

# CURRICULUM VITAE – DR SONJA C. VERNES

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## RESEARCH POSITIONS

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- 2020-current: **UKRI Future Leaders Fellow & PI**  
The University of St Andrews, School of Biology
- 2016-current: **Max Planck Research Group Leader – W2 position**  
Neurogenetics of Vocal Communication Group  
Max Planck Institute for Psycholinguistics, The Netherlands.
- 2018-current: **Founding director, Bat1K consortium**  
International bat genome sequencing consortium (>250 members)
- 2017- current: **Donders Institute Principal Investigator**  
Donders Institute for Brain, Cognition and Behaviour, The Netherlands.
- 2012-2016: **Donders Research Fellow**  
Donders Institute for Brain, Cognition and Behaviour, The Netherlands.
- 2012-2015: **Senior Investigator**  
Language and Genetics Department,  
Max Planck Institute for Psycholinguistics, The Netherlands.
- 2010-2012: **HFSP Postdoctoral Research Fellow**  
Research Institute of Molecular Pathology (IMP), Austria.
- 2008-2009: **Wellcome Trust VIP Research Fellow**  
Wellcome Trust Centre for Human Genetics,  
The University of Oxford, United Kingdom.
- 2004-2009: **Doctor of Philosophy (D.Phil)**  
The University of Oxford (University College), United Kingdom.  
**Thesis title:** ‘Investigation of the role of FOXP transcription factors in neurodevelopment’

## SELECTED ACADEMIC AWARDS, PRIZES AND APPOINTMENTS

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- 2019-2020 Visiting Professorship, University of Turin, Department of Life Sciences and Systems Biology
- 2018-2022 FENS-KAVLI Network of Excellence Scholar (<http://fenskavlinetwork.org/>)
- 2019 Selected for AcademiaNet (<http://www.academia-net.org>)
- 2017 NWO Aspasia Award (Awarded, not taken up)
- 2015 Levelt Innovation Award, Max Planck Institute for Psycholinguistics
- 2012 Senior Investigator award, Max Planck Institute for Psycholinguistics
- 2010 HFSP Postdoctoral Fellowship
- 2010 Marie Skłodowska-Curie Postdoctoral Fellowship
- 2010 EMBO Postdoctoral Fellowship (Awarded, not taken up)
- 2008 Graduate Research Prize (for D.Phil thesis), Nuffield Department of Clinical Medicine, The University of Oxford
- 2006 G A Paul Graduate Scholar Award, University College, Oxford
- 2006 & 2008 Travelling Scholarships – The Genetics Society (UK)
- 2006 & 2007 Old Members Awards – Travel scholarships – University College Oxford
- 2004 Christopher Welch Scholarship in Biological Sciences (PhD scholarship), The University of Oxford
- 2004 Clarendon Fund Scholar (PhD scholarship), The University of Oxford
- 2003 Honours Research Award, Federation of University Women

## CURRENT RESEARCH FUNDING

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2020-27	Future Leaders Fellowship, UKRI
Awarded	ERC Consolidator Grant, European Research Council (ERC)
2016-23	Max Planck Research Group, Max Planck Gesellschaft

## PREVIOUS RESEARCH FUNDING (TOTAL ~€1.7 MILLION)

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2016-20	Lead Investigator, HFSP Research Grant, Human Frontiers Science Program
2015-19	Interdisciplinary Project Grant, Max Planck Institute for Psycholinguistics
2014-18	RUMC Junior Round Grant, Radboud University Medical Centre
2013-18	Career Integration Grant, Marie Skłodowska-Curie action
2010-13	HFSP Long-Term Fellowship, Human Frontiers Science Program
2010	Marie Curie Intra-European Fellowship, Marie Skłodowska-Curie action
2008	Wellcome Trust VIP Award, Wellcome Trust UK
2006-8	Pilot Study Grant, Autism Speaks (Project manager/co-applicant)

## CONSORTIA/RESEARCH GROUPS

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Founding Director:	Bat1K genome sequencing consortium ( <a href="http://www.bat1k.com">www.bat1k.com</a> )
Member:	Vertebrate Genome Project (VGP) ( <a href="https://www.rockefeller.edu/research/vertebrate-genomes-project/">https://www.rockefeller.edu/research/vertebrate-genomes-project/</a> )
Chair	VGP-language Working Group, part of the Vertebrate Genome Project
Council member:	UK representative to the European reference genome atlas (EGRA) consortium ( <a href="https://vertebrategenomesproject.org/erga">https://vertebrategenomesproject.org/erga</a> )
Member:	G10K genome sequencing consortium ( <a href="https://genome10k.soe.ucsc.edu">https://genome10k.soe.ucsc.edu</a> )
Lead Investigator:	HFSP project grant, composed of 4 international labs investigating vocal learning in bats

## NATIONAL AND INTERNATIONAL RESEARCH COLLABORATIONS

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Name	Affiliation, Country
Dr G Konopka	UT Southwestern Medical Center, <b>USA</b>
Dr. A Ravignani	VU Brussels, <b>Belgium</b> & Sealcentre Pieterburen, <b>The Netherlands</b>
Prof C. Scharff	Freie University Berlin, <b>Germany</b>
Prof. U. Firzlaff	Technical University Munich (TUM), <b>Germany</b>
Prof. M Yartsev	University of California at Berkeley, <b>USA</b>
Dr. K Kendrick	York University, <b>UK</b>
Prof. A. Pfenning	Carnegie-Mellon University, PA, <b>USA</b>
Prof. E. Teeling	University College Dublin (UCD), <b>Ireland</b>
Prof. L. Davalos	Stonybrook University, NY, <b>USA</b>
Prof. D. Ray	University of Texas, <b>USA</b>
Prof. G. Myers	Max Planck Institute Molecular Cell Biology & Genetics, Dresden, <b>Germany</b>
Prof. C. Gilissen	Radboud University, Nijmegen, <b>The Netherlands</b>
Prof. P. Hagoort	Max Planck Institute for Psycholinguistics, Nijmegen, <b>The Netherlands</b>
Prof. M Knörnschild	Museum of Natural History Berlin, <b>Germany</b>

