

# CURRICULUM VITAE

## JENS ROAT KULTIMA

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Erdős Number 5

Born 1985

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### THIS IS ME

A bustling Chinese city, a New Zealand paddock, a Brazilian rainforest and ice as far the eye can see. All, except the ice, have been views from my offices while working on bioinformatics projects across the world. I went to Svalbard by myself to explore the arctic. Besides a M.Sc. in bioinformatics I have led national-scale Swedish science projects and enjoy dancing weekly. A genuine interest in research and profound knowledge of project management has prepared me for my future – world-leading research and development.

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### EDUCATION

- Ongoing **PhD Candidate: *Bioinformatics*.**  
*Germany* Supervised by Dr. Peer Bork, Structural and Computational Biology Unit, EMBL, Heidelberg, Germany.
- 2010 **Master of Science in Engineering (*Bioinformatics*).**  
*Sweden, USA* Uppsala University, Uppsala, Sweden. Thesis completed at Harvard Medical School & MIT<sup>2</sup>, Cambridge, USA.
- 2009 **Exchange student, 1 year, University of Otago, Dunedin, New Zealand.**  
*New Zealand* Exchange student through Uppsala University.
- 2008 **Bachelor of Science in Technology (*Bioinformatics*).**  
*Sweden, UK* Uppsala University, Uppsala, Sweden. Thesis completed at BioSS<sup>3</sup>, Aberdeen, Scotland.
- 2005 **Upper secondary school: *science and environmental science*.**  
*Sweden* Graduated June 2005, Gislaved Upper Secondary School, Gislaved, Sweden.
- 2002-2003 **Exchange student, 1 year, Katanning Senior High School, Katanning, Australia.**  
*Australia* Exchange program through Rotary International.

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### PUBLICATIONS

- 2010 L. Guy, **J. Roat Kultima**, S. Andersson (2010) genoPlotR: comparative gene and genome visualization in R.  
*Sweden* *Bioinformatics* doi:10.1093/bioinformatics/btq413. Available at <http://r-forge.r-project.org/projects/genoplotr/> (IF\* 4.926)
- 2010 C. Östman, **J. Roat Kultima**, C. Roat, K. Rundblom (2010) Acontia and mesentery nematocysts of the sea anemone  
*Sweden* *Metridium senile* (Linnaeus, 1761) (Cnidaria: Anthozoa). *Sci. Mar.* 74(3): 483-497. (IF 1.515)
- 2010 C. Östman, **J. Roat Kultima**, S. Y. G. Wong (2010) Dart formation in nematocysts of the sea anemone *Metridium*  
*Sweden* *senile* (Linnaeus, 1761) (Cnidaria: Anthozoa). *Sci. Mar.* 74(3): 499-510. (IF 1.515)
- 2010 C. Östman, **J. Roat Kultima**, C. Roat (2010) Tentacle cnidae of the sea anemone *Metridium senile* (Linnaeus, 1761)  
*Sweden* (Cnidaria: Anthozoa). *Sci. Mar.* 74(3): 511-521. (IF 1.515)
- 2010 C. Östman, F. Borg, C. Roat, **J. Roat Kultima**, S. Y. G. Wong (2010) Cnidae in the sea anemone *Sagartiogeton*  
*Sweden* *viduatus* (Muller, 1776) (Cnidaria, Anthozoa); A comparison to cnidae in the sea anemone *Metridium senile* (Linnaeus, 1761) (Cnidaria, Anthozoa). *Accepted for publishing in Acta Zoologica.* (IF 1.365)
- 2007 Acknowledged in: P. Wahlberg *et al.* (2007) A high-resolution linkage map for the Z chromosome in chicken reveals hot  
*Sweden* spots for recombination. *Cytogenet Genome Res* 2007;117:22-29. Quote: 'We would also like to thank Jens Roat Kultima for excellent bioinformatics assistance.' (IF 1.965)

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### PEER REVIEWING

- 2010 Assisted Dr. Jeffrey M. Karp in peer reviewing of manuscripts for the journal Molecular Pharmaceutics (IF 4.565).  
*USA*

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### TEACHING

- 2010 **Supervised an intern at HMS<sup>3</sup>, MIT, HST<sup>4</sup>, BWH<sup>5</sup>, Cambridge, MA, USA, 3 months.** During my M.Sc. Thesis I  
*USA* supervised an MIT undergraduate student by introducing him to the laboratory, my project and by setting up and assisting him with his experiments and data analysis.
- 2008 **Lecture series at UFLA<sup>6</sup>, Lavras, Brazil, 8 hours, in English.** I held an introduction course in Bioinformatics,  
*Brazil* microarrays and a lecture in microarray applications. The classes were given to M. Sc. Students and professors at UFLA.

