Poeppel D. 2015 Human screams occupy a privileged niche in the communication soundscape. Curr Biol. 2015 25:2051-2056. **IF=9.6**  
**Score** Altmetric : 529; 99.9 percentile of most quoted articles in the press.
13. Hyafil A, Fontolan L, Kabdebon C, Gutkin B, Giraud AL. 2015. Speech encoding by coupled cortical theta and gamma oscillations. E-life, May 29:4. doi: 10.7554/eLife.06213. **IF=9.3**
14. Jochaut D, Lehongre K, Saitovitch A, Devauchelle AD, Olasagasti I, Zilbovicius M, Giraud AL. 2015. Atypical coordination of cortical oscillations in response to speech in autism. Frontiers in Human Neurosciences, 9:171. **IF=3**.
15. Ambert-Dahan E, Giraud AL, Sterkers O, Samson S. 2015. Judgment of musical emotions after cochlear implantation in adults with progressive deafness. Frontiers in Psychology, 6:181. **IF=2.8**

16. Bouton S, Colé P, Serniclaes W, Duncan L, Giraud AL. 2015. Atypical phonological processing impairs word recognition in children with cochlear implants. *Language Cognition and Neuroscience*, in press. **IF not know yet.**
17. Olasagati I, Bouton S, Giraud AL. 2015. Prediction across sensory modalities: a model of the McGurk effect. *Cortex*, 68:61-75. **IF=6**
18. Fontolan L, Morillon B, Liégeois-Chauvel C, Giraud AL. 2014. The contribution of frequency-specific activity to hierarchical information processing in human auditory cortices, *Nature communications*, 5:4694. **IF= 11.5**
19. Lazard DS, Lee, HJ, Truy E, Giraud AL. 2013. Bilateral reorganization of posterior temporal cortices in post-lingual deafness and its relation to cochlear implant outcome. *Human brain mapping* 34 (5): 1208-19. **IF=5.1**
20. Lehongre K, Giraud AL, Villiermet N, Ramus F. 2013. Impaired auditory sampling in dyslexia: Further evidence from combined fMRI and EEG. *Frontiers in Human Neuroscience*, 7: 454. **IF=3**
21. Ghitza O, Poeppel D & Giraud AL. 2012. Neuronal oscillations and speech perception: critical-band temporal envelopes are the essence. *Frontiers in Human Neuroscience*, 6: 340. **IF=3**
22. Josse G, Bertasi, E., Joseph, S. & Giraud A.L. 2012. The brain's dorsal route for speech represents word meaning: evidence from gesture. *PLoS One* 7:e46108 **IF=4.35**
23. Gauthier B, Eger E, Hesselmann G, Giraud, AL, & Kleinschmidt A. 2012. Temporal tuning properties along the human ventral visual stream. *The Journal of neuroscience*, 32:14433-41. **IF=7.2**
24. Sadaghiani S, Scheeringa R, Lehongre K, Morillon B, Giraud AL D'Esposito M., & Kleinschmidt A 2012. Alpha-band phase synchrony is related to activity in the fronto-parietal adaptive control network. *The Journal of neuroscience*, 32:14305-10. **IF=7.2**
25. Morillon B, Liégeois-Chauvel C, Arnal L, Bénar CG, Giraud AL 2012. Asymmetric function of theta and gamma activity in speech processing: a SEEG study. *Frontiers in Psychology* 3:248. **IF=2.8.**
26. Giraud AL, Poeppel D. 2012. Cortical oscillations and speech processing: emerging computational principles, *Nature neuroscience*, E-pub, doi: 10.1038/nn.3063. **IF=14.2.**
27. Saoud H, Josse G, Bertasi E, Truy E, Chait M, & Giraud AL. 2012. Brain-Speech Alignment Enhances Auditory Cortical Responses and Speech Perception. *The Journal of neuroscience*, 32(1): 275-281. **IF=7**
28. Lehongre K, Ramus F, Villiermet N, Schwartz D, Giraud AL. 2011. Altered low-gamma sampling in auditory cortex accounts for the three main facets of dyslexia. *Neuron*, 72(6): 1080-1090. **IF=15**
29. Lazard DS, Giraud AL, Truy E, Lee HJ. 2011. Evolution of non-speech sound memory in postlingual deafness: implications for cochlear implant rehabilitation. *Neuropsychologia*, 49(9): 2475-2482. **IF=3.9**
30. Arnal LH, Wyart V, Giraud AL. 2011. Transitions in neural oscillations reflect prediction errors generated in audiovisual speech. *Nature neuroscience*, 14(6): 797-801. **IF=16.7**
31. Morillon B, Lehongre K, Frackowiak RS, Ducorps A, Kleinschmidt A, Poeppel D, Giraud AL. 2010. Neurophysiological origin of human brain asymmetry for speech and language. *Proceedings of the National Academy of Sciences of the United States of America*, 107(43): 18688-18693. **IF=9.8**
32. Kell CA, Morillon B, Kouneiher F, Giraud AL. 2011. Lateralization of speech production starts in sensory cortices. *Cerebral cortex*, 21(4): 932-937. **IF=6.8**

