

TIMETABLE FOR SEMESTER I, 2017/2018

LSM3245 – RNA Biology and Technology

Module Coordinator: Dr Volker Patzel

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LECTURES: TUESDAYS

**TUTORIALS/
LECTURES:**

FRIDAYS

TIME: 1200 – 1400 hrs

TIME:

1200 – 1400 hrs

VENUE: LT29

VENUE:

LT29

WK	MONTH	LECTURES	TUTORIALS/LECTURES
		TUESDAYS	FRIDAYS
1.	Aug	15 (VP) 1. Introduction & Coding RNA 1.1 Introduction: The RNA world hypothesis - molecular unit of genotype and phenotype 1.2 The role of RNA in gene expression	18 (VP) 1.3 Structure and function of RNA
2.		22 (VP) 2. Naturally occurring ncRNA 2.1 Antisense RNA and Ribozymes 2.2 Circular RNA Tutorial: Literature Review Briefing	25 (VP) 2.3 Bacterial Cas/CRISPR system 2.4 Bacterial Riboswitches & Clicker Session 1
3.	Aug/Sep	29 (VP) 2.5 RNA Interference: miRNA, siRNA, and piRNA	1 Holiday
4.	Sep	5 (VP) 2.6 Non-coding RNAs and human diseases	8 (VP) Tutorial: Literature Review Team Presentations 1 & Q&A Session
5.		12 (VP) 3. Artificial ncRNA 3.1 Selection and evolution of RNA: <i>In silico</i> , <i>in vitro</i> (SELEX), and <i>in vivo</i> & Clicker Session 2	15 (VP) Tutorial: Exercise 1: RNA secondary structure predictions & interpretations & Q&A Session
6.		19 (VP) 3.2 Aptamers and ‘Spiegelmers’ 3.3 <i>In vitro</i> & <i>in silico</i> selection of antisense RNA	22 (VP) Tutorial: Literature Review Team Presentations 2 & Q&A Session in preparation of the Mid-Term Test

Recess Week: Sat 23 Sep – Sun 1 Oct 2017 (1 week)			
7.	Oct	3 (VP) 3.4 siRNA and shRNA design 3.5 mRNA design for enhanced gene expression	6 (VP) MCQ Mid-Term Test (1 hour)
8.		10 (VP) 3.6 mRNA and miRNA as targets 3.7 RNA-guided genome editing	13 (VP) Tutorial: Literature Review Team Presentations 3 & Q&A Session
9.		17 (VP) 3.8 RNA splicing (<i>cis/trans</i>)-based therapeutic approaches	20 (VP) Tutorial: Exercise 2: Design of RNA-based inhibitors – antisense RNA, siRNA, shRNA & Q&A Session
10.		24 (VP) 4. RNA in early stage pharmaceutical development 4.1 RNAi-based screens for target discovery & validation	27 (VP) Tutorial: Literature Review Team Presentations 4 & Q&A Session
11.	Oct/Nov	31 (VP) 4.2 RNA-based diagnostics & Clicker Session 3 (Quiz)	3 (VP) Tutorial: Exercise 3: Design of mRNA for enhanced gene expression & Q&A Session
12.		7 (CS) 4.3 High-throughput technologies: Sequencing and microarrays of RNA	10 (VP) Tutorial: Literature Review Team Presentations 5 & Q&A Session
13.		14 (VP) 5. RNA as a drug – clinical applications 5.1 Delivery and chemical modifications or RNA 5.2 Clinical Trials, FDA approval, and RNA-based drugs	17 (VP) Tutorial: Focus on topic selected by the students & Q&A session in preparation of the final exam
READING PERIOD: Sat 18 Nov to Fri 24 Nov 2017 (1 week)			
EXAMINATION: Tuesday, 5 December 2017, 9am			
VACATION: Sun 10 Dec 2017 to Sun 14 Jan 2018 (5 weeks)			

Lecturers:

Dr Volker PATZEL, MBA (VP)

Dr Swaine CHEN (SC)