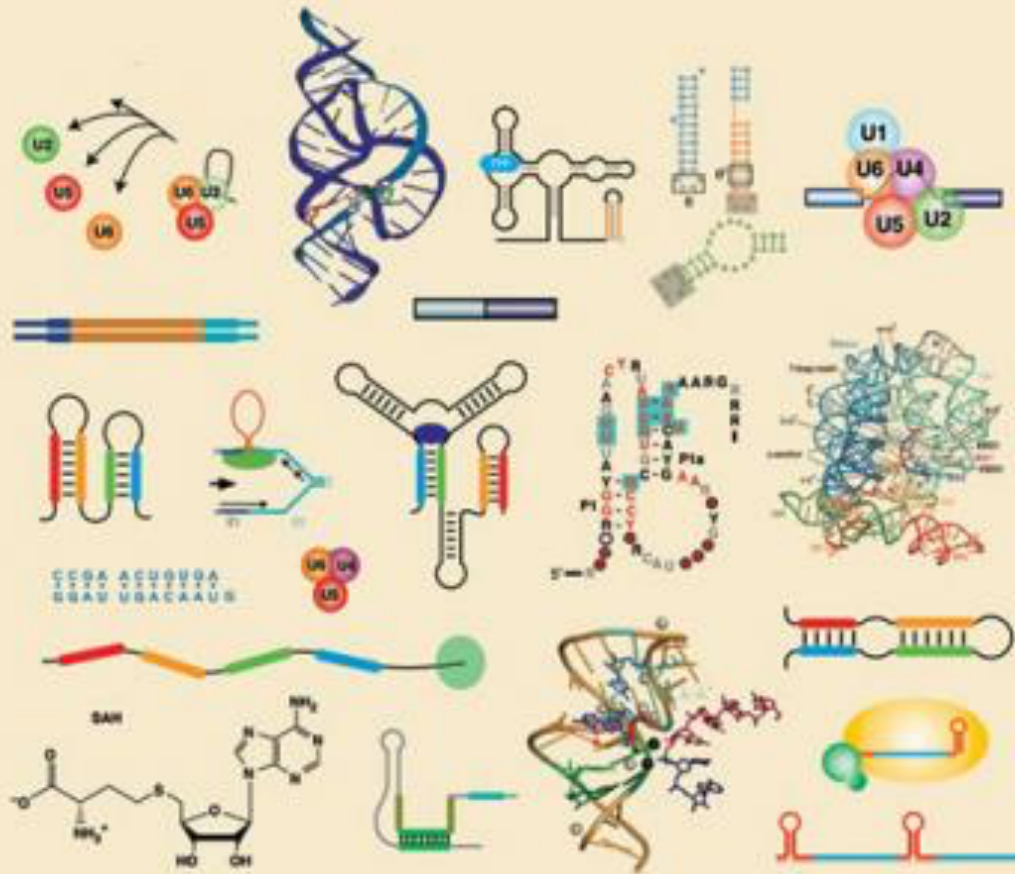


# RNA

A LABORATORY MANUAL



RIO • ARES • HANNON • NILSEN

TRASCRIPTOMICA

Genomica  
Funzionale

-  
Biotechnologie  
mediche  
AA 2018/2019

Prof. Schoeftner  
(Docente di riferimento)

# TRASCRIPTOMICA

## Schedule lectures– AA 2018/2019



**Entire course in english language**

1. The evolution of the non-coding RNA genome
2. Non-coding RNA families
3. Non-coding RNAs in development and disease
4. RNA-Protein subnuclear structures
5. piRNAs
6. PAR (promoter associated RNAs)
7. lncRNAs
8. miRNAs and ceRNAs
9. DNA damage repair RNAs
10. eRNAs
11. RNA editing
12. non-sense mediated RNA decay
13. UTR function of RNAs
14. non-coding RNA and dosage compensation
15. RNA:DNA hybrids

# TRASCRIPTOMICA

## Schedule lectures– AA 2018/2019

### October

L1: 02.10.2018:14-16 (2h)

L2: 04.10.2018:14-16 (2h)

L3: 09.10.2018:14-16 (2h)

L4: 11.10.2018:14-17 (3h)

L5: 16.10.2018:14-16 (2h)

L6: 18.10.2018:14-16 (2h)

L7: 19.10.2018:14-17 (3h)

ERASMUS WEEK

L8: 30.10.2018:14-16 (2h)

### November

L9: 06.11.2018:16-18 (2h)

L10: 8.11.2018:16-18 (2h)

L11: 13.11.2018:16-18 (2h)