33. Sadaghiani S, Scheeringa R, Lehongre K, Morillon B, Giraud AL, Kleinschmidt A. 2010. Intrinsic connectivity networks, alpha oscillations, and tonic alertness: a simultaneous electroencephalography/functional magnetic resonance imaging study. *The Journal of neuroscience*, 30(30): 10243-10250. **IF=7**
34. Morillon, B., Kell, C. A., & Giraud, A. L. 2009. Three stages and four neural systems in time estimation. *The Journal of neuroscience*, 29(47): 14803-14811. **IF=7**
35. Lazard, D. S., Lee, H. J., Gaebler, M., Kell, C. A., Truy, E., & Giraud, A. L. 2010. Phonological processing in post-lingual deafness and cochlear implant outcome. *NeuroImage*, 49(4): 3443-3451. **IF=6.8**
36. Arnal, L. H., Morillon, B., Kell, C. A., & Giraud, A. L. 2009. Dual neural routing of visual facilitation in speech processing. *The Journal of neuroscience*, 29(43): 13445-13453. **IF=7**
37. Kell, C. A., Neumann, K., von Kriegstein, K., Posenenske, C., von Gudenberg, A. W., Euler, H., & Giraud, A. L. 2009. How the brain repairs stuttering. *Brain*, 132(Pt 10): 2747-2760. **IF=9.2**
38. von Kriegstein, K., Dogan, O., Gruter, M., Giraud, A. L., Kell, C. A., Gruter, T., Kleinschmidt, A., & Kiebel, S. J. 2008. Simulation of talking faces in the human brain improves auditory speech recognition. *Proceedings of the National Academy of Sciences of the United States of America*, 105(18): 6747-6752. **IF=9.8**
39. Giraud, A. L., Neumann, K., Bachoud-Levi, A. C., von Gudenberg, A. W., Euler, H. A., Lanfermann, H., & Preibisch, C. 2008. Severity of dysfluency correlates with basal ganglia activity in persistent developmental stuttering. *Brain and language*, 104(2): 190-199. **IF=3.2**
40. Lee, H. J., Truy, E., Mamou, G., Sappey-Marinier, D., & Giraud, A. L. 2007b. Visual speech circuits in profound acquired deafness: a possible role for latent multimodal connectivity. *Brain*, 130(Pt 11): 2929-2941. **IF=9.2**
41. Lee, H. J., Giraud, A. L., Kang, E., Oh, S. H., Kang, H., Kim, C. S., & Lee, D. S. 2007a. Cortical activity at rest predicts cochlear implantation outcome. *Cerebral cortex*, 17(4): 909-917. **IF=6.8**
42. Giraud, A. L., Kleinschmidt, A., Poeppel, D., Lund, T. E., Frackowiak, R. S., & Laufs, H. 2007. Endogenous cortical rhythms determine cerebral specialization for speech perception and production. *Neuron*, 56(6): 1127-1134. **IF=15**
43. von Kriegstein, K., Kleinschmidt, A., & Giraud, A. L. 2006. Voice recognition and cross-modal responses to familiar speakers' voices in prosopagnosia. *Cerebral cortex*, 16(9): 1314-1322. **IF=6.8**
44. von Kriegstein, K., & Giraud, A. L. 2006. Implicit multisensory associations influence voice recognition. *PLoS biology*, 4(10): e326. **IF=12.9**
45. von Kriegstein, K., Kleinschmidt, A., Sterzer, P., & Giraud, A. L. 2005. Interaction of face and voice areas during speaker recognition. *Journal of cognitive neuroscience*, 17(3): 367-376. **IF=5.37**
46. Neumann, K., Preibisch, C., Euler, H. A., von Gudenberg, A. W., Lanfermann, H., Gall, V., & Giraud, A. L. 2005. Cortical plasticity associated with stuttering therapy. *Journal of fluency disorders*, 30(1): 23-39. **IF=2.2**
47. Kriegstein, K. V., & Giraud, A. L. 2004. Distinct functional substrates along the right superior temporal sulcus for the processing of voices. *NeuroImage*, 22(2): 948-955. **IF=6.8**
48. Giraud, A. L., Kell, C., Thierfelder, C., Sterzer, P., Russ, M. O., Preibisch, C., & Kleinschmidt, A. 2004. Contributions of sensory input, auditory search and verbal comprehension to cortical activity during speech processing. *Cerebral cortex*, 14(3): 247-255. **IF=6.8**

