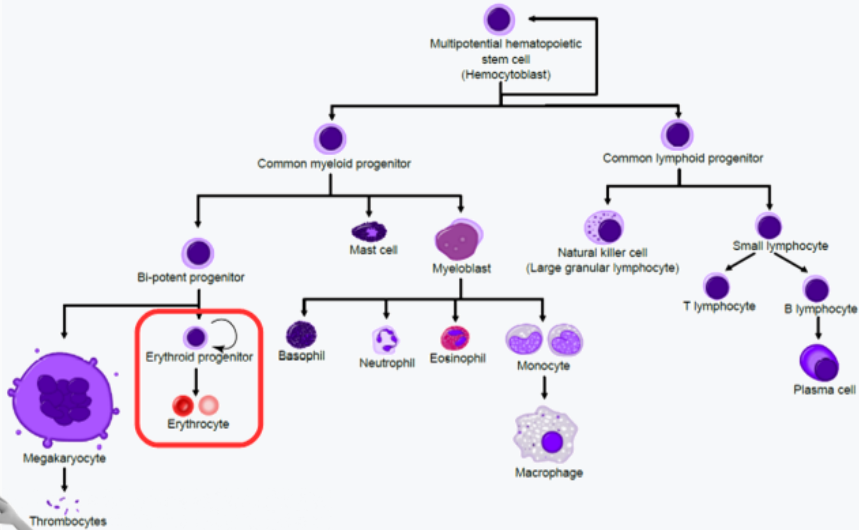


WASABI

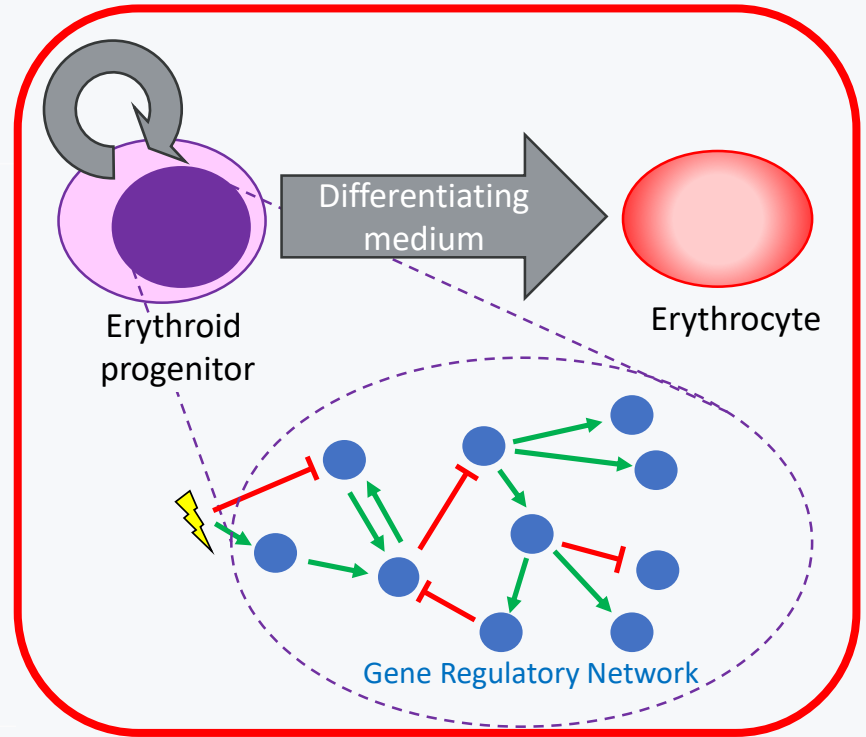
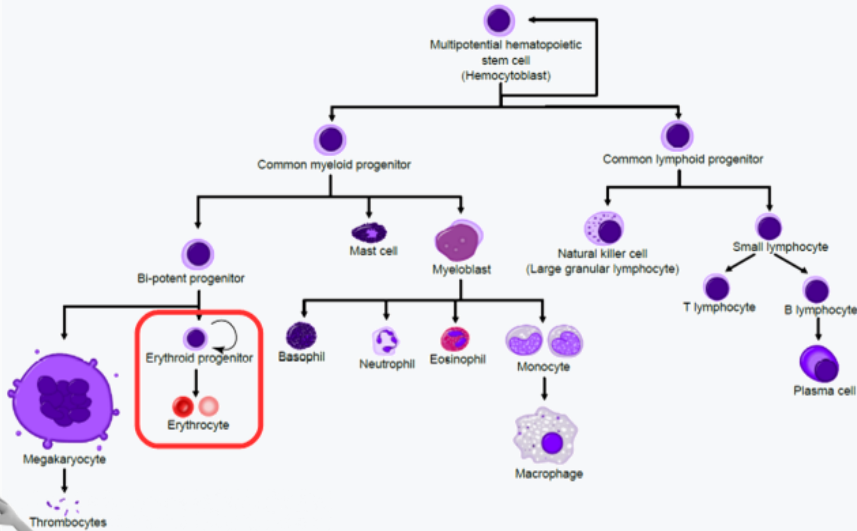
Dynamic iterative framework for
Gene Regulatory Network (GRN) inference

