

Curriculum vitae

• Personal Data

Name: Nico Posnien
Date of birth: 1st October 1981
Nationality: German
Legal status: Married, 2 children

ResearcherID: D-1639-2012

• Current working address

Georg-August-Universität Göttingen, Johann-Friedrich-Blumenbach Institut für Zoologie und Anthropologie, Abteilung Entwicklungsbiologie, Justus-von-Liebig-Weg 11, 37077 Göttingen
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• Employment

since November 2015	Emmy-Noether Group Leader, Georg-August University, Göttingen, Germany funded by the DFG
May 2015 – October 2015	Independent Group Leader, Department of Developmental Biology, Georg-August University, Göttingen, Germany
May 2012 – April 2015	Independent Group Leader, Department of Developmental Biology, Georg-August University, Göttingen, Germany funded by the Volkswagen Foundation
April 2012	Independent Post-doctoral Research Associate, Department of Developmental Biology, Georg-August University, Göttingen, Germany
August 2011 – March 2012	Post-doctoral Research Associate in the laboratory of Dr. Alistair P. McGregor, School of Life Sciences, Oxford Brookes University, Oxford, UK
February 2012	Research stay at Harvard University in the Lab of Cassandra Extavour
January 2010 – July 2011	Post-doctoral Research Associate in the laboratory of Dr. Alistair P. McGregor, Vetmeduni Vienna, Austria
September 2009 – December 2009	Post-doctoral Research Associate in the laboratory of Prof. Dr. Gregor Bucher, Junior Research Group Developmental Genetics, Georg-August University, Göttingen, Germany

• Education

July 2006 – September 2009

Dr. rer. nat.

Junior Research Group Developmental Genetics,
Georg-August-University, Göttingen, Germany
Supervised by Prof. Gregor Bucher

Thesis title: „*Function and Evolution of highly conserved head genes in the red flour beetle Tribolium castaneum*”

Date of Promotion: 17th September 2009

Grade: **summa cum laude**

October 2001 – June 2006

Diploma

Georg-August-University Göttingen, Germany
Main subjects: Developmental Biology, Human
Genetics, Zoology

Thesis title: “*The Tribolium castaneum gene Tc-optix/six3 and the evolution of the labrum*”

Date of Diploma: 20th June 2006

Grades by subject: Entwicklungsbiologie (sehr gut),
Zoologie (sehr gut), Humangenetik (gut)

Final Grade: **sehr gut**

• Memberships

- Society for Evolutionary Developmental Biology (EED)
Council Member since 06/2018
- German Zoological Society (Deutsche Zoologische Gesellschaft)
Speaker of „Fachgruppe Entwicklungsbiologie“ since 06/2018
- GOEvol (<http://www.goevol.uni-goettingen.de/>)
- Member of Göttingen Graduate School for Neurosciences and Molecular Biosciences (GGNB)
- JEDI - Junior European Drosophila Investigators
- DrosEU Consortium (Head of “Transcriptomics” work group)
- Member of Göttingen Center for Molecular Biosciences (GZMB)
- Recommender for Peer Community in Evolutionary Biology (PCI Evol Bio)
- Member of the Center for Integrated Breeding Research (CiBreed)
- International Max Planck Research School for Genome Science (IMPRS-GS)
Program committee member since 03/2017

• Reviewer

Journals

Development, PloS One, GENE, International Journal of Developmental Neuroscience, Frontiers in Zoology, Journal of Evolutionary Biology, PeerJ, Data in Brief, Frontiers in Ecology and Evolution, Scientific Reports, Insect Molecular Biology, Development Genes and Evolution, Acta Zoologica, Molecular Biology and Evolution, Genome Biology and Evolution, Bioinformatics

Funding sources

Deutsche Forschungsgemeinschaft (DFG), Research Fund - Flanders (FWO)

- **Editor**

Associate Editor for *Frontiers in Ecology and Evolution*

Editor for *Development, Genes and Evolution*

Guest Editor for “Size and Shape” Special Issue (*Development, Genes and Evolution*)

Editor for Topical Collection “Size and Shape” (*Development, Genes and Evolution*)