49. von Kriegstein, K., Eger, E., Kleinschmidt, A., & Giraud, A. L. 2003. Modulation of neural responses to speech by directing attention to voices or verbal content. *Brain research. Cognitive brain research*, 17(1): 48-55. **IF=2.62**
50. Thierry, G., Giraud, A. L., & Price, C. 2003. Hemispheric dissociation in access to the human semantic system. *Neuron*, 38(3): 499-506. **IF=15**
51. Price, C. J., Winterburn, D., Giraud, A. L., Moore, C. J., & Noppeney, U. 2003. Cortical localisation of the visual and auditory word form areas: a reconsideration of the evidence. *Brain and language*, 86(2): 272-286. **IF=3.2**
52. Preibisch, C., Neumann, K., Raab, P., Euler, H. A., von Gudenberg, A. W., Lanfermann, H., & Giraud, A. L. 2003. Evidence for compensation for stuttering by the right frontal operculum. *NeuroImage*, 20(2): 1356-1364. **IF=6.8**
53. Neumann, K., Euler, H. A., von Gudenberg, A. W., Giraud, A. L., Lanfermann, H., Gall, V., & Preibisch, C. 2003. The nature and treatment of stuttering as revealed by fMRI A within- and between-group comparison. *Journal of fluency disorders*, 28(4): 381-409. **IF=2.2**
54. Eger, E., Sterzer, P., Russ, M. O., Giraud, A. L., & Kleinschmidt, A. 2003. A supramodal number representation in human intraparietal cortex. *Neuron*, 37(4): 719-725. **IF=15**
55. Giraud, A. L., & Truy, E. 2002. The contribution of visual areas to speech comprehension: a PET study in cochlear implants patients and normal-hearing subjects. *Neuropsychologia*, 40(9): 1562-1569. **IF=3.9**
56. Giraud, A. L., Price, C. J., Graham, J. M., Truy, E., & Frackowiak, R. S. 2001. Cross-modal plasticity underpins language recovery after cochlear implantation. *Neuron*, 30(3): 657-663. **IF=15**
57. Giraud, A. L., Price, C. J., Graham, J. M., & Frackowiak, R. S. 2001. Functional plasticity of language-related brain areas after cochlear implantation. *Brain*, 124(Pt 7): 1307-1316. **IF=9.2**
58. Giraud, A. L., & Price, C. J. 2001. The constraints functional neuroimaging places on classical models of auditory word processing. *Journal of cognitive neuroscience*, 13(6): 754-765. **IF=5.37**
59. Giraud, A. L., Truy, E., Frackowiak, R. S., Gregoire, M. C., Pujol, J. F., & Collet, L. 2000b. Differential recruitment of the speech processing system in healthy subjects and rehabilitated cochlear implant patients. *Brain*, 123 ( Pt 7): 1391-1402. **IF=9.2**
60. Giraud, A. L., Lorenzi, C., Ashburner, J., Wable, J., Johnsrude, I., Frackowiak, R., & Kleinschmidt, A. 2000a. Representation of the temporal envelope of sounds in the human brain. *Journal of neurophysiology*, 84(3): 1588-1598. **IF=5.1**
61. Giraud, A. L., Chery-Croze, S., Fischer, G., Fischer, C., Vighetto, A., Gregoire, M. C., Lavenne, F., & Collet, L. 1999. A selective imaging of tinnitus. *Neuroreport*, 10(1): 1-5. **IF=1.9**
62. Giraud, A. L., Garnier, S., Micheyl, C., Lina, G., Chays, A., & Chery-Croze, S. 1997b. Auditory efferents involved in speech-in-noise intelligibility. *Neuroreport*, 8(7): 1779-1783. **IF=1.9**
63. Giraud, A. L., Wable, J., Chays, A., Collet, L., & Chery-Croze, S. 1997c. Influence of contralateral noise on distortion product latency in humans: is the medial olivocochlear efferent system involved? *The Journal of the Acoustical Society of America*, 102(4): 2219-2227. **IF=1.64**
64. Giraud, A. L., Collet, L., & Chery-Croze, S. 1997a. Suppression of otoacoustic emission is unchanged after several minutes of contralateral acoustic stimulation. *Hearing research*, 109(1-2): 78-82. **IF=2.47**
65. Giraud, A. L., Perrin, E., Chery-Croze, S., Chays, A., & Collet, L. 1996. Contralateral acoustic stimulation induces a phase advance in evoked otoacoustic emissions in humans. *Hearing research*, 94(1-2): 54-62. **IF=2.47**

66. Micheyl, C., Morlet, T., Giraud, A. L., Collet, L., & Morgon, A. 1995. Contralateral suppression of evoked otoacoustic emissions and detection of a multi-tone complex in noise. *Acta otolaryngologica*, 115(2): 178-182. **IF unknown**
67. Giraud, A. L., Collet, L., Chery-Croze, S., Magnan, J., & Chays, A. 1995. Evidence of a medial olivocochlear involvement in contralateral suppression of otoacoustic emissions in humans. *Brain research*, 705(1-2): 15-23. **IF=2.62**
68. Collet, L., Veuillet, E., Moulin, A., Morlet, T., Giraud, A. L., Micheyl, C., & Chery-Croze, S. 1994. Contralateral auditory stimulation and otoacoustic emissions: a review of basic data in humans. *British journal of audiology*, 28(4-5): 213-218. **IF unknown**