Arnaud Bonnaffoux

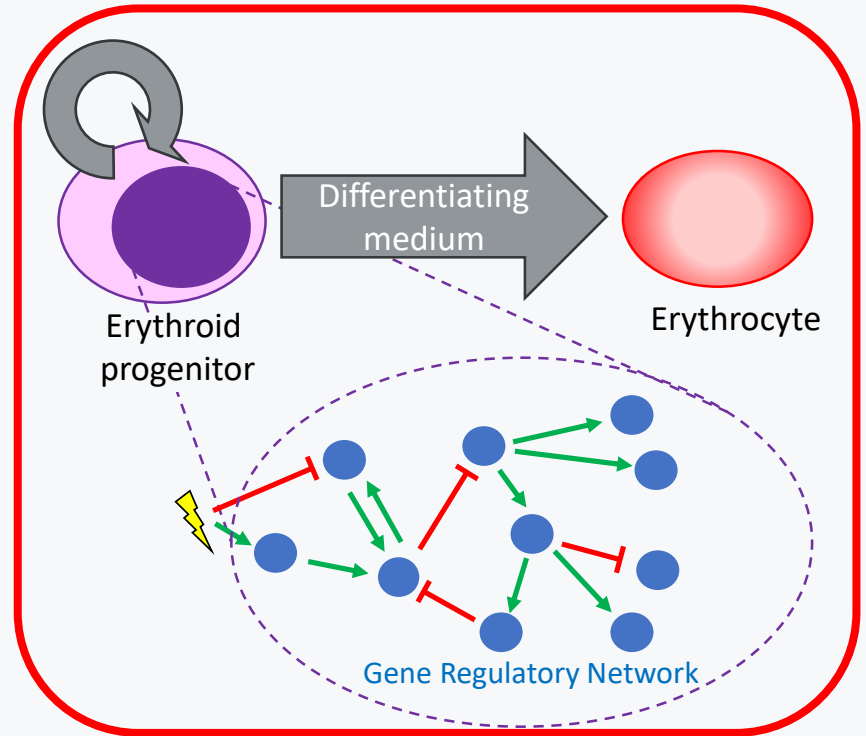
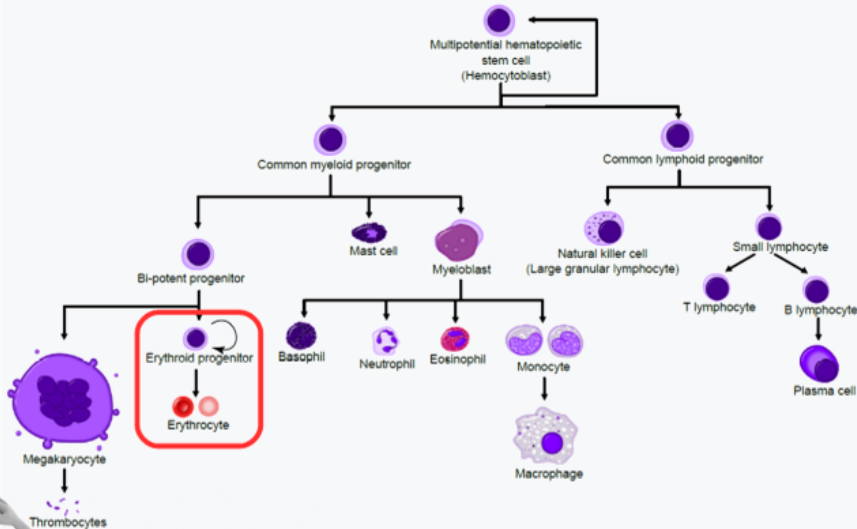
GRN INFERENCE CHALLENGE