## INTERNSHIPS AND THESES

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- 2010 **USA** **HMS, MIT, HST, BWH, Cambridge, MA, USA, 5 months.** The work I conducted in Dr. Jeffrey M. Karp's Laboratory (<http://www.karplab.net>) was presented in my *M.Sc. Thesis "A novel design of gene therapy carriers - pH sensitive cationic nanoparticles with encapsulated iron oxide particles"*.
- 2010 **Sweden** **UU<sup>7</sup>, Uppsala, Sweden, 4 weeks.** Development of functions in the R-Forge 'genoPlotR' package under the supervision of Lionel Guy, Ph.D. and Professor Siv Andersson.
- 2009 **New Zealand** **UO<sup>8</sup>, Dunedin, New Zealand, 4 months.** Sequence assembly and analysis of two parapoxviruses found in cattle and red deer in New Zealand. Data was provided by a FLX high throughput DNA sequencer.
- 2008 **Brazil** **UFLA, Lavras, Brazil, 7 weeks.** Improved R code for QTL analysis by rewriting 2,000 lines of code, decreasing the running time of the program from 14 days to a few hours.
- 2008 **Scotland** **BioSS<sup>9</sup>, Aberdeen, Scotland, 8 weeks.** A comparison of 23 classification algorithms applied to microarrays, using the programming language R. The work was presented in my *B.Sc. Thesis "A comparison of 23 classification methods using Affymetrix HG-U133 Plus 2 Arrays"*.
- 2007 **China** **CAS-MPG PICB<sup>10</sup>, Shanghai, China, 8 weeks.** I developed three selection algorithms for Human Exon Arrays, using R. Presented in the report: "*A comparison of three probe selection strategies for gene expression index computation using Affymetrix Human Exon Arrays*".
- 2006 **Sweden** **UU, Uppsala, Sweden, 8 weeks.** Bioinformatics analysis on the Z chromosome of chickens in order to reconstruct a new map of the chromosome. My work was acknowledged in the publication, see *Publications*.
- 2005 **Sweden** **UU, Uppsala, Sweden, 6 weeks.** Laboratory work; PCR, gel electrophoresis, gene purification and sequencing, as well as computational analysis of sequence data. The work was presented in the report "*Characterization of the gene coding for growth hormone in chicken to investigate connection between genotype and phenotype*".
- 2004 **Sweden** **UU, Uppsala, Sweden, 2 weeks.** Microarray data analyzes using the programming language R, part of the published work "*Investigation of the mechanism for toxicity in the respiration organs in rats using the herbicide Dichlobenil – a microarray study*".
- 2001 **Sweden** **UU, Fiskebäckskil, Sweden, 4 weeks.** Editing of microscopic images using Photoshop, working on both Macintosh and PC.
- 2000 **USA** **DMC<sup>4</sup>, Damariscotta, Maine, USA, 4 weeks.** As a part of the scientific research with C. Östman (see *Publications*) I worked at DMC in the USA analyzing and measuring collected *Metridium senile*.

## EXTRA CURRICULUM ACTIVITIES

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- 2008-2010 **Sweden** **Project manager, The Project Bank, The Swedish Federation for Young Scientists (FUF).** The Project Bank is a joint venture between Swedish research universities and FUF. By providing direct contact between university faculty offering research projects and the most ambitious students in Sweden, The Project Bank aims to stimulate research among students. I coordinated the joint efforts of the participating parties by having full responsibilities for budget, internal group work and external contacts. The project has an annual budget of 200,000 SEK.
- 2008 **Sweden** **Sponsor administrator, Uppsala Biotech days 2008.** I was awarded the position of sponsor administrator of the largest student biotechnology event in Sweden, Biotech Days 2008: a three-day long event gathering the 90 most outstanding students in biotechnology from all over Sweden. I was responsible for contacting more than 60 biotechnology companies, scientists and speakers and was in charge of a trade fair.
- Since 2008 **Sweden** **Member of Nova100,** which offers mentoring programs by world-leading companies and acts as a platform for professionals and students to meet. Only a small fraction of the Swedish top students are invited to join Nova100.
- 2007 **Sweden** **Jury member, The Linnaeus School Challenge 2007, Swedish Institute.** 45 projects from 17 countries competed for a trip to Sweden. As jury member I selected the finalists.
- 2006-2008 **Sweden** **University contact, The Project Bank, The Swedish Federation for Young Scientists.** As university contact I administrated the initial contact between the universities participating in the project and FUF.

## OTHER

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**Programming languages:** R, Matlab, Java, Perl, Bioperl, Visual Basic, eZ Publish (CMS) and C.  
**Software; databases:** LaTeX, AutoDock, Gaussian, Insight II, DNASTar, and Minitab; SQL and Amos II.  
**Hardware:** Excellent knowledge of the internal structure of computers.  
**Laboratory techniques:** PCR, microscopic techniques, cell culturing, *in vitro* experiments, nanoparticle preparation.  
**Swedish** (native), **English** (fluent), **German** (moderate), **Danish** and **Norwegian** (understand completely).

## REFERENCES

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- USA** Jeffrey M. Karp, Ass. Prof. of Med. & Co-Dir. of Reg. Therapeutics, Brigham and Women's Hospital, Harvard Medical School; PI, Harvard Stem Cell Institute, HST, Cambridge, MA, USA. E-mail: [jeffkarp@mit.edu](mailto:jeffkarp@mit.edu). Tel: +1 617 8179 174.
- Germany** Svante Pääbo, Director, Dept. of Genetics, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany. E-mail: [paabo@eva.mpg.de](mailto:paabo@eva.mpg.de). Tel: +49 341 3550 500.
- Scotland** Claus Dieter-Mayer, Senior Statistician, BioSS, University of Aberdeen, Scotland. E-mail: [claus@bioss.ac.uk](mailto:claus@bioss.ac.uk). Tel: +44 12 2471 6652.

\*: Impact Factor. 1: European Molecular Biology Laboratory. 2: Massachusetts Institute of Technology. 3: Harvard Medical School. 4: Harvard-MIT Health Sciences and Technology. 5: Brigham and Women's Hospital. 6: Universidade Federal de Lavras. 7: Uppsala University. 8: University of Otago. 9: Biomathematics & Statistics Scotland. 10: Chinese Academy of Sciences and German Max Planck Society Partner Institute for Computational Biology. 11: Darling Marine Center.