b. Reviews in peer reviewed journals

69. Jochaut D., Olasagasti I., Hyafil A., Giraud AL. 2015. Temporal speech processing disorganization in autism and dyslexia. In prep. (invited Nature Neuroscience).
70. Hyafil A., Giraud AL., Fontolan L., Gutkin B. 2015. Neural cross-frequency coupling: connecting architectures, mechanisms and function. *Trends in Neurosciences*. **IF=12.5**
71. Giraud AL., Ramus F. 2012. Neurogenetics and auditory processing in developmental dyslexia. *Current Opinion in Neurobiology* 23:37-42. **IF=6.3**
72. Arnal L., Giraud A.L. 2012. Predictive mechanisms in audio-visual speech perception. *Trends in Cognitive Sciences*, 23:37-42. **IF=17.85**
73. Lazard DS, Giraud AL, Gnansia D, Meyer B, Sterkers O. 2012. Understanding the deafened brain: implications for cochlear implant rehabilitation. *Eur Ann Otorhinolaryngol Head Neck Dis*. 129:98-103. **IF=?**
74. Giraud AL. Hemispheric specialisation of language and brain rhythms. 2008 *Med Sci (Paris)*. 24:1061-4. **IF=0.64**
75. Johnsrude, I. S., Giraud, A. L., & Frackowiak, R. S. 2002. Functional imaging of the auditory system: the use of positron emission tomography. *Audiology & neuro-otology*, 7(5): 251-276. **IF=1.8**
76. Giraud, A. L., Truy, E., & Frackowiak, R. 2001. Imaging plasticity in cochlear implant patients. *Audiology & neuro-otology*, 6(6): 381-393. **IF=1.8**
77. Giraud, A. L., & Lee, H. J. 2007. Predicting cochlear implant outcome from brain organisation in the deaf. *Restorative neurology and neuroscience*, 25(3-4): 381-390. **IF=3.7**

c. Original articles, reviews, editorials, letters, published or accepted in non-peer reviewed journals

78. Giraud A.L. 2007. L'organisation cérébrale chez le sourd détermine le succès de l'implantation cochléaire. *Annales de la fondation Fyssen* 22, 45-60.
79. Truy E, Giraud A.L. 2000. Neuro-imagerie fonctionnelle et surdit e profonde. *Rencontres IPSEN en ORL*, Tome 4, Christen, Y. Collet, L., Droix-Lefay, M-T. Eds. Irvinn Paris, pp 53-62.
80. Giraud A.L. 1999. R e-organisation fonctionnelle et strat egies adaptatives de compr ehension de la parole apr es implantation cochl eaire. *Annales de la Fondation Fyssen* 15, 68-75.

d. Book chapters

81. Arnal L, Poeppel D., Giraud A.L. 2014. A Neurophysiological Perspective on Speech Processing. In: *The Neurobiology of Language*. Elsevier.



82. Arnal L, Poeppel D., Giraud A.L. 2015. Temporal Coding in the Auditory System. Handbook of Clinical Neurology, 3<sup>rd</sup> series. The human auditory system: fundamental organization and clinical disorders. Eds: Aminoff, Boller, Swaab. Elsevier.
83. Barone P, Lazard, D., Giraud A.L. 2012. Multi-modal processing in deaf and cochlear implant patients. Springer handbook of auditory research. Eds: Popper and Fay. Springer-Verlag.
84. Giraud A.L, Poeppel D. 2012. Speech perception. The Human Auditory Cortex. Springer handbook of auditory research. Eds: Popper and Fay. Springer-Verlag.
85. Giraud A.L. 2003. Plasticity in Cochlear Implant Patient. In: Human Brain Function, 2<sup>nd</sup> Edition. Frackowiak, Ashburner, Dolan, Frith, Penny, Price, Zeki Eds.
86. Griffiths TD, Giraud A.L. 2003. Auditory Function. In: Human Brain Function. 2<sup>nd</sup> Edition. Frackowiak, Ashburner, Dolan, Frith, Penny, Price, Zeki Eds.
87. Giraud A.L., Veuillet E, Collet, L. 1998. Les voies auditives descendantes. Rencontres IPSEN en ORL. Christen, Y. Collet, L., Droix-Lefay, M-T. Eds. Irvinn Paris, pp 71-100.

e. Book

75. In prep: "Les maux de la parole". Editions Odile Jacob. France.

f. Supervised Doctoral Theses

1. Luc Arnal (2011) Doctoral Thesis in Neuroscience. Pierre et Marie Curie University, Paris 6. Title: Mécanismes prédictifs dans l'intégration audio-visuelle de la parole. Prize of the **Société Française des Neurosciences**.
2. Diane Lazard (2011) Doctoral Thesis in Neuroscience. Pierre et Marie Curie University, Paris 6. Title: Réorganisation neurocognitive et perception de la parole après implantation cochléaire chez l'adulte sourd post-lingual. **Prize of the fondation Bettencourt-Schueller (France). Pulitzer prize (Athens, 2012). Prize of Académie Française de Chirurgie.**
3. Benjamin Morillon (2012) Doctoral Thesis in Neuroscience. Pierre et Marie Curie University, Paris 6. Title: rôle des oscillations corticales dans l'asymétrie fonctionnelle du traitement de la parole. **Prize of Société Française des Neurosciences. Prize of Fondation Bettencourt – Schueller (France).**
4. Houda Saoud (2012) Doctoral Thesis in Neuroscience. Claude Bernard University, Lyon 1. Title: Effets de la latéralisation corticale auditive dans la perception de la parole. Application à l'implant cochléaire bilatéral.
5. Lorenzo Fontolan (2015) Doctoral Thesis in Neuroscience. Lemanic doctoral school in neuroscience. Title: The computational role of cortical oscillations in speech processing. **Amicitia Prize 2015 (Switzerland).**
6. Delphine Jochaut (2015) Doctoral Thesis in Neuroscience. Pierre et Marie Curie University, Paris 6. Les déficits de l'intégration temporelle dans la dyslexie et l'autisme.
7. Maria Pefkou (2017) Doctoral Thesis in Neuroscience. University of Geneva. Speech comprehension and neural oscillations in acoustic and lectrical hearing.