GRN INFERENCE CHALLENGE



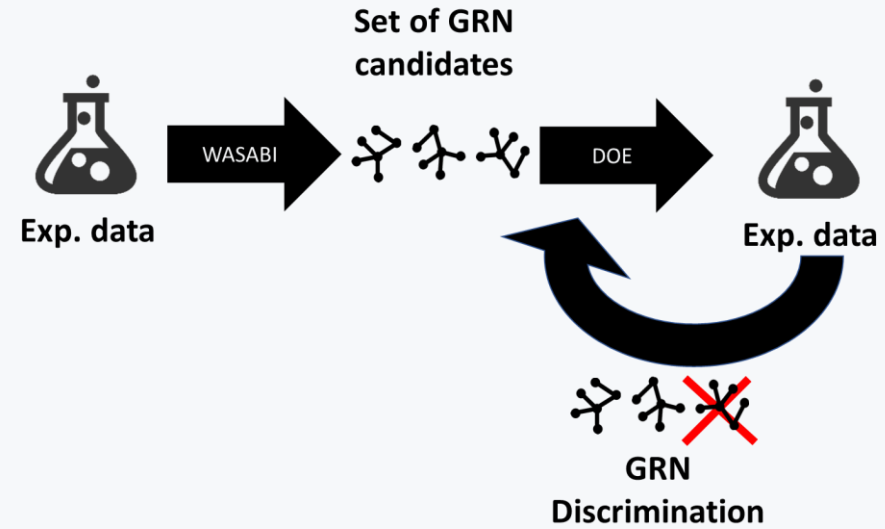
GRN INFERENCE CHALLENGE



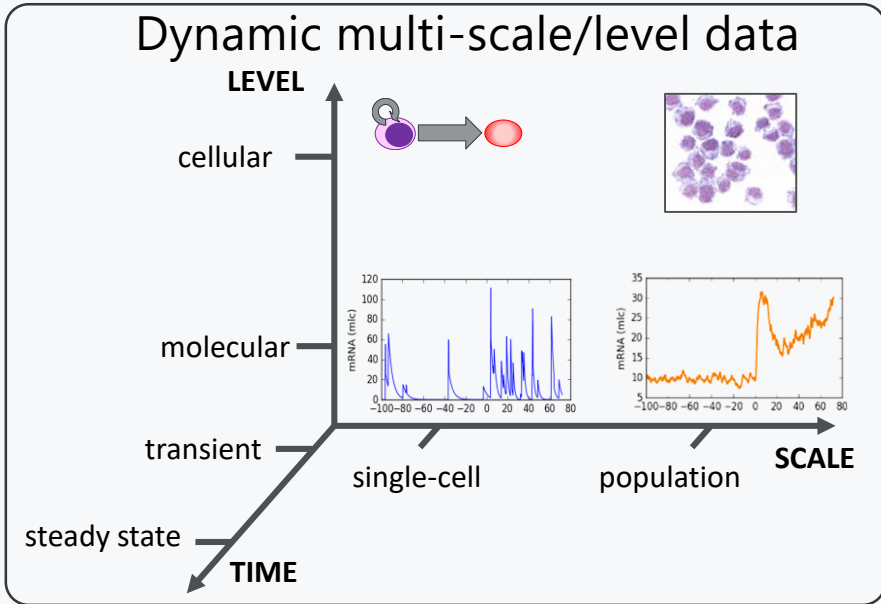
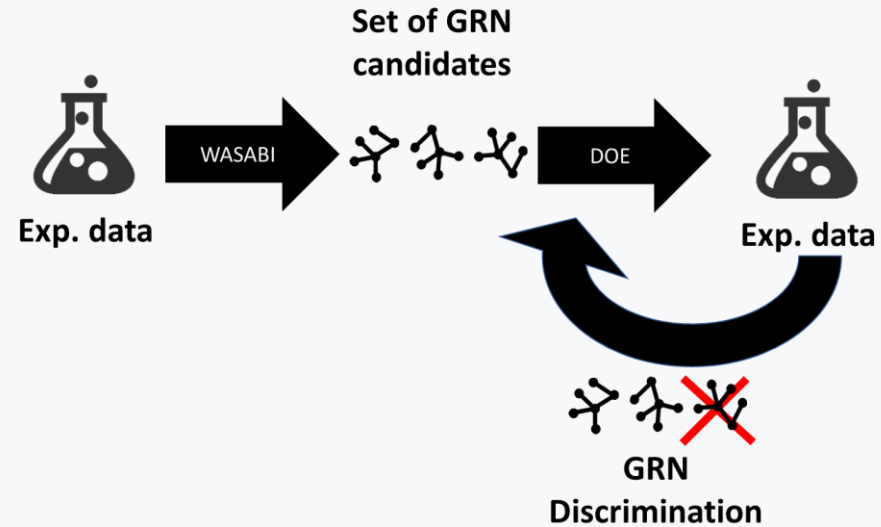
Existing GRN inference solutions face **common limitations** :