- **Other scientific activities**

2012

- Organization of the GZMB Summer Symposium, Göttingen (with two other Junior Group Leaders)
- Organization of the GOEvol II Meeting, Göttingen (as part of GOEvol Consortium)
- Organization of Next Generation Sequencing Workshop as part of GOEvol Meeting, Göttingen

2013

- Organization of the GOEvol III Meeting, Göttingen (responsible for scientific program and fundraising, 500 EUR funding secured) (as part of GOEvol Consortium)

2014

- Main organizer of Symposium “Size and Shape – Integration of morphometrics, mathematical modelling, developmental and evolutionary biology”, April, 2014, Göttingen
- Member of poster price committee (judge) at biannual Meeting of the European Society for Evolutionary Developmental Biology (EED) in Vienna, Austria, July 2014

2015

- Organization of the GOEvol IV Meeting, Göttingen, February 2015 (as part of GOEvol Consortium)

2016

- Organization of the Symposium “Micro-Evo-Devo – Integrating evolution, development and population genetics” as part of the sixth meeting of the European Society for Evolutionary Developmental Biology (EED), July 2016 (co-organizer: Sebastian Kittelmann, Oxford Brookes University, UK)
- Organizer of the GOEvol V Meeting, Göttingen, October 2016; “Networks in Biology” (as part of GOEvol Consortium)

2017

- Organization of the Symposium “The evolutionary diversity of nervous system development - from worms to humans” as part of the 12th Göttingen Meeting of the German Neuroscience Society, March 2017 (with Max Farnworth, University Göttingen)

2018

- Organization of the 3rd International SpiderWeb Meeting in March 2017 (with Nikola-Michael Prpic-Schäper) (responsible for program and fundraising)
- Member of poster price committee (judge) at annual Meeting of the German Society of Developmental Biology (GFE) in Kiel, March 2017
- Teacher at SPIRITS Summer School “Molecular Zoology”, August 2017, Göttingen

2019

- Organization of the Symposium “Going beyond embryos – evolution of postembryonic development” as part of the seventh meeting of the European Society for Evolutionary Developmental Biology (EED), July 2018 (co-organizer: Micael Reis, Uni Göttingen)
 - Co-Organizer of Workshop “CRISPR/Cas-Applications in Developmental Biology” at 111th Annual Meeting of the German Zoological Society, September 11, 2018 (co-organizers: Susanne Önel, Gregor Bucher)
 - Co-Organizer of GOEvol VI Meeting, “#Sensation @GOEEvolution 2018”, September 27-28, Göttingen (as part of GOEvol Consortium)
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- Organization of DZG Graduate Meeting “Evo-Devo in Germany: Status-Quo and future directions”, March 4-6, 2019 (co-organizer: Natascha Zhang, Munich)
 - Co-Organizer of DZG Satellite Symposium “Haeckel’s legacy” as part of the 112th Annual Meeting of the German Zoological Society, September 11, 2018 (co-organizers: Natascha Zhang, Munich; Benjamin Naumann, Jena)

Publication list

In prep, submitted and in revision

Siomava N, Wimmer EA, **Posnien N** (in revision) Extensive sexual wing shape dimorphism in *Drosophila melanogaster*, *Ceratitis capitata* and *Musca domestica*
preprint: bioarxiv doi: 10.1101/135749

Kapun, M., et al. (incl. **Posnien N**) (submitted). Genomic analysis of European *Drosophila melanogaster* populations on a dense spatial scale reveals longitudinal population structure and continent-wide selection.
preprint: bioarxiv doi: 10.1101/313759

Research Articles

Reis M, Vieira PC, Lata R, **Posnien N**, Vieira J (2018) "Origin and consequences of chromosomal inversions in the *virilis* group of *Drosophila*." *Genome Biology and Evolution*; evy239, doi: 10.1093/gbe/evy239

Torres-Oliva M, Schneider J, Wiegleb G, Kaufholz F, **Posnien N** (2018) Dynamic genome wide expression profiling of *Drosophila* head development reveals a novel role of Hunchback in retinal glia cell development and blood-brain barrier integrity. *PLoS Genet* 14(1):e1007180.

Pechmann M, Benton MA, Kenny NJ, **Posnien N**, Roth S (2017) A novel role for Ets4 in axis specification and cell migration in the spider *Parasteatoda tepidariorum*. *eLife* 2017;6:e27590.