## OVERVIEW OF PUBLICATIONS

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Total publications:	<b>46</b>
Journal articles:	<b>42</b>
Book chapters:	<b>4</b>
Corresponding/senior authorships	<b>28</b>
First authorships:	<b>11</b>
H-index (google scholar):	<b>23</b>
i10 index (google scholar):	<b>34</b>
Number of Citations (google scholar):	<b>3,534</b>

## HIGHLIGHTED PUBLICATIONS - Full list see page 11

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- 2021 Rhie et al.  
Towards complete and error-free genome assemblies of all vertebrate species.  
Available on BioRxiv: doi: <https://doi.org/10.1101/2020.05.22.110833>  
(accepted @Nature)
- 2020 Jebb D et al. (joint senior/corresponding author)  
Six new reference quality bat genomes illuminate the molecular basis and evolution of bat adaptations.  
**Nature.** 583, 578–584. (*Featured on the cover of Nature*)
- 2018 Rodenas-Cuadrado P, Mengede J, Schmid TA, Devanna P, Yartsev M, Firzlaff U, **Vernes SC.**  
Mapping the distribution of language related genes FoxP1, FoxP2 and CntnaP2 in the brains of vocal learning bat species.  
**Journal of Comparative Neurology.** 526(8):1235-1266.
- 2018 Devanna P, Chen S, Ho J, Gajewski D, Smith S, Gialluisi A, Francks C, Fisher SE, Newbury D, **Vernes SC.**  
Next-gen sequencing identifies non-coding variation disrupting miRNA binding sites in neurological disorders.  
**Molecular Psychiatry.** 23(5):1375–1384
- 2018 Wanke K, Devanna P & **Vernes SC.**  
Understanding neurodevelopmental disorders; the promise of regulatory variation in the 3'UTRome.  
**Biological Psychiatry.** 83(7):548-557.
- 2017 **Vernes SC**  
What bats have to say about speech and language.  
**Psychonomic Bulletin & Review (Invited - Special Issue).** 24(1):111-117.
- 2015 Rodenas-Cuadrado P, Chen S, Wiegreb L, Firzlaff U, **Vernes SC.**  
A novel approach identifies the first transcriptome networks in bats; a new genetic model for vocal communication.  
**BMC Genomics.** 16:836.
- 2011 **Vernes SC** et al.  
Foxp2 regulates gene networks implicated in neurite outgrowth in the developing brain.  
**PLOS Genetics.** 7(7): e1002145.
- 2008 **Vernes SC** et al.  
A functional genetic link between distinct developmental language disorders.  
**New England Journal of Medicine.** 359(22):2337-45.

## **RESEARCH GROUP – CURRENT STAFF AND STUDENTS UNDER SUPERVISION**

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### **Staff (N=4):**

- 2021 E. Mollison, Post-doctoral Research Staff  
2020 S. Hoerpel, Post-doctoral Research Staff  
2017 K. Lavrichenko, Research Staff  
2019 M. Mei, Bat1K Communications Officer

### **PhD students, International Max Planck Research School (N=6):**

- 2019 N. Hoeksema, Radboud University, Nijmegen, NL  
2017 I. Alvarez van Tussenbroek, Leiden University, Leiden, NL  
2017 J. Mengede, Radboud University, Nijmegen, NL  
2016 P. Devanna, Radboud University, Nijmegen, NL  
2015 M. Anijs, Radboud University, Nijmegen, NL (currently writing up)  
2014 K. Wanke, Radboud University, Nijmegen, NL (currently writing up)

### **MSc/BA/HAN students (N=1):**

- 2020 C van Roessel, MSc, Radboud University, Nijmegen, NL

### **Research student assistants (N=1):**

- 2019 Y. Hong, Radboud University, Nijmegen, NL

## **PREVIOUS STUDENT SUPERVISION**

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### **Graduated PhD students (N=4):**

- 2020 E.Z. Lattenkamp, Radboud University, Nijmegen, NL & LMU, Munich, Germany  
2019 J.R. van Rhijn, Radboud University, Nijmegen, NL  
2016 M. Becker, Radboud University, Nijmegen, NL  
2015 J.W. Ho, The University of Oxford, Oxford, UK

### **Graduated MSc students (N=11):**

- 2020 A. Botan, MSc, Radboud University, Nijmegen, NL  
2019 L. Klein, MSc, Radboud University, Nijmegen, NL  
2019 T. Loman, MSc, Radboud University, Nijmegen, NL  
2018 P. Andrey, MSc Engineering & Statistics, ENSAE ParisTech, Paris, France  
2018 L. van der Loo, MSc, Radboud University, Nijmegen, NL  
2018 M. Cepero Malo, MSc, Radboud University, Nijmegen, NL  
2017 I. Alvarez van Tussenbroek, Radboud University, Nijmegen, NL  
2017 N. Hoeksema, University of Groningen, Groningen, NL  
2016 J. Mengede, Radboud University, Nijmegen, NL  
2015 M. Anijs, Radboud University, Nijmegen, NL  
2012 H.G. Gumus, Radboud University, Nijmegen, NL

### **Graduated Bachelor/HAN intern students (N=10):**

- 2018 Y. Winmai, HAN Intern, Hogeschool Arnhem en Nijmegen, Nijmegen, NL  
2017 C. Griva, BA, University of Strathclyde, UK  
2015 S. Kuhl, HAN Intern, Berufskolleg Hilden, Hilden, Germany  
2014 D. Gajewski, HAN Intern, Berufskolleg Hilden, Hilden, Germany  
2013 S. Chauhan, Köln University, Germany  
2013 N. Stadtler, HAN Intern, Berufskolleg Hilden, Hilden, Germany  
2010 P. Walsh, BSc, University of Vienna, Austria & NUI Galway, Ireland  
2008 A. Page, BSc, University of Oxford, UK  
2008 R. Chadra, BSc, University College London, UK  
2008 T. Bajorek, B Med Sci, University of Oxford, UK