Courses and tutorials (non exhaustive list)

2015-16	Teaching in bachelor of Medical Studies, UNIGE (APP-Training).
2014-15	Optional course 2nd & 3rd years of medical studies, UNIGE, Genève. (27h).
2014-15	Course in Auditory Neuroscience. Lemanic doctoral school of neuroscience (6h).
2012-14	Introduction to cognitive neuroscience: neurophysiology of speech processing (3h). Master of cognitive Neuroscience, UNIGE, Genève.
2010-11	Teaching in clinical audiophonology (4h), UNIGE, Genève. Recent advances in cochlear implant research.
2004-10	Annual teaching in: - Master de Sciences Cognitives (ENS-EHESS-Ecole Polytechnique): Auditory perception. - Master de Neurosciences (Paris VI): Neuropsychology of speech perception. - Master 2 Neurosciences (Lyon I). Mechanisms of cortical plasticity after auditory deprivation and rehabilitation.
2003-04	Participation in the creation of Cogmaster (Master of cognitive sciences (ENS-EHESS, Ecole Polytechnique, Paris VI). Teaching in the Master in Neuroscience, Lyon (UCBL). Mechanisms of cortical plasticity after auditory deprivation and rehabilitation.
1994-97	Physiology practical course (50 h/year). 1st and 2nd years of medical studies. Université Claude Bernard Lyon I (UCBL).

## SCIENTIFIC SUPERVISION

<i>Post-doctoral students</i>		2008-11	Houda Saoud
2001-04	Katharina von Kriegstein	2011-14	Lorenzo Fontolan
2004-06	Hyo-Jeong Lee	2011-14	Ana-Filipa Borges
2007-09	Christian Kell	2011-14	Delphine Roussillon
2007-11	Katia Lehongre	2012-16	Maria Pefkou
2009-11	Goulven Josse	2016-19	Sevada Hovsepyan
2009-13	Arnaud Coez	2016-19	Johanna Nicolle
2011-13	Alexandre Hyafil	2017-21	Xiaoyue Wang
2011-15	Sophie Bouton		
2015-16	Cécile Pacoret		
2015-	Jaime Delgado	<i>M2 Research students</i>	
2015-	Fabiano Baroni	2005	Grégor Mamou
2016-	Andy Christen	2006	Benjamin Morillon
2016-	Silvia Marchesotti	2007	Ludovic Zahed
		2009	Emmanuèle Ambert-Dahan
<i>PhD students (full supervision)</i>		2010	Delphine Roussillon
2006-09	Luc Arnal	2010	Ysoline Beigneux
2007-10	Benjamin Morillon	2011	Claire Kapdebon
2007-10	Diane Lazard		

<i>M1 students</i>		2009	Sabine Joseph
1995	Loic Boussel	2009	Ying Liu
1996	Nawel Hacini		
1997	Nicolas Méroc	<i>L2 student</i>	
2005	Michael Gaebler	2004	Benjamin Morillon
2005	François Griffon		

## CURRENT TEAM 2017

<i>Senior scientists:</i>	Silvia Marchesotti (PhD Engineering/Robotics)
Itsaso Olasagasti (PhD Physics)	Andy Christen (PhD Neuroscience)
Luc Arnal (PhD Neuroscience)	
Pierre Mégevand (MD Neurology)	<i>PhD students:</i>
	Sevada Hovsepyan (M2 Biophysics)
<i>Post-docs:</i>	Maria Pefkou (M2 Neuroscience)
Delphine Roussillon (PhD Neuroscience)	Johanna Nicolle (M2 Linguistics)
Fabiano Baroni (PhD Electrical Engineering)	Xiaoyue Wang (M2 Psychology)
Jaime Delgado (PhD Electrical Engineering)	

