

# SIROCCO

Silencing RNAs: organizers and coordinators of complexity in eukaryotic organisms

MARCH 2010 Newsletter 38

SIROCCO MONTH 39 of 57

## New Partners Join the SIROCCO Consortium

The SIROCCO consortium welcomes three new partners selected by competitive call who will participate for the remainder of the project.

Partner 21: **Anton Enright**  
European Bioinformatics Institute  
Cambridge, UK  
<http://www.ebi.ac.uk/>  
Email: [aje@ebi.ac.uk](mailto:aje@ebi.ac.uk)  
Expertise: Bioinformatics



Partner 22: **Jaak Vilo**  
Quretec Ltd  
Tartu, Estonia  
<http://www.quiretec.com/>  
Email: [vilo@quiretec.com](mailto:vilo@quiretec.com)  
Expertise: Bioinformatics



Partner 23: **Markus Stoffel**  
ETH Zurich  
Zürich, Switzerland  
<http://www.ethz.ch/>  
Email: [stoffel@imsb.biol.ethz.ch](mailto:stoffel@imsb.biol.ethz.ch)  
Expertise: sRNA delivery

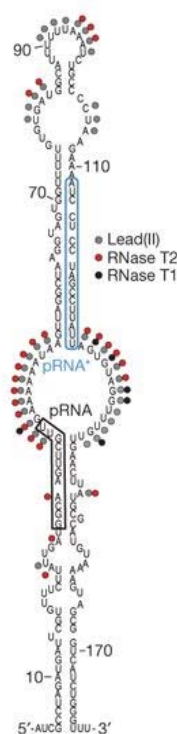


Anton Enright at the EBI and Jaak Vilo at Quretec are developing computational methods for the analysis of sRNA datasets produced in the consortium, as well as improved data submission and management tools.

Markus Stoffel at ETHZ is developing technologies to substitute, overexpress or silence sRNAs *in vivo* using knock-out mouse models.

## Transcriptome of *Helicobacter pylori* determined

SIROCCO Partner Jörg Vogel and his colleagues have determined the primary transcriptome of *Helicobacter pylori*, published in a recent issue of Nature. *H. pylori* is a species of pathogenic bacteria found in the human stomach, and associated with severe inflammation, peptic ulcer disease and gastric cancer. Using a novel differential approach (dRNA-seq) selective for the 5' end of primary transcripts, the authors present a genome-wide map of *H. pylori* transcriptional start sites and operons. Also discovered were approximately 60 small RNAs including the epsilon-subdivision counterpart of the regulatory 6S RNA and associated RNA products, and potential regulators of cis- and trans-encoded target messenger RNAs.



Structural probing experiments *in vitro* indicate that *H. pylori* 6S RNA adopts the characteristic structure of a long hairpin with a central asymmetric bulge by which *E. coli* 6S RNA sequesters RNA polymerase, which uses 6S RNA as template for transcription of 14–20 nt RNA products (pRNAs). Two classes of pRNAs were detected in *H. pylori*, one starting with the corresponding bulge-internal adenosine of *E. coli* pRNAs, and the other (pRNA\*) originating from the opposite strand as previously observed with certain 6S RNA mutants *in vitro*. *In vivo* detection of pRNAs in a remote relative of *E. coli* shows that 6S RNA regulation of RNA polymerase activity is a widely conserved mechanism.

Left: The derived secondary structure of 6S RNA with cleavages induced by RNase T1, T2, or lead (II) indicated by black, red, and grey circles, respectively. The template nucleotides of the detected pRNA and pRNA\* sequences are framed in black or blue, respectively

[The primary transcriptome of the major human pathogen \*Helicobacter pylori\*](#). Sharma CM, Hoffmann S, Darfeuille F, Reignier J, Findeiss S, Sittka A, Chabas S, Reiche K, Hackermüller J, Reinhardt R, Stadler PF, Vogel J. Nature. 2010 Mar 11;464(7286):250-5. Epub 2010 Feb 17.



## RESEARCH SPOTLIGHT



Regulation of the miR-212/132 locus by MSK and CREB in response to neurotrophins. Remenyi J, Hunter CJ, Cole C, Ando H, Impey S, Monk CE, Martin KJ, Barton GJ, Hutvagner G, Arthur JS. *Biochem J.* 2010 Mar 23. [Epub ahead of print]

Expression patterns of intronic microRNAs in *Caenorhabditis elegans*. Isik M, Korswagen HC, Berezikov E. *Silence.* 2010 Feb 1;1(1):5.

Identification of grapevine microRNAs and their targets using high throughput sequencing and degradome analysis. Pantaleo V, Szittyá G, Moxon S, Miozzi L, Moulton V, Dalmay T, Burgyan J. *Plant J.* 2010 Mar 11. [Epub ahead of print]

MicroRNAs: From Decay to Decoy. Beitzinger M, Meister G. *Cell.* 2010 Mar 5;140(5):612-614.

The primary transcriptome of the major human pathogen *Helicobacter pylori*.

Sharma CM, Hoffmann S, Darfeuille F, Reignier J, Findeiss S, Sit-tka A, Chabas S, Reiche K, Hackermüller J, Reinhardt R, Stadler PF, Vogel J. *Nature.* 2010 Mar 11;464(7286):250-5. Epub 2010 Feb 17.

Improved microRNA quantification in total RNA from clinical samples. Andreasen D, Fog JU, Biggs W, Salomon J, Dahlsveen IK, Baker A, Mouritzen P. *Methods.* 2010 Apr;50(4):S6-S9.

*Helicobacter pylori* Induces miR-155 in T Cells in a cAMP-Foxp3-Dependent Manner. Fassi Fehri L, Koch M, Belogolova E, Khalil H, Bolz C, Kalali B, Mollenkopf HJ, Beigier-Bompadre M, Karlas A, Schneider T, Churin Y, Gerhard M, Meyer TF. *PLoS One.* 2010 Mar 2;5(3):e9500.

### Management News

#### EXTENSION:

An extension to 30 September 2011 has been requested from the European Commission—approval is pending.

#### REPORT:

The Period 3 (2009) Activity report and Detailed Implementation Plan for the next 18 months are currently being evaluated by the European Commission

#### EC VISIT:

European Commission Project Officer Dr Sasa Jenko visited Cambridge 24th March 2010 for a day of scientific talks and strategic planning

### UPCOMING EVENTS

4th ESF CONFERENCE on **Functional Genomics and Disease**



SIROCCO will host one of the parallel symposia organised in collaboration with the European Commission Directorate of Health on 15th April at 11.30. For those partners close to Dresden, one-day registration is available for €35 [www.esffg2010.org](http://www.esffg2010.org)



SIROCCO2010: The SIROCCO Annual Meeting 2010 will be held at the EMBL Advanced Training Centre in Heidelberg 11-12 October 2010. Completed in November 2009 the ATC is a unique project promoting scientific training and education in Europe.

The SIROCCO meeting will precede the EMBO/EMBL symposium 'The Non-Coding Genome' organised by Elisa Izaurralde, David Bartel, Thomas Gingeras, and Gerhart Wagner to be held 13-16 October 2010 in the same venue.



For **SIROCCO** information please contact Aileen Hogan  
[fah37@cam.ac.uk](mailto:fah37@cam.ac.uk) +44(0)1223 748975