### **Student assistants (N=9):**

- 2020 T. Loman, MSc, Radboud University, Nijmegen, NL  
2018/19 N. Kolsters, Hogeschool van Arnhem en Nijmegen, Nijmegen, NL  
2017/19 K. Foreman, Radboud University, Nijmegen, NL  
2018 H. Wardak, Radboud University, Nijmegen, NL  
2018 C. Grabitz, Radboud University, Nijmegen, NL

- 2017 M. Cepero Malo, Radboud University, Nijmegen, NL  
2017 A. Zhuparris, Radboud University, Nijmegen, NL  
2016 L. van der Loo, Radboud University, Nijmegen, NL  
2015 S. Cornelis, Radboud University, Nijmegen, NL

## TEACHING EXPERIENCE

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### Visiting professorship

- 2019-20: Evolution of Behaviour (Vocal Communication Module)  
Department of Life Sciences and Systems Biology, University of Turin, Italy

### Academic courses - acting as course coordinator and lecturer (N=4):

- 2015-18: Eloquent Apes: the astonishing human capacity for language (HAC-B-086)  
Bachelors Honours School, Radboud University, Nijmegen, NL.  
2016-17: Think tank: Animal Research: science, policy and ethics (RHA-M-1617)  
Masters Honours School, Radboud University, Nijmegen, NL.  
2014 Genes and Language  
Netherlands Graduate School of Linguistics (LOT) Summer School, Nijmegen, NL.  
2013 Genes and Language: from molecules to linguistic diversity  
German Society of Linguistics Summer School, Berlin, Germany.

### Academic courses - acting as lecturer (N=7):

- 2015-19 Neurogenomics of Speech, Language and Reading Disorders (NWI-BM061)  
Medical Biology Masters, Radboud University, Nijmegen, NL.  
2017-19 Neurobiology and evolution of language (DGCN43)  
Master of Cognitive Neuroscience, Radboud University, Nijmegen, NL.  
2019 Bats as a model for vocal learning and language  
Trends and Topics in Neurolinguistics, International Radboud Summer School, NL.  
2014-17 The building blocks of language: from molecules to neural circuits  
CSHL course: Genetics and Neurobiology of Language, NY, USA.  
2018-20 Understanding speech and language; from genes to bats and beyond  
CSHL course: Genetics and Neurobiology of Language, NY, USA.  
2016 Molecular Neurogenetic Approaches to Language  
Language in Interaction Summer School, Radboud University, NL  
2015 Language Science Course: Current methods and interdisciplinary perspectives  
International Summer School, Radboud University, Nijmegen, NL.  
2013 The molecular genetics of language  
Linguistics Society of America Summer School, Michigan, USA.

### Soft skills courses - acting as course coordinator and lecturer (N=3):

- 2015-16 Communication in Cognitive Neuroscience (SOW-DGCN28)  
Cognitive Neuroscience Masters, Radboud University, Nijmegen, NL.  
2016, 19 Peer review for academics  
International Max Planck Research School (IMPRS), Nijmegen, NL.  
2013-16 Writing an academic CV  
International Max Planck Research School (IMPRS), Nijmegen, NL.

## CONFERENCE ORGANISATION

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8<sup>th</sup> Annual meeting of the Max Planck Research Group Leaders, May 26<sup>th</sup>-27<sup>th</sup> 2020, Online meeting  
7<sup>th</sup> Annual meeting of the Max Planck Research Group Leaders, April 16<sup>th</sup>-17<sup>th</sup> 2019, Munich, Germany

Unifying Vocal Learning - Lorentz meeting, Sept 9-13<sup>th</sup> 2019, Leiden, The Netherlands  
(<https://lorentzcenter.nl/lc/web/2019/1162/info.php3?wsid=1162&venue=Oort>)

## INVITED AND CONFERENCE PRESENTATIONS

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### Plenary speaker (N=8)

- 2020 International Conference on the Evolution of Language ('Evolang'), Brussels, Belgium (Postponed)  
2020 European Conference on Behavioural Biology, Zurich, Switzerland (Postponed)  
2019 Second international workshop on "Vocal Interactivity in-and-between Humans, Animals and Robots" (VIHAR), London, UK  
2019 Revolutionizing Next-Generation Sequencing, a VIB Tools & Technologies Conference, Antwerp, Belgium  
2019 Nordic Long-Read Sequencing meeting, Uppsala, Sweden  
2019 Plant & Animal Genome Meeting, San Diego, USA.  
PacBio workshop: How SMRT Sequencing is Accelerating Plant and Animal Genomics  
2018 SMRT Scientific Symposium, Leiden, Netherlands  
2017 Protolang meeting, Barcelona, Spain  
2015 Annual Meeting of the Society for Neuropediatrics, Basel, Switzerland

### Symposium chair and speaker (N=4)

- 2018 Genome10K annual meeting, Rockefeller University, New York, USA  
2018 Genome10K annual meeting, Rockefeller University, New York, USA  
2017 Berlin Bat Meeting, Berlin, Germany  
2016 Society for Neuroscience (SFN) Annual Meeting, San Diego, USA  
Mini-symposium: Neurogenetic Insights into Speech and Language: From Birds and Bats

### Invited colloquium speaker (N=14)

- 2021 University of Neuchatel, Swiss National Centre of Competence in Research (NCCR) Evolving Language Center, Switzerland (upcoming)  
2021 LOOPS seminar series on 'subcortico-cortical loops in sensory processing and perception, Charité - Universitätsmedizin Berlin, Germany (upcoming)  
2021 Department of Fundamental Neuroscience (DNF), University of Lausanne, Switzerland (upcoming)  
2018 NeuroCure Cluster of Excellence, Neuroscience Symposium, Charité Universitätsmedizin, Berlin, Germany  
2018 Cognitive Science Colloquium series, Institut d'Etudes Cognitives, Paris, France  
2018 University College Dublin (UCD), Dublin, Ireland  
2017 Centre for Biological Diversity Seminar Series, St Andrews University, UK  
2017 Biological Diversity Group Discussion Meeting, St Andrews University, St Andrews, UK  
2016 NeuroBat Lab, UC Berkeley, Berkeley, CA, USA  
2016 Institute for Biology (IBL), Leiden University, Leiden, NL  
2015 Utrecht Institute of Linguistics, Utrecht, NL  
2011 Institute of Neurology and Genetics, Larnaca, Cyprus  
2007 Max Planck Institute for Evolutionary Genetics, Leipzig, Germany  
2006 Ludwig Institute for Cancer Research, San Diego, USA

