

SIROCCO

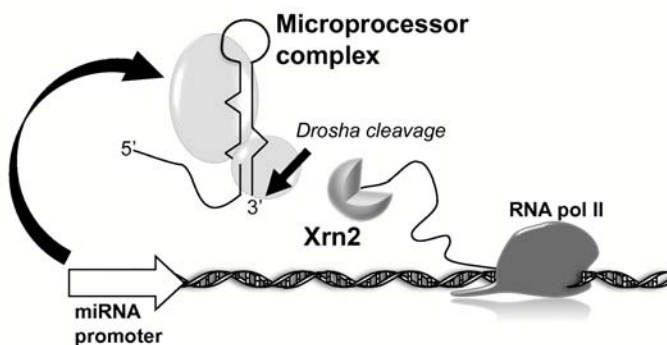
Silencing RNAs: organizers and coordinators of complexity in eukaryotic organisms

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The miRNA Factory

SIROCCO Partner Irene Bozzoni and her colleagues have published a paper that links Pol II transcription with tightly coupled processing of nascent pre-mRNAs and suggests that transcription, processing and termination of pri-miRNAs are also closely connected events. The first step in microRNA biogenesis occurs in the nucleus and is mediated by the Microprocessor complex containing the RNaseIII-like enzyme Drosha and its cofactor DGCR8. This publication shows that the 5'-3' exonuclease Xrn2 associates with independently transcribed miRNAs and, in combination with Drosha processing, attenuates transcription in downstream regions. The authors suggest that, after Drosha cleavage, a torpedo-like mechanism acts on nascent pri-miRNAs, whereby Xrn2 exonuclease degrades the RNA polymerase II associated transcripts inducing its release from the template.



The "miRNA Factory" model: Coupling between transcription and RNA processing of independently transcribed miRNAs. By analogy with previous findings, linking Pol II transcription with tightly coupled processing of nascent pre-mRNAs this model suggests that transcription, processing and termination of pri-miRNAs are also closely connected events.

[Coupled RNA processing and transcription of intergenic primary miRNAs.](#) Ballarino M, Pagano F, Girardi E, Morlando M, Cacchiarelli D, Marchioni M, Proudfoot JN, Bozzoni I. Mol Cell Biol. 2009 Aug 10. [Epub ahead of print]



Review of the European Research Council structures and mechanisms

A review of the first two years of the ERC has been published by an expert panel chaired by Professor

Vaira Vike-Freiberga. In it the panel states:

"The ERC which started rather well should avoid the traps and pitfalls which have negatively affected the processes of other FP7 programmes. Given its nature and characteristics (identifying frontier research and excellence) it would be a deadly blow."

Among the 14 recommendations put forward by the Panel are the following:

- Considering that it is extremely important that the Chair and Vice Chairs of the Scientific Council be working scientists, and that they and their host organisations not be penalised as a result of them taking on these extra jobs, the panel recommends that financial compensation be given to the Scientific Council Chair and Vice Chairs in the form of a lump sum similar to those foreseen for the European Institute for Technology (EIT) Chair and Vice Chairs. A lump sum for administrative support should be paid to the institutions hosting the Chair and the Vice Chairs. Adequate compensation should also be provided to other Scientific Council members for their attendance at meetings.
- The management of reviewers and panellists contributing to the programme should be drastically simplified and made as user friendly as possible.
- The Panel recommends that the positions of the Secretary-General and Director be merged. The new position should be filled by a distinguished scientist with robust administrative experience.
- The funding of research proposals should be made in the form of lump sums.

http://erc.europa.eu/PDF/inal_report_230709.pdf



RESEARCH SPOTLIGHT



Fine-tuning the brain: microRNAs. Vreugdenhil E, Berezikov E. *Front Neuroendocrinol.* 2009 Aug 12. [Epub ahead of print]

Multivesicular bodies associate with components of miRNA effector complexes and modulate miRNA activity. Gibbins DJ, Ciaudo C, Erhardt M, Voinnet O. *Nat Cell Biol.* 2009 Aug 16. [Epub ahead of print]

Abundant and dynamically expressed miRNAs, piRNAs and other small RNAs in the African clawed frog *Xenopus tropicalis*. Armisen J, Gilchrist MJ, Wilczynska A, Standart N, Miska EA. *Genome Res.* 2009 Jul 23. [Epub ahead of print]

The RNA-binding protein KSRP promotes the biogenesis of a subset of microRNAs. Trabucchi M, Briata P, Garcia-Mayoral M, Haase AD, Filipowicz W, Ramos A, Gherzi R, Rosenfeld MG. *Nature.* 2009 Jun 18; 459(7249): 1010-4.

Coupled RNA processing and transcription of intergenic primary miRNAs. Ballarino M, Pagano F, Girardi E, Morlando M, Cacchiarelli D, Marchioni M, Proudfoot JN, Bozzoni I. *Mol Cell Biol.* 2009 Aug 10. [Epub ahead of print]

Deciphering the diversity of small RNAs in plants: the long and short of it. Schwach F, Moxon S, Moulton V, Dalmy T. *Brief Funct Genomic Proteomic.* 2009 Jul 29. [Epub ahead of print]

The GW182 protein family in animal cells: new insights into domains required for miRNA-mediated gene silencing. Eulalio A, Tritschler F, Izaurralde E. *RNA.* 2009 Aug; 15(8):1433-42. Epub 2009 Jun 17. Review.

Roles of plant small RNAs in biotic stress responses. Ruiz-Ferrer V, Voinnet O. *Ann Rev Plant Biol.* 2009; 60: 485-510. Review.

Cis-regulatory Changes at FLOWERING LOCUS T Mediate Natural Variation in Flowering Responses of *Arabidopsis thaliana*. Schwartz C, Balasubramanian S, Warthmann N, Michael TP, Lempe J, Sureshkumar S, Kobayashi Y, Maloof JN, Borevitz JO, Chory J, Weigel D.

Genetics. 2009 Aug 3. [Epub ahead of print]
miR156-regulated SPL transcription factors define an endogenous flowering pathway in *Arabidopsis thaliana*. Wang JW, Czech B, Weigel D. *Cell.* 2009 Aug 21; 138(4): 738-49.

SIROCCO sRNA Cloning Course

The SIROCCO training course taking place 21-24 September 2009 is now fully booked.

Accommodation is at Clare College Memorial Court Queen's Road Cambridge CB3 9AJ

<http://www.clare.cam.ac.uk/conferencing/index.html>



Clare Bridge

Annual Reporting

Scientific reports for Period 3 (2009) are now due.

Reporting packages specific for each partner can be found on the password protected pages of the project website www.sirocco-project.eu password smallrna

The early deadline is to allow a longer period to gather partners' comments and check the final documents.

Financial reports are due in January as in previous years.

