

Computational analysis of cis-regulatory sequences

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Aim of the course

- 1 – Biological aspects of cis-regulation of gene expression**
- 2 – Learn concepts and usage of bioinformatics tools dedicated to analysing cis-regulatory sequences**
- 3 – Understand the methods to evaluate the predictions (controls)**
- 4 – Getting familiar with practical analysis of high-throuput datasets (ChIP-seq)**

Program

	Morning	Afternoon
Monday 9/14	09h30 – 10h45 (514), <i>Lecture</i> Motif discovery – MTC 11h00 – 12h00, <i>Practical</i> Using RSAT for motif discovery – MTC	13h30 – 14h45 (514), <i>Lecture</i> Motif, pattern-matching – MTC 15h00 – 16h45 <i>Practical</i> Pattern matching – MTC
Tuesday 9/15	09h30 – 10h00 (514), <i>Lecture</i> Motif comparison – MTC 10h00 – 12h <i>Practical</i> Open analysis – MTC	13h30 – 14h00 (514), <i>Lecture</i> Negative controls – MTC 14h00 – 15h15 <i>Practical</i> Open analysis – MTC 15h30 – 16h45 (514), <i>Lecture</i> « cis-regulatory element: Switches to modulate the expression level of genes » - SM
Wednesday 9/16	09h30-10h45 (514), <i>Lecture</i> « cis regulatory elements: How to find them: Past, presence & future » – SM 11h00 – 12h00 (514), <i>Lecture</i> ChIP-Seq analysis – MTC, SC	13h30 – 16h45, <i>Practical</i> ChIP-Seq analysis – MTC, SC
Thursday 9/17	9h30 – 10h30 (514), <i>Lecture</i> « Combining wetlab & bioinformatical approaches to study transcriptional regulation » – SM 10h45 – 12h00, <i>Practical</i> ChIP-seq / Open analysis – MTC, SC	13h30 – 15h15, <i>Practical</i> Open analysis – MTC, SC 15h30 – 16h45 (514), <i>Seminar</i> Daan Noordermeer « The 3D organization of gene regulation: lessons from the Hox genes»
Friday 9/18	9h30-10h45, <i>Practical</i> Open analysis – MTC, SC 11h00-12h00, <i>IBENS Seminar</i> « How do transcription factors "know" where to go in the genome » – SM	13h30 – 15h30 (514 + salle info), <i>Exam</i> MTC, SC

Evaluation

- 1. Written exam Friday afternoon (10 points)**
- 2. Written report, see « Recommendations for the analysis report » (8 points)**
- 3. Oral appreciation : Participation throughout the week, scientific questioning and reflection on the studied subject. (2 points)**