### Invited conference speaker (N=14)

- 2019 Oxford Autumn School in Neuroscience, The University of Oxford  
2019 Spring school on language and music cognition, University of Cologne, Germany  
2018 Fens-Kavli Network of Excellence/Kavli Institute for Brain & Mind joint symposium  
2018 Bats: A New Model for Healthy Aging, CSHL meeting, NY, USA  
2018 International Society for Developmental Neuroscience (ISDN) meeting, Nara, Japan  
2017 Key questions and new methods in the language sciences, Berg en Dal, NL  
2017 British Neuroscience Association (BNA) meeting, Birmingham, UK  
2015 Meeting of the Netherlands Society for Behavioural Biology, Soesterberg, NL  
2015 International Bioacoustics Congress, Murnau, Germany.  
2015 Human Evolution Towards Language Meeting (Leopoldina-INSY Symposium), Pune, India.  
2014 Euro Evo-Devo Meeting, Vienna, Austria.  
2012 ICREA International Symposium, Barcelona, Spain.  
2012 Castang Foundation Conference, Edinburgh, Scotland, UK.  
2008 Genes and Behavior Gordon Research Conference, Lucca, Italy.

**Conference speaker (N=3)**

- 2018 Meeting of German Bat Researchers, Heidesee, Germany  
2018 Evolang conference, Turin, Poland  
2017 Meeting of the Dutch Behavioural Society (NVG), Soesterberg, NL

**PEER REVIEW**

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**Editorial board member (N=3):**

- Scientific Reports (Nature Publishing Group)  
Frontiers in Psychology (Frontiers)  
Journal of Language Evolution (Oxford University Press)

**Expert reviewer – Journals (N=33):**

General interest journals:

- PNAS (Proceedings of the National Academy of Sciences)  
Current Biology  
Proceedings of the Royal Society B: Biological Sciences  
Philosophical Transactions of the Royal Society  
eLife  
Science Advances  
Nature Communications  
Scientific reports  
PLOS One  
Biology Letters  
Royal Society Open Biology

Genetics journals:

- PLOS Genetics  
Genome Research  
European Journal of Human Genetics  
Gene  
Molecular Cytogenetics  
Journal of Medical Genetics

Molecular biology journals:

- Molecular Biology and Evolution  
Molecular Autism

Neuroscience journals:

- Trends in Neurosciences  
Genes, Brain and Behaviour  
Annals of Neurology  
Autism Open Access  
Brain Structure and Function  
Neuroimage

Behaviour/Other journals:

- Psychonomic Bulletin and Review  
Comparative Cognition & Behaviour Reviews  
Journal of Language Evolution  
Current Opinion in Behavioural Science  
Behavioural Processes  
Current Zoology  
MIT Press  
Oxford University Press

**Expert reviewer – Grant agencies (N=10):**

- Action medical research, United Kingdom  
COST (European Cooperation in Science and Technology) Grants  
Deutsche Forschungsgemeinschaft (DFG), Germany  
Estonian Research Council (ERC), Estonia  
European Research Grant (ERC) Starting Grants

Israel Science Foundation (ISF), Israel  
Medical Research Council UK (MRC UK), United Kingdom  
Medical Research Council (MRC SA), South Africa  
Max Planck Research Group Selection panel member, Max Planck Gesellschaft (MPG),  
Germany (2017 & 2018)  
National Science Centre (NCN), Poland

**Expert reviewer – Conferences (N=1):**

Evolang: Evolution of Language International Conference

**Member of PhD thesis committees (N=4):**

2017 -N.H.L. Lam, Radboud University, Nijmegen, NL  
2016 -N.F.M. Olde Loohuis, Radboud University, Nijmegen, NL  
2015 -E.J.C. van Leeuwen, Radboud University, Nijmegen, NL  
2015 -H.S. Webb, University of the Witwatersrand, Johannesburg, SA

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**SOCIETY MEMBERSHIPS**

FENS-KAVLI Network of Excellence  
NeuroFederatie Dutch Neurofederation, The Netherlands  
Federation of European Neuroscience Societies, European Union  
The Society for Neuroscience, USA

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**COMMUNITY INVOLVEMENT**

**2018 - 2020: Speaker of the MPRG, Human Sciences Section, Max Planck Society**

Representative of the Max Planck Research Group Leaders to the humanities section of the Max Planck Society, Human Sciences Section.

**2012 - 2021: Dean of Students, Max Planck Institute for Psycholinguistics**

The MPI Dean position oversees the welfare of students and coordinates with the IMPRS PhD School in matters of education, training and welfare.

**2012-2015: Research Staff Council Chair, Max Planck Institute for Psycholinguistics**

This role entailed working with other committees, the administration and the directorate to represent the needs and concerns of the research staff.

## SELECTED NEWS & MEDIA OUTREACH

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### Film, radio and major news outlets:

- 2020      **BBC Radio & online** – Interview regarding Bat1K consortium and “Six new reference quality bat genomes illuminate the molecular basis and evolution of bat adaptations” paper  
“Cracking the secrets of how bats survive viruses”  
<https://www.bbc.co.uk/news/science-environment-53494566>  
This research article received extensive further media attention – full list can be found here:  
<https://docs.google.com/document/d/1F7q37Ds-lqnphYkJSMx35IQjcd869oGLi4KQSj4ZBjl/edit>
- New Scientist** – ‘Bats can learn to copy sounds and it may teach us about human speech’  
Article: <https://www.newscientist.com/article/2240435-bats-can-learn-to-copy-sounds-and-it-may-teach-us-about-human-speech/>  
Podcast: <https://twitter.com/NewScientistPod/status/1251035033684639744>
- Le Monde** – ‘Les secrets de la chauve-souris, « souche à virus » au système immunitaire d’exception’  
(translation: The secrets of the bat, a "virus strain" with an exceptional immune system)  
[https://www.lemonde.fr/sciences/article/2020/04/13/la-chauve-souris-alliee-ou-ennemie\\_6036465\\_1650684.html](https://www.lemonde.fr/sciences/article/2020/04/13/la-chauve-souris-alliee-ou-ennemie_6036465_1650684.html)
- 2019      **Le Monde** – ‘Pourquoi l’étude de la chauve-souris, toujours aussi mystérieuse, passionne les scientifiques’  
(translation: Why the study of bats, still so mysterious, fascinates scientists)  
[https://www.lemonde.fr/sciences/article/2019/10/21/la-chauve-souris-un-super-mammifere\\_6016358\\_1650684.html](https://www.lemonde.fr/sciences/article/2019/10/21/la-chauve-souris-un-super-mammifere_6016358_1650684.html)
- ARTE documentary** ‘Die eloquenz der tiere’  
(translation: The eloquence of animals’)  
Director: Jérôme-Cécil Auffret  
Documentary aired Dec 2019. Full program:  
<https://www.arte.tv/de/videos/072416-001-A/die-eloquenz-der-tiere-1-2/>
- 2018      **BBC Radio 4** Today program interview, “Animal conversations” (06.06.18)  
**BBC World Service** interview. “Animal conversations” (06.06.18)  
<https://www.bbc.co.uk/programmes/w172w4k9jmzm38l>

### News features in scientific journals:

- 2020      **Science** – ‘How bats have outsmarted viruses—including coronaviruses—for 65 million years’  
<https://www.sciencemag.org/news/2020/07/how-bats-have-outsmarted-viruses-including-coronaviruses-65-million-years>
- 2018      **Nature Methods** - ‘What makes birds and bats the talk of the town’  
<https://www.nature.com/articles/s41592-018-0050-y>
- 2017      **PNAS** - ‘Singing in the brain’  
<http://www.pnas.org/content/114/36/9490>
- Scientific American** – ‘How Baby Bats Develop Their Dialects’  
<https://www.scientificamerican.com/article/how-baby-bats-develop-their-dialects/>
- 2016      **Nature** - ‘Geneticists hope to unlock secrets of bats’ complex sounds’  
<https://www.nature.com/news/geneticists-hope-to-unlock-secrets-of-bats-complex-sounds-1.20997>
- Scientific American** – ‘Geneticists hope to unlock secrets of bats’ complex sounds’  
<https://www.scientificamerican.com/article/geneticists-hope-to-unlock-secrets-of-bats-complex-sounds/>
- Scientific American** – ‘Bat Banter is Surprisingly Nuanced’  
<https://www.scientificamerican.com/article/bat-banter-is-surprisingly-nuanced1/>

### **Online articles and Blog posts:**

- 2017      **On Biology** Blog – BioMed Central - 'The bat blueprint'  
<https://blogs.biomedcentral.com/on-biology/2017/03/08/the-bat-blueprint-bat1k/>
- Max Planck Gesellschaft** – 'Worth talking about'  
<https://www.mpg.de/10757570/language-research-in-the-max-planck-society>
- Science Daily** – 'Defect in non-coding DNA might trigger brain disorders such as severe language impairment'  
<https://www.sciencedaily.com/releases/2017/03/170314081542.htm>
- 2016      **BioMed Central** Blog - 'What can bats teach us about human language, diseases, and tequila'  
<http://blogs.biomedcentral.com/bmcseriesblog/2016/04/15/can-bats-teach-us-human-language-diseases-tequila/>
- Kennislink** – 'Batwoman in de taalwetenschap' (Translation: Batwoman in Linguistics)  
<https://www.nemokennislink.nl/publicaties/batwoman-in-de-taalwetenschap/>
- 2015      **Spectrum News** (SFARI) - 'Double-dose mutation in language gene points to new syndrome'  
<https://spectrumnews.org/news/double-dose-mutation-in-language-gene-points-to-new-syndrome/>
- 2015      **Nederlandse Vereniging voor Gedragsbiologie** - 'In the spotlight' article  
[http://www.gedragsbiologie.nl/Newsletter/NVG\\_nieuwsbrief/NVG\\_24\\_2.pdf](http://www.gedragsbiologie.nl/Newsletter/NVG_nieuwsbrief/NVG_24_2.pdf)

### **Scientific commentary papers:**

- 2017      **Frontiers in Neuroscience** - 'Talking Convergence: Growing evidence links FOXP2 and Retinoic Acid in shaping speech-related motor circuitry'. Authors: Negwer & Schubert.  
Invited commentary highlighting our publication: Devanna et al. 2014  
<https://www.frontiersin.org/articles/10.3389/fnins.2017.00019/full>
- 2014      **Frontiers in Cellular Neuroscience** - 'FOXP2, retinoic acid, and language: a promising direction'. Authors: Benitez-Burraco & Boeckx.  
Invited commentary highlighting our publication: Devanna et al. 2014  
<http://journal.frontiersin.org/article/10.3389/fncel.2014.00387/full>

### **Other media:**

- 2017      **EU Researcher** magazine – 'New Insights into the genetics of speech'  
[https://issuu.com/euresearcher/docs/eur12\\_digital\\_magazine\\_spring\\_2017/21](https://issuu.com/euresearcher/docs/eur12_digital_magazine_spring_2017/21)
- 2015      **BioMed Central** - Rodenas-Cuadrado et al, 2015 listed as one of the most influential articles of 2015  
<http://www.mpi.nl/departments/neurogen/news/bat-transcriptome-paper-in-list-of-most-influential-articles-of-2015>
- 2015      **Max Planck Institute News** - 'Bat genes could provide fresh clues about the neurobiology of human speech'  
<http://www.mpi.nl/departments/language-and-genetics/news/bats-could-provide-clues-about-the-biological-basis-of-human-speech-and-language>

# FULL PUBLICATION LIST – SONJA C. VERNES

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Link to full text of all publications: <https://www.mpi.nl/people/vernes-sonja/publications>

Google scholar: <https://scholar.google.nl/citations?user=zVddmWYAAA&hl=en>

ORCID: <https://orcid.org/0000-0003-0305-4584>

## JOURNAL SPECIAL ISSUE

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Editor: Special Issue @**Philosophical Transactions of the Royal Society B.**

Vocal learning in humans and animals

Co-editors: Vincent Janik, Tecumseh Fitch, Peter Slater

Scheduled publication May 2021

## JOURNAL ARTICLES – PREPRINTS AND IN REVIEW (N=3):

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Moreno Santillan et al.

