

Cover Page



Universiteit Leiden



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Author: Jacobs, Chris G.C.

Title: Surviving embryogenesis : the extraembryonic serosa protects the insect egg against desiccation and infection

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Addendum

List of Publications

1. **Jacobs, C.G.C., Spaink, H.P., van der Zee, M.** (Accepted). The extraembryonic serosa is a frontier epithelium providing the insect egg with a full-range innate immune response. *eLife*
 2. **Jacobs, C.G.C.*, Wang, Y.*, Vogel, H., Vilcinskas, A., van der Zee, M., Rozen, D.E.** (2014). Egg survival is reduced by grave-soil microbes in the carrion beetle, *Nicrophorus vespilloides*. *BMC evolutionary biology*. 14 (1), 208-215. doi: 10.1186/s12862-014-0208-x
 3. **Lee-Yaw, J.A., Jacobs, C.G.C., Irwin, D.E.,** (2014). Individual performance in relation to cytonuclear discordance in a northern contact zone between long-toed salamander (*Ambystoma macrodactylum*) lineages. *Molecular Ecology*. 23(18), 4590-4602. doi: 10.1111/mec.12878
 4. **Jacobs, C.G.C., van Overveld, T., Careau, V., Matthysen, E., Adriaensen, F., Slabbekoorn, H.** (2014). Personality-dependent response to field playback in great tits: slow explorers can be strong responders. *Animal Behaviour*, 90, 65-71. <http://dx.doi.org/10.1016/j.anbehav.2014.01.016>
 5. **Jacobs, C.G.C. and van der Zee, M.** (2013). Immune competence in insect eggs depends on the extraembryonic serosa. *Developmental and Comparative Immunology*, 41, 263-269. <http://dx.doi.org/10.1016/j.dci.2013.05.017>
 6. **Jacobs, C.G.C., Rezende, G.L., Lamers, G.E.M. and van der Zee, M.** (2013). The extraembryonic serosa protects the insect egg against desiccation. *Proceedings of the Royal Society B: Biological Sciences*, 280(1764). <http://dx.doi.org/10.1098/rspb.2013.1082>
- **Van der Zee M, Benton M.A., Jacobs C.G.C., Vazquez Faci, T. and Rabouille C.** (In review). The gap junction protein Innexin7a is essential for basal cell closure during cellularization of the *Tribolium castaneum* blastoderm.
 - **Jacobs, C.G.C., Braak, N., Lamers, G.E.M., van der Zee, M.** (In review). The role of *knickkopf1*, *retroactive* and *laccase2* in serosal cuticle production and desiccation resistance of the *Tribolium* egg.

Curriculum Vitae

Personal information

Family name, First name: Jacobs, Chris
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Date of birth: 20-07-1986
Place of Birth: Asten, the Netherlands
URL for web site: <http://www.science-explained.com>



Chris Jacobs - Picture by Joris van Alphen, published with permission.

Education

11/2010 – 11/2014 PhD
Institute of Biology, Leiden University, the Netherlands
Supervisors: Prof. H.P. Spaik and Dr. M. van der Zee.
02/2009 – 09/2010 Master – Evolutionary and Ecological Sciences
Institute of Biology, Leiden University, the Netherlands
09/2005 – 02/2009 Bachelor – Biology
Institute of Biology, Leiden University, the Netherlands

Current positions

11/2014 – 05/2015 Postdoctoral Research Associate
Institute of Biology, Leiden University, the Netherlands
Supervisors: Prof. H.P. Spaik and Dr. M. van der Zee.
11/2010 – 11/2014 PhD
Institute of Biology, Leiden University, the Netherlands
Supervisors: Prof. H.P. Spaik and Dr. M. van der Zee.

Fellowships and awards

- 2013 Researcher of the year of the Institute of Biology (2013), Leiden University, the Netherlands.
- 2010 Scholarship, Outbound Study Grant, Leiden University. Leiden, the Netherlands.
- 2010 Scholarship, LUF Internationaal Studiefonds (LISF), Leiden, the Netherlands.

Supervision

- 10/2011 – 11/2014 Supervision of in total 5 Master and 6 Bachelor Students
Institute of Biology, Leiden University, the Netherlands

Teaching activities

- 05/2013 Teaching position – Assisting in the field course: “Behavioural Biology”, Institute of Biology, Leiden University, Leiden, the Netherlands.
- 05/2012 Teaching position – Assisting in the field course: “Behavioural Biology”, Institute of Biology, Leiden University, Leiden, the Netherlands.
- 05/2009 Teaching position – Assisting in the field course: “Behavioural Biology”, Institute of Biology, Leiden University, Leiden, the Netherlands.

Invited presentations

- 01/2014 Surviving embryogenesis: the extraembryonic serosa protects against desiccation and infection.
Department of Earth Sciences, [Uppsala University](#), Uppsala, Sweden.
- 07/2013 Surviving embryogenesis: the extraembryonic serosa protects against desiccation and infection.
Michael Akam lab, [Cambridge University](#), Cambridge, England.
- 07/2012 Invited speaker at the 4th meeting of [the European Society for Evolutionary Developmental Biology \(EED\)](#), Lisbon, Portugal.

Conference presentations / attendance

2013	<u>Poster presentation</u> on the 25th Annual Entomology Meeting, Ede, the Netherlands.
2013	<u>Speaker</u> at the iBeetle symposium “New horizons in molecular Zoology”, Göttingen, Germany.
2012	<u>Attended</u> the 24th Annual Entomology Meeting, Ede, the Netherlands.
2011	<u>Speaker</u> at the 23rd Annual Entomology Meeting, Ede, the Netherlands
2011	<u>Attended</u> the Sixt International Symposium on Molecular Insect Science, Amsterdam, the Netherlands.
2011	<u>Poster presentation</u> at the 5th Annual Arthropod Genomics Symposium, Kansas, USA.
2011	<u>Speaker</u> at the International Tribolium meeting, Kansas, USA.
2010	<u>Speaker</u> at the Annual Meeting of the Netherlands Society for Behavioural Biology, Soesterberg, the Netherlands.
2009	<u>Speaker</u> at the Biannual Regional Tribolium Meeting, Cologne, Germany.