L12: 20.11.2018:16-18 (2h)

L13: 27.11.2018:16-18 (2h)

### December

L14: 04.12.2018:16-18 (2h)

L15: 11.12.2018:16-18 (2h)

L16: 13.12.2018:16-18 (2h)

L17: 18.12.2018:16-18 (2h)

L18: 20.12.2018:16-18 (2h)

### January

L19: 07.01.2019:14-16 (2h)

L20: 08.01.2019:16-18 (2h)

L21: 09.01.2019:14-16 (2h)

L22: 10.01.2019:16-18 (2h)

L23: 14.01.2019:14-16 (2h)

**48 ore = 6CFU**

***Edificio C1, Aula L***

***PPT SLIDES:***

***MOODLE FEDERALE***

***PASSWORD: Trascrittomica***

**Prof. Stefan Schoeftner**

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(no @gmail; @libero....)

Students' representatives: [martina.spiga@studenti.units.it](mailto:martina.spiga@studenti.units.it)

# TRASCRIPTOMICA

## **Structure of the course:**

- 1. Professor's lectures: General Introduction, examples of ncRNAs (ca 9 lectures, each 2 hours)**
- 2. Student's lectures on defined topics of ncRNA research (ca 13 lectures, each 2 hours)**

## **Goal of the course and training for students:**

- 1. General overview on ncRNA function in development and disease**
- 2. Learning to extract general information on a larger field of ncRNA research**
- 3. Learning to analyze-understand scientific data from a publication ("Journal club"); identify scientific question, understand experiments and interpret the data, make conclusions**
- 4. Presenting most important information to an audience in a comprehensive manner**
- 5. Getting prepared for Master thesis reality**
- 6. Get used to apply scientific – english - language**

# TRASCRIPTOMICA - EXAMS

## 1. LECTURE BY STUDENT:

- Evaluation of student performance is based on the quality of the presented student lecture (**score: 0-16 points**).
- The evaluation of the lecture presented by an individual student will remain valid for 2 academic years.

## 2. ORAL EXAM

- In addition, an oral exam will be performed that contains 3 questions related to the topics presented during all lectures of the course (**score: 0-5 points per question; total 15**).
- In the oral exam the obtained knowledge but also the ability to interpret scientific data and to put scientific findings/data into a larger context will be evaluated.

## IMPORTANT:

Students that do not have presented a lecture during the course are not allowed to perform the oral exam.

# TRASCRIPTOMICA - EXAMS

...how are student's lectures and oral exam organized???

## **Student's Lectures:**

- Student groups comprising 4 colleagues will be formed
- Student groups choose a topic

## **Oral exam:**

- An inscription into an "Appello" on Esse3 is necessary to perform the oral exam.
- Students can reject the result of the oral exam until 7 days after the date of the oral exam.
- Books, electronic devices or scripts are not allowed during the exam.