Large-Scale genome sampling reveals unique immunity and metabolic adaptations in bats

Available on Authorea doi: [10.22541/au.160977727.76870866/v2](https://doi.org/10.22541/au.160977727.76870866/v2)

Under review - Invited submission @ **Molecular Ecology**

Lattenkamp et al.

Learning to call: the vocal development of the pale spear-nosed bat is dependent on auditory feedback

In revision - Invited submission @**Philosophical Transactions of the Royal Society B.**

Scala et al.

CNTNAP2 biallelic variants in paroxysmal hyperkinetic-dyskinetic movement disorder.

Under review @**Neurology Genetics**

## JOURNAL ARTICLES – PEER REVIEWED (TOTAL N=42):

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### 2021 (N=4)

Rhie et al.

Towards complete and error-free genome assemblies of all vertebrate species.

Available on BioRxiv: doi: <https://doi.org/10.1101/2020.05.22.110833>

Accepted @**Nature**

Wilkinson et al.

Genome Methylation Predicts Age and Longevity of Bats.

Available on BioRxiv doi: <https://doi.org/10.1101/2020.09.04.283655>

Accepted @**Nature Communications**

Hoeksema et al.

Neuroanatomy of the grey seal brain: bringing pinnipeds into the neurobiological study of vocal learning

Available on BioRxiv doi: <https://doi.org/10.1101/2020.12.19.423579>

Accepted @**Philosophical Transactions of the Royal Society B.**

Lattenkamp, E. Z., Nagy, M., Drexel, M., **Vernes, S. C.**, Wiegrefe, L., & Knörnschild, M.

Hearing sensitivity and amplitude coding in bats are differentially shaped by echolocation calls and social calls.

**Proceedings of the Royal Society B: Biological Sciences.** 288(1942): 20202600.

### 2020 (N=3)

Jebb D, Huang Z, Pippel M, Hughes GM, Lavrichenko K, Devanna P, Winkler S, Jermiin LS, Skirmuntt EC, Katzourakis A, Burkitt-Gray L, Ray DA, Sullivan KAM, Roscito JG, Kirilenko BM, Dávalos LM, Corthals AP, Power ML, Jones G, Ransome RD, Dechmann D, Locatelli AG, Puechmaille SJ, Fedrigo O, Jarvis ED, Hiller M\*, **Vernes SC\***, Myers EW\*, Teeling EC\* (\*joint senior/responding author)

Six new reference quality bat genomes illuminate the molecular basis and evolution of bat adaptations.

**Nature.** 583, 578–584. (Featured on the cover of *Nature*)

Lattenkamp EZ\*, **Vernes SC**(\*corresponding authors) & Wiegreb, L  
Vocal production learning in the pale spear-nosed bat, *Phyllostomus discolor*.  
**Biology Letters.** 16: 20190928. doi:10.1098/rsbl.2019.0928.

**Vernes SC** & Wilkinson, G\* (\*authors contributed equally)  
Behaviour, biology, and evolution of vocal learning in bats  
**Philosophical Transactions of the Royal Society B (Invited - Special Issue).** 375.  
<https://doi.org/10.1098/rstb.2019.0061>

## 2019 (N=3)

Wirthlin M, Chang EF, Knörnschild M, Krubitzer LA, Mello CV, Miller CT, Pfenning AR, **Vernes SC**, Tchernichovski O, Yartsev MM.

A Modular Approach to Vocal Learning: Disentangling the Diversity of a Complex Behavioral Trait  
**Neuron.** 104(1): 87-99. <https://doi.org/10.1016/j.neuron.2019.09.036>

Lattenkamp EZ, Shields S, Schutte M, Richter J, Linnenschmidt M, **Vernes SC** & Wiegreb, L  
The Vocal Repertoire of Pale Spear-nosed Bats in a Social Roosting Context  
**Frontiers in Ecology and Evolution.** 7: 116. <https://doi.org/10.3389/fevo.2019.00116>

Yohe LR, Devanna P, Davies KTJ, Potter J, Rossiter SJ, Teeling E, **Vernes SC\***, Dávalos LM\*  
(\*joint corresponding authors)  
Tissue Collection of Bats for -Omics Analyses and Primary Cell Culture.  
**Journal of visual experimentation.** (152) e59505, doi:10.3791/59505

## 2018 (N=10)

Lattenkamp EZ, **Vernes SC**(\*corresponding author) & Wiegreb, L  
Volitional control of social vocalisations and vocal usage learning in bats.  
**Journal of Experimental Biology.** jeb.180729. doi:10.1242/jeb.180729

Lattenkamp EZ & **Vernes SC**  
Vocal learning: a language-relevant trait in need of a broad cross-species approach.  
**Current Opinion in Behavioural Science (Invited - Special Issue).** 21:209-215.  
[doi.org/10.1016/j.cobeha.2018.04.007](https://doi.org/10.1016/j.cobeha.2018.04.007)

Pika S, Wilkinson R, Kendrick KH & **Vernes SC**  
Taking turns: Bridging the gap between human and animal communication.  
**Proceedings of the Royal Society B: Biological Sciences.** 285(1880): 20180598.  
doi:10.1098/rspb.2018.0598

Rodenas-Cuadrado P, Mengede J, Schmid TA, Devanna P, Yartsev M, Firzlaff U, & **Vernes SC**  
Mapping the distribution of language related genes FoxP1, FoxP2 and CntnaP2 in the brains of vocal learning bat species.  
**Journal of Comparative Neurology.** 526(8):1235-1266. doi: 10.1002/cne.24385

Teeling E, **Vernes SC**, Dávalos LM, Ray DA, Gilbert TP, Myers E & Bat1K consortium  
Bat Biology, Genomes and the Bat1K project: to generate chromosome-level genomes for all living bat species.  
**Annual Review of Animal Biosciences.** 6<sup>th</sup> Edition:23-46. doi:10.1146/annurev-animal-022516-022811

Devanna P, Chen S, Ho J, Gajewski D, Smith SD, Gialluisi A, Francks C, Fisher SE, Newbury D & **Vernes SC**

Next-gen sequencing identifies non-coding variation disrupting miRNA binding sites in neurological disorders.