Commissions of trust

07/2014 – present	<u>Reviewer</u> for Animal Behaviour
02/2011 – 02/2012	<u>Vice-chair and treasurer</u> of the Leiden PhD Community (LEO), Leiden, the Netherlands.
09/2008 – 09/2009	<u>Vice-chair</u> of the student association Leids Heren Dispuut Cobra, Leiden, the Netherlands.
09/2007 – 09/2008	<u>Treasurer</u> of the student association Leids Heren Dispuut Cobra, Leiden, the Netherlands.

Courses

2013	Summer school in Evolutionary Developmental Biology: From Gene Networks to Organismal Systems, Venice, Italy.
2013	Writing an excellent research grant proposal, Leiden, the Netherlands.
2013	Confocal Light Microscopy: Fundamentals, Advanced techniques and Biological Applications. Amsterdam, the Netherlands.
2012	Scientific Integrity. Leiden, the Netherlands.
2012	Effective Communication, Leiden, the Netherlands.
2011	Time Management, Leiden, the Netherlands.
2011	Communication in Science, Leiden, the Netherlands.

International Experience

- 09/2011 Research visit to learn infection protocols in the lab. of Prof. Jules Hoffman, Strasbourg University, Strasbourg, France.
- 03/2010 – 08/2010 Master research project on speciation between subspecies of the long-toed salamander (*Ambystoma macrodactylum*). University of British Columbia, Vancouver, Canada.
- 04/2008 – 05/2008 Bachelor research project on personality related field playback response, Antwerp University, Antwerp, Belgium.

Public engagement

- 2012 - present Website about Science
www.science-explained.com
- 2014 The Science Explained PhD Game
www.science-explained.com/science-explained-phd-game/
- 2014 Speaker at the science communication conference, Amsterdam, the Netherlands.
- 2013 Movie explaining how a desiccation proof insect egg helped insects conquer terrestrial habitats.
<https://www.youtube.com/watch?v=BqIDBReWDak>

My work in the media

- 2014 Ganzenbord voor wetenschappers. Quest.
<http://www.quest.nl/artikel/speel-ganzenbord-als-een-echte-wetenschapper>
- 2014 Interview about my website on [kijkopkennis.nl](http://www.kijkopkennis.nl)
<http://www.kijkopkennis.nl/wp/2014/04/ik-wil-mensen-inzicht-geven-in-hoe-wetenschap-werkt/>
- 2013 Waterproof eggs let insects conquer dry land.
Nature News. doi:10.1038/nature.2013.13217
- 2013 Membraan om ei was grote troef insecten.
NRC handelsblad. 20 Juni 2013
- 2013 Insecteneitjes. Mare. 20 Juni 2013
- 2013 Insecten op land dankzij nieuw ei. Bionieuws. 22 Juni 2013
- 2013 Hoe insecten te land kwamen. Leidsch Dagblad. 26 Juni 2013
- 2013 Evolutie als tupperwareparty. Volkskrant. 12 Oktober 2013

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I would like to thank my parents, who have supported my choice of going to the university. This even though my grades were so bad, that any well-thinking human being would advise otherwise. I would also like to thank the rest of my family (including in-laws) for their continued support during my PhD. Special thanks to my fiancée Judith, who has showed unconditional support for my scientific endeavours. For accepting that I had to do “just a little work” in the weekends, evenings and so on. For protecting me from embarrassing spelling errors on my website and for being there for me when I got rejected (papers, summer school, funding proposal). I would like to thank all my friends who have made me feel at home during my stay in Leiden, but also my friends back home for their support. Specifically Michiel Fokkelman has helped me during my studies by kicking me out of bed before college and our discussions about science and other stuff during coffee have definitely helped me become a better scientist.

All of this wouldn't have happened if it wasn't for Paul Brakefield, who introduced me to Maurijn van der Zee for my master project, so thank you Paul. I would also like to thank all the other people from the evolutionary biology group for helpful discussions. Special thanks to Kees Koops, who has kept the beetles alive for all this time. Furthermore, thanks to all the other people in the IBL. Thank you Hans Slabbekoorn for always trying to get me to go the extra mile and keeping tabs on me well after I finished my Bachelor work with you. Thank you Gerda Lamers for your enthusiasm and support during all my microscopical endeavours. Thanks to all the other technicians that have prevented the institute from falling apart so I had a place to work. And let's not forget the students, Joana, Ruben, Arjan, Nora, Rens, Romee, Ellen, Yanell and Maaïke. Thanks for your help! Nora, thanks for Figure 3-1. Thanks to Daniel Rozen and Yin Wang for introducing me to *Nicrophorus*. Thank you Menno Schilthuizen for motivating me to get into science communication.

Last but not least, I would like to thank my supervisors Herman and Maurijn. Herman's enthusiasm is absolutely contagious and after talking to him, doing science sounds as easy as boiling an egg (it is not). Thank you for your support and enthusiasm during this project! Maurijn has been the best supervisor I could wish for. He was always there for me when I needed advice, feedback, or just someone to organize my thoughts. He has always given me the freedom to pursue my own ideas, which has been very motivational! The reason I got the chapters published that I did, is because he was always very quick with looking at my drafts. Maurijn, thank you!