## INVITED CONFERENCES AND SEMINARS

1. The spatio-temporal geometry of speech processing. Salzburg Mind Brain Annual Meeting. Salzburg, Austria, July 13-14 2017.
2. Speech processing in auditory cortex with and without cortical oscillations. Symposium on Neural Oscillations in speech and language processing, Berlin, Germany, May 28-31 2017.
3. Modelling speech with and without cortical oscillations. German Neuroscience Society, Göttingen, Germany, March 22-24 2017.
4. Oscillatory dysfunction and repair in dyslexia. Keynote lecture at AMPLAP meeting. San Sebastian, Spain, September 1-3 2016.
5. Modelling neural oscillations to understand language neurodevelopmental disorders. Society for Neurobiology of Language, London, UK, August 17-20 2016.
6. Modelling speech processing with cortical oscillations. International Neuropsychological Symposium, Baiona, Spain, June 21-25 2016.
7. Oscillatory dysfunction and repair in dyslexia. Harvard/UCSF workshop "The Geschwind – Galaburda Hypothesis, 30 years later". St Croix, Virgin Islands, USA, June 19-24 2016.
8. The hypothesis of temporal disorganisation in dyslexia and autism. Lecture at Collège de France. In: "Developmental learning disorder and their remediation" lecture series by Stanislas Dehaene. February 27 2015.
9. Predictive mechanisms in speech and language processing. Oxford oscillation workshop, Oxford University, September 14-15<sup>th</sup> 2014
10. Predictive mechanisms in speech and language processing. Seminar of the Max Planck Institute for Cognitive and Brain Sciences, Leipzig, Germany, October 9<sup>th</sup> 2014.
11. Are cortical oscillations a useful ingredient of speech processing? Symposium on Music and Language, University of Montreal, Montreal, May 2-3<sup>rd</sup> 2014.
12. The role of cortical oscillations in speech processing. Seminar of the Systems Neuroscience

Institute, Marseille, March 13<sup>th</sup> 2014.

13. The role of cortical oscillations in speech processing. Keynote lecture, 14<sup>th</sup> Interspeech conference, Lyon, August 28<sup>th</sup> 2013.
14. Predictive function of cortical oscillations. Congress of the French Neuroscience Society, Lyon, May 23<sup>rd</sup> 2013.
15. Are cortical oscillations a useful ingredient of speech processing? Seminar of the Institute of Neuroscience, University of Glasgow, UK, April 5<sup>th</sup> 2013.
16. Are cortical oscillations a useful ingredient of speech processing? Seminar of the CNRS GIPSA Laboratory, Grenoble France, March 28<sup>th</sup> 2013.
17. Are cortical oscillations a useful ingredient of speech processing? Brain Oscillation Workshop, Hungarian Academy of Sciences, Budapest, Hungary, Nov 8-9<sup>th</sup> 2012.
18. Speech processing and cortical oscillations. Keynote lecture, BIOMAG 2012 (18<sup>th</sup> conference on Biomagnetism), Paris August 29-31 2012.
19. Symposium organizer, FENS, Barcelona, July 14-18 2012.
20. Predictive functions of cortical oscillations in audio-visual speech processing. Keynote lecture, ABIM annual meeting, Champéry, Switzerland, Jan 8-12 2012.
21. Invited chair and speaker, ENP annual colloquium "Language: from genetics to cognition", Paris Sept. 7-9 2011.
22. The role of cortical oscillations in speech processing. Seminar of CERCO, Toulouse, May 20 2011.
23. Cortical oscillations in speech and language. Séminar of Institut des Sciences Cognitives, Lyon, March 31 2011.
24. Cortical oscillations in speech and language. Seminar of the Centre for the Study of Senses, Philosophy Department, Birkbeck College, London. March 3 2011.
25. Are cortical oscillations a useful ingredient of speech processing? Weekly Seminar of the Max Planck Institute for Psycholinguistics & Donders Centre Jan 18 2011, Nijmegen, The Netherlands.
26. Ideas about the role of cortical oscillations in speech and language. Monthly lecture of the department of Neuroinformatiks ETH - Zurich Nov 12 2010
27. Ideas about the role of cortical oscillations in speech and language. Colloquium of the Department of Psychology – Neuropsychology – ZNZ, Zurich, Nov 10 2010
28. Ideas about the role of cortical oscillations in speech and language. Chaucer Club Lecture. MRC CBU Cambridge, Oct 26 2010
29. Predicting cochlear implantation outcome from deaf functional brain organisation. 6<sup>th</sup> Widex Congress of Pediatric Audiology, May 12-15 2010, Dubai.
30. The role of brain rhythms in speech segmentation. Theta phase workshop. Department of Psychology, New-York University, Nov 5-6<sup>th</sup> 2009
31. Echantillonnage auditif et latéralisation fonctionnelle du langage. Séminaire de UMR5020. October 23<sup>rd</sup> 2009, Lyon, France.
32. Prédire le résultat de l'implantation cochléaire à partir de l'organisation cérébrale fonctionnelle du sujet sourd. Workshop de groupe de recherche Amplifon, Sept. 17-18 2009, Paris, France.
33. Predicting cochlear implantation outcome from functional brain organisation in the deaf. Rovereto workshop on cross-modal plasticity. August 27-29 2009, Rovereto, Italy.
34. Predicting cochlear implantation outcome from functional brain organisation in the deaf. Biannual Conference on Implantable Auditory Prosthesis, July 12-17 2009, Lake Tahoe, California, USA.