**Molecular Psychiatry.** 23(5):1375–1384 doi: 10.1038/mp.2017.30

Devanna P, van de Vorst M, Pfundt R, Gilissen C. & **Vernes SC**  
Genome wide investigation of an ID cohort reveals de novo 3'UTR variants affecting gene expression.  
**Human Genetics.** 137(9):717-721. doi: 10.1007/s00439-018-1925-9

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Understanding neurodevelopmental disorders; the promise of regulatory variation in the 3'UTRome.

**Biological Psychiatry.** 83(7):548-557. doi:10.1016/j.biopsych.2017.11.006

Becker M, Devanna P, Fisher SE & **Vernes SC**

Mapping of human FOXP2 enhancers reveals complex regulation.

**Frontiers in Molecular Neuroscience.** 11: 47 doi: 10.3389/fnmol.2018.00047

van Rhijn JR, Fisher SE, **Vernes SC\*** & Nadif Kasri N\* (\*joint corresponding authors)

Heterozygous Foxp2 loss of function increases striatal direct pathway inhibition via increased GABA release.

**Brain Structure and Function.** 223(9):4211-4226. doi: 10.1007/s00429-018-1746-6

## 2017 (N=1)

**Vernes SC**

What bats have to say about speech and language.

**Psychonomic Bulletin & Review (Invited - Special Issue).** 24(1):111-117.

doi:10.3758/s13423-016-1060-3

## 2016 (N=2)

Rodenas-Cuadrado P, Pietrafusa N, Francavilla T, La Neve A, Striano P. & **Vernes SC**

Characterisation of CASPR2 deficiency disorder - a syndrome involving autism, epilepsy and language impairment.

**BMC Medical Genetics.** 17:8 doi: 10.1186/s12881-016-0272-8

Becker M, Guadalupe T, Franke B, Hibar D, Renteria M, Thompson P, Francks C, **Vernes SC\*** & Fisher SE\* (\*joint corresponding authors)

Early developmental gene enhancers affect subcortical volumes in the adult human brain.

**Human Brain Mapping.** 37(5):1788-800. doi: 10.1002/hbm.23136

## 2015 (N=4)

Rodenas-Cuadrado P, Chen S, Wiegreb L, Firzlaff U, **Vernes SC**

A novel approach identifies the first transcriptome networks in bats; a new genetic model for vocal communication.

**BMC Genomics.** 16:836. doi: 10.1186/s12864-015-2068-1

Van Rhijn JR, & **Vernes SC**

Retinoic acid signaling: A new piece in the spoken language puzzle.

**Frontiers in Psychology; Language Sciences,** 6: 1816. doi:fpsyg.2015.01816

Becker M, Devanna P, Fisher SE & **Vernes SC**

A chromosomal rearrangement in a child with severe speech and language disorder separates FOXP2 from a functional enhancer

**Molecular Cytogenetics.** 8: 69. doi:10.1186/s13039-015-0173-0

Fisher SE & **Vernes SC**

Genetics and the language sciences

**Annual Review of Linguistics.** doi: 10.1146/annurev-linguist-030514-125024

## 2014 (N=4)

Devanna P, Middelbeek J, **Vernes SC**

FOXP2 drives neuronal differentiation by interacting with retinoic acid signalling pathways.

**Frontiers in Cellular Neuroscience.** 8: 305. doi: 10.3389/fncel.2014.00305.

Devanna P & **Vernes SC**

A direct molecular link between the autism candidate gene RORα and the schizophrenia candidate MIR137.

**Scientific Reports.** 4: 3994. doi:10.1038/srep03994.

Rodenas-Cuadrado P, Ho J, **Vernes SC**

Shining a light on CNTNAP2: Complex functions to complex disorders.

**European Journal of Human Genetics.** 22(2):171-8. doi:10.1038/ejhg.2013.100.

**Vernes SC**

Genome wide identification of *Fruitless* targets suggests a role in upregulating genes important for neural circuit formation.

**Scientific Reports.** 4: 4412. doi:10.1038/srep04412.

**2013 (N=1)**

Ayub Q, Yngvadottir B, Chen Y, Xue Y, Hu M, **Vernes SC**, Fisher S.E, Tyler-Smith C

FOXP2 targets show evidence of positive selection in European populations.

**American Journal of Human Genetics.** 92, 696-706. doi:10.1016/j.ajhg.2013.03.019.

**2012 (N=1)**

Walker RM, Hill AE, Newman AC, Hamilton G, Torrance HS, Anderson SM, Ogawa F, Derizioti P, Nicod J, **Vernes SC**, Fisher SE, Thomson PA, Porteous DJ, Evans KL

The DISC1 promoter: characterization and regulation by FOXP2.

**Human Molecular Genetics.** 21(13):2862-72. doi: 10.1093/hmg/ddq111.

**2011 (N=1)**

**Vernes SC**, Oliver PL, Spiteri E, Lockstone HE, Puliyadi R, Taylor JM, Ho J, Mombereau C, Brewer A, Lowy E, Nicod J, Groszer M, Baban D, Sahgal N, Cazier J.B, Ragoussis J, Davies KE, Geschwind DH, Fisher SE

Foxp2 regulates gene networks implicated in neurite outgrowth in the developing brain.

**PLOS Genetics.** 7(7): e1002145. doi: 10.1371/journal.pgen.1002145.

**2010 (N=1)**

Roll P, **Vernes SC**, Bruneau N, Cillario J, Ponsole-Lenfant M, Massacrier A, Rudolf G, Khalife M, Hirsch E, Fisher SE, Szepetowski P.

Molecular networks implicated in speech-related disorders: FOXP2 regulates the SRPX2/uPAR complex. **Human Molecular Genetics.** 19(24):4848-60. doi: 10.1093/hmg/ddq415.