- Restriction to **correlation**
- **Interaction** centered (\neq network)
- Restriction to **Transcription Factor**
- Biological **over-simplifying** assumptions
- **Mono-data type**

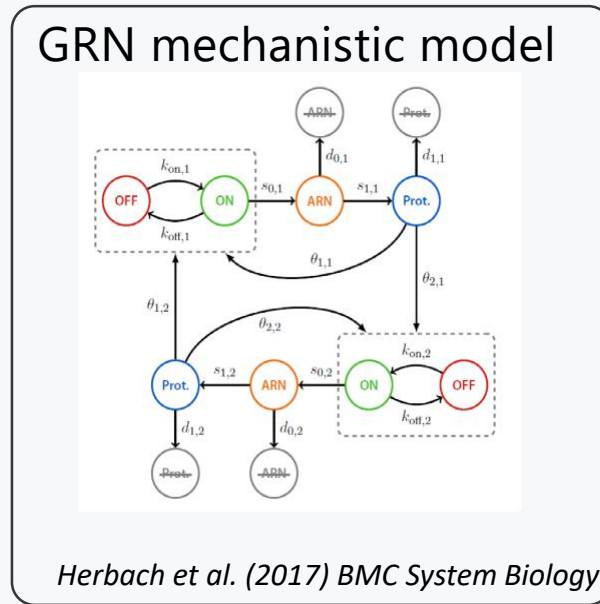
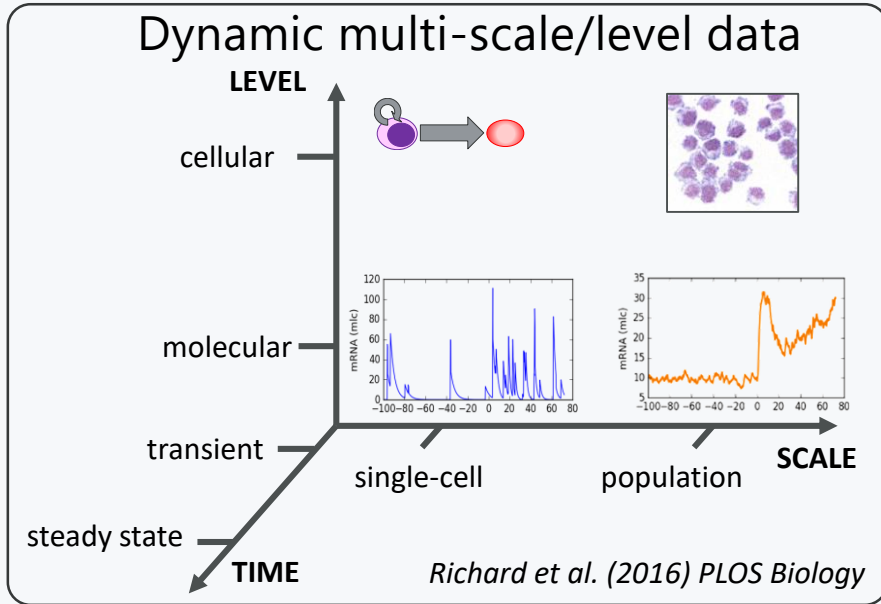
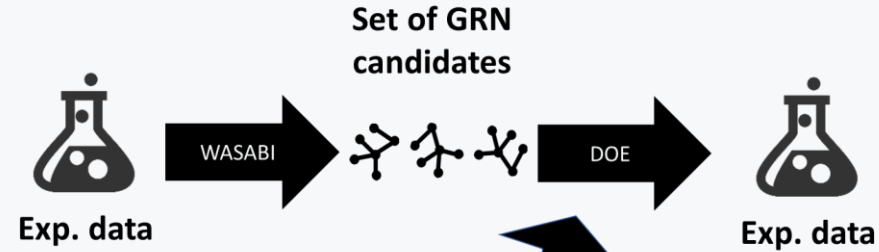
SYSTEMS BIOLOGY APPROACH