35. Prédire le résultat de l'implantation cochléaire à partir de l'organisation cérébrale fonctionnelle du sujet sourd. Conférence annuelle du Groupement de Recherche en Audiologie Expérimentale et Clinique. May 29 2009, Montpellier, France.
36. Prédire le résultat de l'implantation cochléaire à partir de l'organisation cérébrale fonctionnelle du sujet sourd. 14<sup>ième</sup> journée d'étude de l'association AIRDAME. April 3rd 2009, Paris, France.
37. EPU Psychoacoustics, electrophysiology and functional imaging of the auditory system. March 20th 2009, Hôpital Bichat, Paris, France.
38. Dual routing of visual facilitation in speech processing. France/Israel workshop. Dec. 18th 2009, Paris, France.
39. Anatomico-computational constraints on speech and speech processing by the human brain. The Neurobiology of speech perception. Organizers: Paul Iversen and Christophe Pallier. Acoustics 08' Paris. June 29th-July 4th 2008, Paris, France.
40. Endogenous cortical rhythms determine speech perception and production cerebral specialisation. UCL Summer symposium of the Centre for Neuroimaging Techniques. « The Brain Default's Mode », September 29th 2007, London, UK.
41. Predicting the outcome of cochlear implantation. « Sculpting the Brain of Children: A symposium for the Centenary of CHU Ste Justine ». June 22-23<sup>th</sup> 2007, Montreal, Canada.
42. Asymmetric sampling and bilateral cochlear implantation. 6<sup>th</sup> meeting on bilateral cochlear implantation and binaural signal processing. March 29-30<sup>th</sup> 2007, Bern, Switzerland.
43. Spécialisation hémisphérique et rythmes intrinsèques. Journées de Rencontre EPFL Lausanne/ENS Paris. Jan 25-26<sup>th</sup> 2007, Paris, France.
44. Rest and Language: Cortical oscillatory patterns and hemispheric dominance for speech. Journée scientifique de l'IFR49 sur le thème "Brain activity beyond paradigm". Jan 25<sup>th</sup> 2007, Neurospin-Saclay, France.
45. Asymmetric sampling of auditory information flow: Implications for cochlear implantation. Seoul National University Hospital. Oct. 18<sup>th</sup> 2006, Seoul, South Korea.
46. Mechanisms of speech and voice processing and the contribution of audio-visual facilitation. Symposium on speech processing. International Conference on Human Brain Mapping. Florence, Italy, Jun 11-15<sup>th</sup>. 2006.
47. Brain plasticity and implications for cochlear implantation: Contribution of early sensory plasticity and neurometabolic profiles to implantation outcome. 8th European symposium of paediatric cochlear implantation. March 27<sup>th</sup> 2006, Venice, Italy.
48. The neuroscience of speech and voices. ICN Workshop: Cognitive Neuroscience and Human Voice. London, UK. Sept 30<sup>th</sup> 2005.
49. Mechanisms of person recognition by voices. IXth International Conference on Cognitive Neuroscience (ICON9). Havana, Cuba, Sept 5-10<sup>th</sup> 2005.
50. Mechanisms of voice processing and person recognition by voices. International Symposium on Cognitive Neuroscience. Hong-Kong. Aug 9<sup>th</sup>. 2005.
51. Brain plasticity in the deaf and its effect on language processing following cochlear implantation. Conference on implantable auditory prostheses, Pacific Grove, CA, USA, July 31<sup>st</sup>-Aug 5<sup>th</sup>. 2005.
52. Speech comprehension with a cochlear implant. Seminar of the Linguistics Department. University of Hong Kong; Hong-Kong. Nov. 14<sup>th</sup> 2004.
53. Contribution of brain imaging to the question of speech comprehension with a cochlear implant. Les 20 ans de l'implantation cochléaire en Belgique, Bruxelles, Oct. 1-2nd 2004.

54. Entendre, écouter et comprendre la parole: Etudes en neuroimagerie fonctionnelle. Symposium du Groupe Entendre, Rhodes, Jun 1-4, 2004.
55. Ré-organisation uni- et multimodale chez l'implanté cochléaire. Réunion IPSEN Neurosciences sensorielles et cognitives. Vision des sourds/Audition des aveugles. Royaumont, France, Mar. 23-24, 2004.
56. The relevance of timing information in the study of auditory cognition. Speakers: R Saalmelin, J Rauschecker, D Poeppel, AL Giraud, European Workshop on Cognitive Neuropsychology, Bressanone, Jan 24-30, 2004.
57. Cross-modal plasticity and language recovery after cochlear implantation. 20th Danavox Symposium, 'Brain, hearing and learning', Kolding, Denmark, 9<sup>th</sup>-12<sup>th</sup> Sep., 2003.
58. Apprendre et re-apprendre la parole, Ecole Normale Supérieure, Paris, Dec. 16, 2003.
59. Who says what? Brain Meeting of the Wellcome Department of Cognitive Neurology, London, UK. Dec. 12, 2003.
60. Neuroanatomie fonctionnelle de la perception de la parole, Ecole Normale Supérieure, Paris, Nov 18, 2003.
61. Imagerie fonctionnelle cérébrale après implantation cochleaire. Journée de l'association AIRDAME, Hopital de la Salpêtrière, Oct 12, 2003.
62. Réorganisation fonctionnelle après implantation cochléaire. Workshop on plasticity in cochlear implants, NAMC UMR 8620, organized by Jean-Marc Edeline, Université Paris, Orsay, France. May 2003.
63. Entendre, écouter et comprendre la parole. Etudes en IRM fonctionnelle. Séminaires de l'Unité Inserm 280. Lyon, France, Feb. 17<sup>th</sup> 2003.
64. Les inter-relations entre perception et production de parole, Ecole Normale Supérieure, Paris, Feb. 3, 2003.
65. Contribution de l'imagerie cérébrale à l'étude des processus temporels en audition. Vlième congrès de la Société Francaise d'Audiologie. Paris, France, Dec. 16- 17<sup>th</sup> 2002.
66. Réorganisation des aires cérébrales du langage après implantation cochléaire. Xlième Journée de Neuropsychologie. Journée JL Signoret. Paris, France, Nov 18<sup>th</sup> 2002.
67. Speech and voice processing: from hearing to listening. 47<sup>th</sup> Jahrestagung Deutsche Gesellschaft fur klinische Neurophysiologie und funktionelle Bildgebung. Luebeck, Germany, Oct. 17-20<sup>th</sup> 2002.
68. Imaging plasticity in cochlear implants with PET. 5<sup>th</sup> Jahrestagung der Deutschen Gesellschaft fur Audiologie (DGA), Zürich, Switzerland, Feb. 27<sup>th</sup> March 2<sup>nd</sup> 2002.
69. Time processing in hearing: fMRI studies in humans. Seminars of the Graduiertenkolleg, TU – Darmstadt, Germany, January 31<sup>st</sup> 2001.
70. The cortical coding of the temporal envelope of sounds. Brain Meeting of the Wellcome Department of Cognitive Neurology, London, UK. June. 25<sup>th</sup> 2000.
71. Physiology auditive et récupération fonctionnelle après implantation cochléaire. Club Neuro-Audio-Acoustique. Tatihou, France. May 12-13 2000.
72. Les contraintes imposées par l'anatomie fonctionnelle sur les modèles classiques du traitement auditif des mots. Séminaires du Laboratoire de Psychologie Expérimentale (CNRS). Paris, France. May 31<sup>st</sup> 1999.