**2009 (N=2)**

**Vernes SC**, Macdermot KD, Monaco AP, Fisher SE

Assessing the impact of FOXP1 mutations on developmental verbal dyspraxia.

**European Journal of Human Genetics.** 17(10):1354-8. doi: 10.1038/ejhg.2009.43.

**Vernes SC** & Fisher SE

Unravelling neurogenetic networks implicated in developmental language disorders.

**Biochemical Society Transactions.** 37(Pt 6):1263-9. doi:10.1042/BST0371263.

**2008 (N=1)**

**Vernes SC**, Newbury DF, Abrahams BS, Winchester L, Nicod J, Groszer M, Alarcón M, Oliver PL, Davies KE, Geschwind DH, Monaco AP, Fisher SE

A functional genetic link between distinct developmental language disorders.

**New England Journal of Medicine.** 359(22):2337-45. doi: 10.1056/NEJMoa0802828.

**2007 (N=3)**

**Vernes SC**, Spiteri E, Nicod J, Groszer M, Taylor JM, Davies KE, Geschwind DH, Fisher SE

High-throughput analysis of promoter occupancy reveals direct neural targets of FOXP2, a gene mutated in speech and language disorders.

**American Journal of Human Genetics.** 81(6):1232-50. doi: 10.1086/522238

Spiteri E, Konopka G, Coppola G, Bomar J, Oldham M, Ou J, **Vernes SC**, Fisher SE, Ren B, Geschwind DH

Identification of the transcriptional targets of FOXP2, a gene linked to speech and language, in developing human brain.

**American Journal of Human Genetics.** 81(6):1144-57. doi: 10.1086/522237.

Johns TG, Perera RM, **Vernes SC**, Vitali AA, Cao DX, Cavenee WK, Scott AM, Furnari FB

The efficacy of epidermal growth factor receptor-specific antibodies against glioma xenografts is influenced by receptor levels, activation status, and heterodimerization.

**Clinical Cancer Research.** 13(6):1911-25. doi: 10.1158/1078-0432.CCR-06-1453.

## 2006 (N=1)

**Vernes SC**, Nicod J, Elahi FM, Coventry JA, Kenny N, Coupe AM, Bird LE, Davies KE, Fisher SE

Functional genetic analysis of mutations implicated in a human speech and language disorder.

**Human Molecular Genetics.** 15(21):3154-67. doi: 10.1093/hmg/ddl392.

## 2005 (N=1)

MacDermot KD, Bonora E, Sykes N, Coupe AM, Lai CS, **Vernes SC**, Vargha-Khadem F, McKenzie F, Smith RL, Monaco AP, Fisher SE

Identification of FOXP2 truncation as a novel cause of developmental speech and language deficits.

**American Journal of Human Genetics.** 76(6):1074-80. doi: 10.1086/430841.

## BOOK CHAPTERS – PEER REVIEWED (TOTAL N=4):

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### 2019 (N=2)

**Vernes, SC**

Neuromolecular approaches to language. In P. Hagoort (Ed.), *Human language: From genes and brain to behavior*. Cambridge, MA. pp. 577-593

**MIT Press.** ISBN: 9780262042635

Devanna P, Dediu D & **Vernes SC**

Genetics of Language: from Complex Genes to Complex Communication. In S.A. Rueschemeyer, & M.G. Gaskell (Eds.), *The Oxford Handbook of Psycholinguistics*. 2nd ed., pp. 865-898.

**Oxford University Press.** ISBN: 9780198786825. doi: 10.1093/oxfordhb/9780198786825.001.0001

### 2013 (N=1)

**Vernes SC** & Fisher SE

Genetic pathways implicated in speech and language. S. Helekar (Ed.), *Animal models of speech and language disorders*. Chapter 2, pp. 13-40

**Springer, New York.** ISBN: 978-1-4614-8400-4. doi:10.1007/978-1-4614-8400-4\_2

### 2011 (N=1)

**Vernes SC** & Fisher SE

Functional Genomic Dissection of Speech and Language Disorders. J.D. Clelland (Ed.), *Advances in Neurobiology*, Vol. 2: *Genomics, Proteomics and the Nervous System*. Chapter 10, pp. 253-278.

**Springer, New York.** ISBN: 978-1441971968. doi: 10.1007/978-1-4419-7197-5\_10

## CONFERENCE PAPERS - PEER REVIEWED AND INDEXED (TOTAL N=6):

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### 2020 (N=4)

**Vernes SC**

Understanding bat vocal learning to gain insight into human speech and language.

**The Evolution of Language: Proceedings of the 13th International Conference**

doi:10.17617/2.3190925

Alvarez van Tussenbroek, I., Knörnschild, M., ten Cate, C., Scharff, C., and **Vernes SC**

Exploring gene expression patterns in the brains of diverse bat species

**The Evolution of Language: Proceedings of the 13th International Conference**

doi:10.17617/2.3190925

Mengede, J., Devanna, P., Hörpel, S., Firzlaff, U., and **Vernes SC**

Studying the Genetic Bases of Vocal Learning in Bats

**The Evolution of Language: Proceedings of the 13th International Conference**

doi:10.17617/2.3190925

Hoeksema, N., Wiesmann, M., Kiliaan, A., Hagoort P., and **Vernes SC**

Bats and the comparative neurobiology of vocal learning

**The Evolution of Language: Proceedings of the 13th International Conference**

doi:10.17617/2.3190925

## 2018 (N=2)

**Vernes SC**

Vocal learning in bats: From genes to behaviour.

In C. Cuskley, M. Flaherty, H. Little, L. McCrohon, A. Ravignani, & T. Verhoef (Eds.)

**The Evolution of Language: Proceedings of the 12th International Conference (EVOLANGXII).**

Toruń, Poland: NCU Press. doi:10.12775/3991-1.128.

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Mammalian models for the study of vocal learning: A new paradigm in bats.

In C. Cuskley, M. Flaherty, H. Little, L. McCrohon, A. Ravignani, & T. Verhoef (Eds.)

**The Evolution of Language: Proceedings of the 12th International Conference (EVOLANGXII).**

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