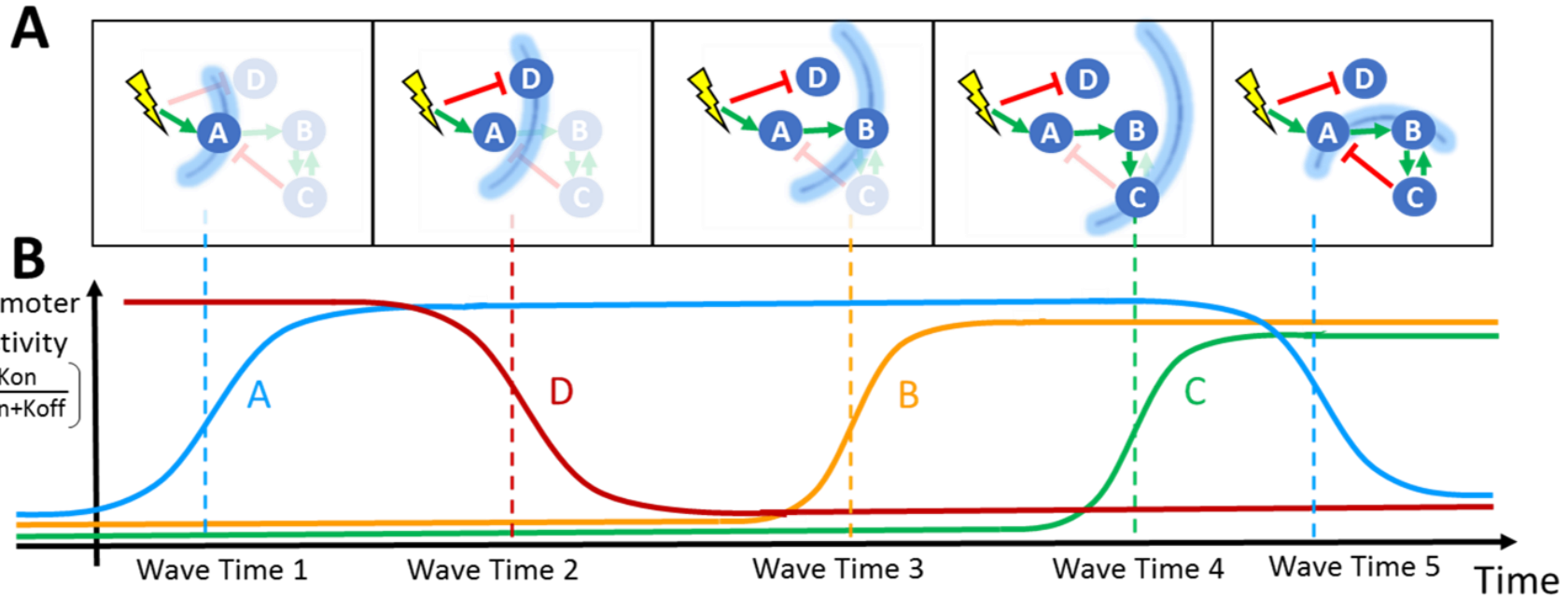
SYSTEMS BIOLOGY APPROACH



SYSTEMS BIOLOGY APPROACH



WASABI = WAVES ANALYSIS BASED INFERENCE



RESULTS

- ***In silico* benchmarking** → Validation of performances
- ***In vitro* application** → new insights on GRN topology
- **Advantages**
 - **Splitting** and **parallelization** (scalable)
 - Inference of **causalities** (circular)
 - **Network** centered
 - No restriction to Transcription Factors
 - Integration of proteomic data

THANKS FOR WATCHING!

Contact:

📍 53 Boulevard Emile Zola 69600 OULLINS

☎ 06-08-51-15-89

✉ arnaud.bonnaffoux@gmail.com





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