

# Evolution of Gene Regulatory Networks in Animal Development

Final EVONET Symposium

Vienna, 11 – 14 September 2012

| Tuesday, September 11, 2012   |  |
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| 16:45                         | Registration   |
| 18:45 – 19:00                 | Welcome address by the organizers  |
| 19:00 – 20:00                 | Keynote lecture:<br><b>Eric Davidson</b> , <i>The Sea Urchin GRN: Predictive Computation of Regulatory State Changes in Development, and Implications for Evolutionary Process</i> |
| 20:30                         | Reception  |
| Wednesday, September 12, 2012 |  |
| 9:00 – 12:30                  | First Session:<br><b>Theoretical and Systemic Approaches</b>   |
| 9:00 – 9:40                   | <b>Nikolaus Rajewsky</b> , <i>tba</i>  |
| 9:40 – 10:20                  | <b>Leonie Ringrose</b> , <i>tba</i>  |
| 10:20 – 10:40                 | Break  |
| 10:40 – 11:00                 | <b>Gasper Tkacik</b> , <i>The Physical Basis of Positional Information</i>   |
| 11:00 – 11:20                 | <b>Johannes Jäger</b> , <i>Life's Attractors: The Evolutionary and Developmental Dynamics of the Gap Gene System</i>   |
| 11:20 – 12:00                 | <b>Vincent J. Lynch</b> , <i>Are the Molecular Mechanisms of Innovation the Same as Adaptation?</i>  |
| 12:15 – 13:40                 | Lunch  |
| 13:40 – 14:20                 | <b>Alex Stark</b> , <i>An Unbiased in situ Enhancer Screen in Drosophila Embryos</i>   |
| 14:20 – 15:00                 | <b>Patrick Lemaire</b> , <i>How to Make Morphologically Similar Embryos with Divergent Genome</i>  |
| 15:00 – 15:20                 | <b>Pinar Önal</b> , <i>Gene Expression of Pluripotency Determinants is Conserved between Mammalian and Planarian Stem Cells</i>  |
| 15:20 – 15:40                 | Break  |
| 15:40 – 16:00                 | <b>Oren Shoval</b> , <i>Evolutionary Trade-Offs, Pareto Optimality, and the Geometry of Phenotype Space</i>  |
| 16:00 – 17:20                 | <b>Pierre Khoueiry</b> , <i>Inter-species Variation in Transcription Factor Occupancy for Essential Developmental Regulators</i>   |
| 17:20 – 17:40                 | <b>Florian Raible</b> , <i>Stable Transgenesis in the Marine Annelid <i>Platynereis dumerilii</i> Sheds New Light on Photoreceptor Evolution</i>                                   |
| 17:45 – 19:30                 | <b>Poster Session</b> , along with cheese and wine   |

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| Thursday, September 13, 2012 |  |
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| 9:00 – 12:40                 | Second Session:<br><b>Antero-posterior Differentiation</b>   |
| 9:00 – 9:40                  | <b>Michael Akam</b> , <i>Comparison of Segmentation in Centipedes and Insects</i>  |
| 9:40 – 10:20                 | <b>Vera Hunnekuhl</b> , <i>Insights from the Centipede <i>Strigamia maritima</i> Connect Arthropod Head and Brain Development to Ancient Anterior Patterning Systems</i> |
| 10:20 – 10:40                | <b>Heather Marlow</b> , <i>Conservation of Larval Apical Organs and Apical-blastoporal Patterning</i>  |
| 10:40 – 11:20                | Break  |
| 11:20 – 12:00                | <b>Claude Desplan</b> , <i>Transition from Stochastic to Deterministic Development</i>   |
| 12:00 – 12:40                | <b>Gregor Bucher</b> , <i>RNAi Screen and RNAi-seq Unraveling the Head Patterning Gene Regulatory Network in <i>Tribolium</i></i>  |
| 12:40 – 18:00                | Third Session:<br><b>Endomesodermal Development</b>  |
| 12:40 – 13:20                | <b>Stephen Tapscott</b> , <i>Comparing MyoD and NeuroD2: the genetic and epigenetic of determinants of myogenesis and neurogenesis</i>                                   |
| 13:20 – 14:20                | Lunch  |
| 14:20 – 15:00                | <b>Jim Smith</b> , <i>Defining the Vertebrate T-box Gene Regulatory Network</i>  |
| 15:00 – 15:40                | <b>Eileen Furlong</b> , <i>Understanding and Predicting cis-regulatory Activity</i>  |
| 15:40 – 16:00                | <b>Orsolya Symmons</b> , <i>Accommodating Gene Regulatory Networks in the Genomic Architecture: Insights from the Sonic hedgehog Locus</i>                               |
| 16:00 – 16:20                | Break  |
| 16:20 – 17:00                | <b>Ina Arnone</b> , <i>Conservation and Divergence of a Gene Regulatory Network that Controls Gut Patterning in Deuterostomes</i>  |
| 17:00 – 17:40                | <b>Michaela Schwaiger</b> , <i>Identification of Cis-regulatory Modules and NvBrachyury Target Genes in the Sea Anemone <i>Nematostella vectensis</i></i>                |
| 17:40 – 18:00                | <b>Eric Röttinger</b> , <i>A Provisional Cnidarian Gene Regulatory Network for "Endomesoderm" Specification: The Inputs of Wnt/<math>\beta</math>-catenin Signaling</i>  |
| 18:00 – 19:00                | Drinks and open discussion   |
| 20:00                        | Gala Dinner with invited speakers (fellows meet speakers)  |

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| Friday, September 14, 2012 |   |
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| 9:00 – 12:40               | Fourth Session:<br><b>Divergence and Conservation</b>   |
| 9:00 – 9:40                | <b>Veronica Hinman</b> , <i>Gene Regulatory Network Changes Associated with the Evolution of a Novel Cell Populations in Echinoderms</i>            |
| 9:40 – 10:20               | <b>Marie-Anne Felix</b> , <i>Robustness, Evolvability and Evolution of the Intercellular Signaling Network Specifying Vulval Fates in Nematodes</i> |
| 10:20 – 10:40              | <b>Dominic Grün</b> , <i>Evolution of Gene Expression during Nematode Development</i>   |
| 10:40 – 11:00              | Break   |
| 11:00 – 11:20              | <b>Carmen Andrikou</b> , <i>Evolution of the Gene Networks Orchestrating Myogenesis: The Case of Sea Urchin</i>                                     |
| 11:20 – 11:40              | <b>Grigory Genikhovich</b> , <i>Specification of the Secondary Body Axis by BMP Signaling in Cnidaria and Bilateria: A Case of Convergence</i>      |
| 11:40 – 12:20              | <b>Detlev Arendt</b> , <i>The Evolution of Body Regionalization Driven by the Expansion and Duplication of Neural Circuits</i>                      |
| 12:20 – 13:20              | Panel discussion and concluding remarks   |
| 13:30 – 14:30              | Lunch buffet  |