Schwager EE, [...], **Posnien N***, Richards S*, McGregor AP* (2017) The house spider genome reveals a whole genome duplication during arachnid evolution. *BMC Biology* 201715:62. doi: 10.1186/s12915-017-0399-x

Khatib AA, Siomava N, Iannini A, **Posnien N**, Casares F (2017) Specific expression and function of the Six3 optix in *Drosophila* serially homologous organs. *Biology Open* 2017

Siomava N, Wimmer EA, **Posnien N** (2016) Size relationships of different body parts in the three dipteran species *Drosophila melanogaster*, *Ceratitis capitata* and *Musca domestica*. *Dev Genes Evol.*

Torres-Oliva M, Almudí I, McGregor AP, **Posnien N** (2016) A robust (re-)annotation approach to generate unbiased mapping references for RNA-seq-based analyses of differential expression across closely related species. *BMC Genomics*.

Schomburg C, Turetzek N, Schacht MI, Schneider J, Kirfel P, Prpic N-M+ and **Posnien N+** (2015) Molecular characterization and embryonic origin of the eyes in the common house spider *Parasteatoda tepidariorum*. *EvoDevo* 2015, 6:15.
+corresponding authors

Hilbrant M, Almudí I, Leite DJ, Kuncheria L, **Posnien N**, Nunes MDS, McGregor AP (2014) Sexual dimorphism and natural variation within and among species in the *Drosophila* retinal mosaic. *BMC Evolutionary Biology* 14: 240.

Posnien N*, Zeng V*, Schwager EE, Pechmann M, Hilbrant M, Keefe JD, Damen, WGM, Prpic, NM, McGregor AP, Extavour CG+ (2014) A Comprehensive Reference Transcriptome Resource for the Common House Spider *Parasteatoda tepidariorum*. *PLoS ONE* 9: e104885.

*equal contribution

+corresponding authors

Hogvall M, Schönauer A, Budd GE, McGregor AP, **Posnien N**, Janssen, R (2014) Analysis of the Wnt gene repertoire in an onychophoran provides new insights into the evolution of segmentation. *EvoDevo* 5: 14.

Janssen R, **Posnien N** (2014). Identification and embryonic expression of Wnt2, Wnt4, Wnt5 and Wnt9 in the millipede *Glomeris marginata* (Myriapoda: Diplopoda). *Gene Expression Patterns* 14: 55–61.

Arif S, Hilbrant M, Hopfen C, Almudi I, Nunes MDS, **Posnien N**, Kuncheria L, Tanaka K, Mitteröcker P, Schlötterer C, McGregor AP (2013). Genetic and Developmental Analysis of Differences in Eye and Face Morphology Between *Drosophila simulans* and *Drosophila mauritiana*. *Evolution & Development* 15, 4 (2013): 257–267.

Kittelmann S, Ulrich J, **Posnien N**, Bucher G (2013). Changes in anterior head patterning underlie the evolution of long germ embryogenesis. *Dev Biol* 374, 1: 174–184.

Posnien N*, Hopfen C*, Hilbrant M, Ramos-Womack M, Murat S, Schönauer A, Herbert SL, Nunes MDS, Arif S, Breuker CJ, Schlötterer C, Mitteroecker P and McGregor AP (2012). Evolution of Eye Morphology and Rhodopsin Expression in the *Drosophila melanogaster* Species Subgroup. *PLoS ONE* 7(5): e37346

*equal contribution

Fu J*, **Posnien N***, Bolognesi R, Fischer TD, Rayl P, Oberhofer G, Kitzmann P, Brown SJ, Bucher G (2012). Asymmetrically expressed *axin* required for anterior development in *Tribolium*. *PNAS* 2012 May; 109(20):7782–7786.

*equal contribution

Posnien N*, Koniszewski N*, Hein H, Bucher G (2011) Candidate Gene Screen in the red flour beetle *Tribolium* Reveals *six3* as Ancient Regulator of Anterior Median Head and Central Complex Development. *PloS Genet* 7(12)

*equal contribution

Posnien N, Koniszewski N, Bucher G (2011) Insect *Tc-six4* marks a unit with similarity to vertebrate placodes. *Dev Biol* 350: 208-216

Steinmetz PRH, Urbach R, **Posnien N**, Eriksson J, Kostyuchenko RP, Brena C, Guy K, Akam M, Bucher G, Arendt D (2010) *Six3* demarcates the anterior-most developing brain region in bilaterian animals. *EvoDevo* 2010, 1:14

Posnien N, Bucher G (2010) Formation of the insect head involves lateral contribution of the intercalary segment, which depends on *Tc-labial* function. *Dev Biol* 338: 107-116.