73. Imaging functional reorganisation in the human auditory and language system. Kolloquium des SFB 269. Frankfurt, Germany. Jan. 27<sup>th</sup> 1999.
74. Neuroimaging studies in cochlear implant patients. Newcomen Centre Academic Presentation. Newcomen Centre. Guy's Hospital. London, UK. Nov. 26<sup>th</sup> 1998.
75. Neuroimaging studies in cochlear implant patients. Brain Meeting of the Wellcome Department of Cognitive Neurology, London, UK. Nov. 13<sup>th</sup> 1998.
76. The medial olivocochlear efferent system in humans. Seminar of the MRC Institute of Hearing Research. Nottingham, UK. Jun. 3<sup>rd</sup> 1998.
77. The descending auditory pathways: physiological, behavioural and modelling data. Sattellite symposium of the 5<sup>th</sup> international conference of the Psychoacoustics Society. Cassis, France. Oct. 25<sup>th</sup> 1995.

#### EXCERPTS FROM OUR WORK IN THE MEDIA 2014-17

1. Le Temps (Sept 2014) [http://www.letemps.ch/Page/Uuid/e812e0ac-3390-11e4-861b-f2a0f94a952e/Comment\\_nos\\_neurones\\_trient\\_les\\_informations](http://www.letemps.ch/Page/Uuid/e812e0ac-3390-11e4-861b-f2a0f94a952e/Comment_nos_neurones_trient_les_informations)
2. Interview at Republic of Innovation. <http://republic-of-innovation.ch/campus-biotech-entretien-avec-anne-lise-giraud-professeure-au-departement-de-neurosciences-fondamentales/>
3. Invitee of CQFD. Radio-télévision Suisse Romande. <http://www.rts.ch/la-1ere/programmes/cqfd/6266237-rencontre-avec-anne-lise-giraud-14-11-2014.html>
4. Des syllabes oscillent dans nos circuits neuronaux [Techno-science.net](http://www.techno-science.net)-11 juin 2015; [Medical Xpress](http://www.medical-xpress.com)-10 juin 2015
5. Syllables that oscillate in neuronal circuits. Science Daily. <https://www.sciencedaily.com/releases/2015/06/150610131447.htm>
6. Crier est très utile en cas de danger. [Tribune de Genève](http://www.tribune-geneve.ch)-16 juil. 2015
7. <http://www.tdg.ch/geneve/actu-genevoise/Crier-est-tres-utile-en-cas-de-danger/story/21312081>
8. Des fréquences sonores particulières permettent de percevoir le ... [RTS.ch](http://www.rts.ch)-17 juil. 2015
9. Cris et les dangers sont traités par la même amygdale. [Le Matin Online](http://www.lematin.ch)-16 juil. 2015
10. Intervention à la RTS: Quand les implants cochléaires ne fonctionnent pas. <http://www.rts.ch/audio/la-1ere/programmes/cqfd/8463721-quand-les-implants-cochleaires-ne-fonctionnent-pas-29-03-2017.html> [RTS.ch](http://www.rts.ch)-23 mars 2017
11. Article dans Le Figaro. Quand le cerveau oublie sa capacité d'écoute. <http://sante.lefigaro.fr/article/surdite-quand-le-cerveau-oublie-sa-capacite-d-ecoute> [Le Figaro](http://www.lefigaro.fr)-11 avril 2017

DATE 30/08/17

SIGNATURE