## **Final grade (voto finale):**

- Points Student's lecture + Points oral exam

# TRASCRIPTOMICA

## GF 2° year 1° Semester

### Schedule lectures– AA 2015/2016

#### October

L1: 02.10.2018: 14-16 (2h) – Professor's lecture 1

L2: 04.10.2018: 14-16 (2h) – Professor's lecture 2

L3: 09.10.2018: 14-16 (2h) – Professor's lecture 3

L4: 11.10.2018: 14-17 (3h) – Professor's lecture 4

L5: 16.10.2018: 14-16 (2h) – Professor's lecture 5

L6: 18.10.2018: 14-16 (2h) – Professor's lecture 6

L7: 19.10.2018: 14-17 (3h) – Professor's lecture 7

*ERASMUS WEEK*

L8: 30.10.2018: 14-16 (2h) – Professor's lecture 8

#### November

L9: 06.11.2018: 16-18 (2h) – Professor's lecture 9

L10: 8.11.2018: 16-18 (2h) – Students' lecture 1

L11: 13.11.2018: 16-18 (2h) – Students' lecture 2

L12: 20.11.2018: 16-18 (2h) – Students' lecture 3

L13: 27.11.2018: 16-18 (2h) – Students' lecture 4

#### December

L14: 04.12.2018: 16-18 (2h) – Students' lecture 5

L15: 11.12.2018: 16-18 (2h) – Students' lecture 6

L16: 13.12.2018: 16-18 (2h) – Students' lecture 7

L17: 18.12.2018: 16-18 (2h) – Students' lecture 8

L18: 20.12.2018: 16-18 (2h) – Students' lecture 9

#### January

L19: 07.01.2019: 14-16 (2h) – Students' lecture 10

L20: 08.01.2019: 16-18 (2h) – Students' lecture 11

L21: 09.01.2019: 14-16 (2h) – Students' lecture 12

L22: 10.01.2019: 16-18 (2h) – Students' lecture 13

L23: 14.01.2019: 14-16 (2h) – Students' lecture 14

#### **1. Formation of groups with 4 Students:**

→ **DEADLINE: 04.10.2018**

→ **Students that in not in a group will be organized by Prof in groups:**

#### **2. Available topics will be published on moodle**

→ **Student groups select their topics**

#### **3. Topics of respective groups will be communicated to Professor by Students' representative**

→ **DEADLINE: 09.10.2018 (at the lecture)**

→ **Student-groups that do not communicate a topic get assigned a topic by the Prof.**

SM53 – Functional Genomics

PERETTO	LAURA
MODENA	CHIARA
LIDONNICI	JACOPO
GIGLIO	PIERA
MATUOZZO	DANIELA
DE BORTOLI	MARTINA
MAMELI	ELEONORA
VENTURA	ANNAVERA
QUARTO	GIUSEPPE PIERPAOLO
TOMADINI	LISA
SANTIN	AURORA
CARTA	GABRIELE
DATTOLA	FEDERICA
SECCIA	ROBERTA
VENDITTI	LUCA
LONGO	ANTONIO
RUCLI	MARCO
STEFANELLI	GIACOMO
DE LUCA	SARA
TURKALJ	SVEN
CREA	EMANUELA
DONADIO	ANGELA
BERNARDIS	CHIARA
MOSETTI	MARTINA

24 students

ME02 – Medical Biotechnologies

NAPOLI	ARIANNA
BAIS	GINEVRA
MASSARO	MATTEO
TORMENA	NICOLÒ
SIMONI	CHIARA
MANGIAMELI	DOMENICO
DIAW	SOKHNA HAISSATOU
NONNIS	MARTINA
BATTISTUZZI	THOMAS
ZUANEL	MIRIAM
CEKA	MEGI
CAMMARATA	ALESSIA LUISA
CASTELLI	SIMONE
GALLETTA	CLAUDIA
BORGIA	MELISSA
FACCA	ALBERTO
LANZA	ANDREA
COZZI	ELISABETTA
PALO	ANGELA
DE FLORIAN FANIA	ROSSELLA
VALENTI	GIULIO
MARGAGLIOTTA	ROBERTA
POLIZZI	FABIOLA
BIANCO	VALENTINA

25 students

**Estimation: 56 Students : 4 = 14 Seminars**



# TRASCRIPTOMICA

## Schedule lectures– AA 2018/2019

### **Student's seminar structure:**

- 1. First part of seminar** (ca. 40 min): general introduction into the topic (max 20 powerpoint slides)
- 2. Second part of the seminar** (ca. 40 min): students present a key scientific publication on the topic (max. 20 powerpoint slides)  
(ideally a study published in Science, Nature, Cell, Nature Cell Biology, Molecular Cell, Nature Communications, EMBO Journal,... – high impact journals)
- 3. Third part of the seminar** (ca. 10 min): question by colleagues - student group answers

**IMPORTANT: each student has to cover 20 min of presentation**

# TRASCRIPTOMICA

## Schedule lectures– AA 2018/2019

### HOW TO CHOOSE A TOPIC – AND HOW TO START

Topic: A recent review on each particular topic available will be provided by Professor and put on moodle.

- Students use the review to get into the topic
- Students chose an important publication (scientific work) stated in the review or chose a newer scientific publication related to the topic
- Students may chose another review that relates better to the scientific work
- Students send the literature (review(s) and scientific paper) per mail to Professor
- Professor gives OK
- Professor puts the papers on moodle
- Students make the presentation and Prof. will put the ppt presentation on Moodle (at least 3 days before the seminar)

## TOPICS

1. Dosage Compensation in *D.melanogaster* (rox RNAs)
2. Dosage Compensation in Mammals (Xist/Tsix, etc)
3. RNA:Protein bodies: Cajal Bodies (snRNAs, hTR, snoRNAs)
4. RNA:Protein bodies: Paraspeckles (NEAT-1)
5. Functional UTR regions (gene expression control)
6. Genomic Imprinting (AIR)
7. lncRNA and Cancer (HOTAIR)
8. piRNAs in *D. melanogaster*
9. piRNAs in mammals
10. R-loops and RNA:DNA hybrids
11. RNA Editing (ADAR, immunesystem)
12. Transcription Boundary RNAs (gene expression control)
13. DNA damage RNAs (ncRNA in DNA damage signaling)