Yang X, Weber M, Zarinkamar N, **Posnien N**, Friedrich F, Wigand B, Beutel R, Damen WGM, Bucher G, Klingler M, Friedrich M (2009) Probing the *Drosophila* retinal determination gene network in *Tribolium* (II): The Pax6 genes *eyeless* and *twin of eyeless*. *Dev Biol* 333: 215-227.

Posnien N, Bashasab F, & Bucher G (2009) The insect upper lip (labrum) is a nonsegmental appendage-like structure. *Evol Dev* 11(5):480-488

Schinko JB, Kreuzer N, Offen N, **Posnien N**, Wimmer EA, Bucher G (2008) Divergent functions of *orthodenticle*, *empty spiracles* and *buttonhead* in early head patterning of the beetle *Tribolium castaneum* (Coleoptera). *Dev Biol* 317: 600-613.

Tribolium Genome Sequencing Consortium (including **Posnien N**) (2008) The genome of the model beetle and pest *Tribolium castaneum*. *Nature* 452: 949-955.

Review articles and Editorials

Prpic N-M, **Posnien N** (2016) Size and shape—integration of morphometrics, mathematical modelling, developmental and evolutionary biology. *Dev Genes Evol* 1–4.

Posnien N, Schinko J, Kittelmann S, Bucher G (2010) Genetics, development and composition of the insect head - A beetle's view. *Arthropod Struct Dev* 39: 399-410.

Book chapters

Posnien N (2018) “Phenotyping in evo-devo” in *Modelling and Quantitative Approaches to Evo-Devo* (section editor: Philipp Mitteröcker) as part of *Evolutionary Developmental Biology - A Reference Guide* (Editors: Laura Nuño de la Rosa and Gerd B. Müller); pp. 1–12. Cham: Springer International Publishing. doi: 10.1007/978-3-319-33038-9_121-1

Posnien N, Schinko J, Grossmann D, Shippey TD, Konopova B, Bucher G (2009) RNAi in the Red Flour Beetle (*Tribolium*). *CSH Protoc* 2009: pdb prot5256.

Schinko J, **Posnien N**, Kittelmann S, Koniszewski N, Bucher G (2009) Single and double whole-mount in situ hybridization in red flour beetle (*tribolium*) embryos. *CSH Protoc* 2009: pdb prot5258.

Funding Statement

- March 2012 Volkswagen Foundation (36 months, **307.500 EUR**, including consumables and my own salary)
"Identification and evolution of the gene regulatory network underlying head development in five closely related *Drosophila* species"
Grant Nr.: 85 983
- March 2012 DFG (36 months, **305.950 EUR**, including my own salary)
I could not accept this grant due to potential double funding
"Identification of the changes in the gene regulatory network underlying head evolution in five closely related *Drosophila* species"
Grant Nr.: PO 1648/1-1
- Feb 2014 Volkswagen Foundation - Support for Europe (18 months, **50.000 EUR**, including consumables and Postdoc fellowship salary for Dr. Micael Reis of IBMC Porto/Portugal, who will work on one of my projects)
"Evolution of eye and head size and shape between *Drosophila novamexicana* and *Drosophila americana*"
Grant Nr.: 85983-1
- July 2014 Georg-August-University Göttingen, MWK "Strategische Maßnahmen der Georg-August-Universität Göttingen" – Anschubfinanzierung für den wissenschaftlichen Nachwuchs (9 months, **9.983,24 EUR**, including consumables and student assistant support)
"Evolution and development of the dorsal head in three closely related *Drosophila* species"
- November 2015 DFG Emmy Noether Fellowship (3 years + 1 +1; **1.028.770 EUR** + 342.050 EUR, including consumables, my own salary, 2 PhD positions (6 years), 1 Postdoc position (4 years), student assistants)
"Evolution of the gene regulatory network underlying head development in closely related *Drosophila* species"
Grant Nr.: PO 1648/3-1