

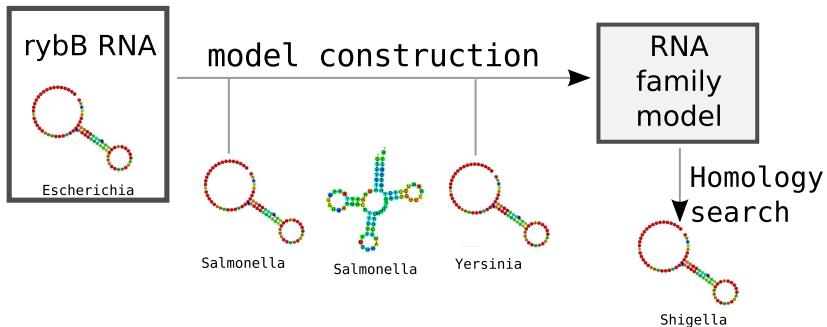
Unsupervised RNA family model building

Florian Eggenhofer

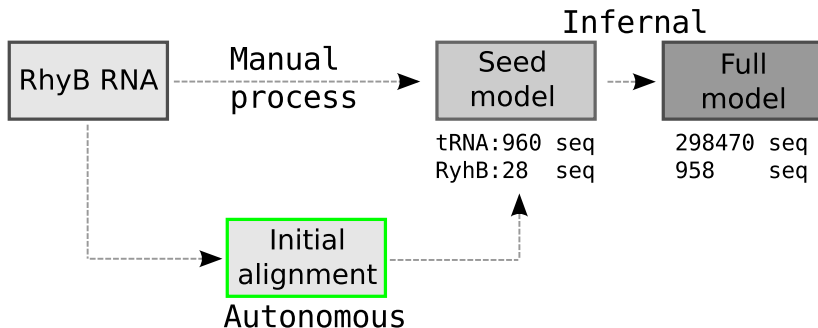
Institute for Theoretical Chemistry
University of Vienna

February 19, 2015

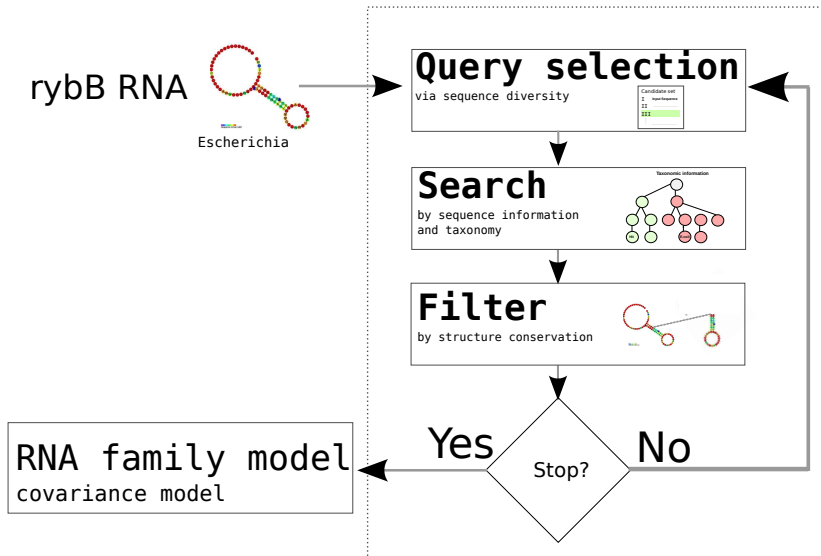
RNA family model construction



Challenges in RNA family model construction



Pipeline - RNAlien



Tool

- ▶ Commandline tool
- ▶ Input: Fasta-File, optional Taxonomy Id
- ▶ Dependencies: infernal, locarna, RNAz, clustal-o
- ▶ Database interfaces via REST
- ▶ available via Hackage: cabal install RNAlien (soonish)

Webservice - Input

**RNAlien**

Welcome Earthling

Upload a fasta sequence file

No file selected.

Enter Taxonomy Id:



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Webservice - Output

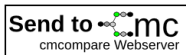
RNÄAlien

Progress:

Iteration	Upper taxonomic threshold id	Inclusion threshold[bit]	Aligned Sequences	Alignment Link	Covariance Model Link	Status
0	279010	not set	0	stockholm-format	covariance-model	<i>done</i>
1	1386	90.07	13	stockholm-format	covariance-model	<i>done</i>
2	186817	90.07	17	stockholm-format	covariance-model	<i>done</i>
3	1385	90.07	24	stockholm-format	covariance-model	<i>done</i>

Results:

[Result Fasta](#) [Result Alignment](#) [Result CM](#)



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Postprocessing and Method comparison

- ▶ CMcompare - finding existing models
- ▶ Rfam as Gold standard
- ▶ Comparison of search results
- ▶ Thresholds and false positives

Thanks

- ▶ Thanks for funding



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- ▶ Thanks to Ivo, Christian
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Ivo L. Hofacker
Peter F. Stadler
Renée Schroeder
- ▶ Thanks to my coworkers!
- ▶ Thanks for your attention!