Selected Topics in Microbiology and Immunology; Code: PHM608

A-Basic Information

Programme(s) on which the course is given:	Master degree of pharmaceutical sciences (Microbiology and Immunology)
Department responsible for offering the course:	Department of Microbiology and Immunology
Department responsible for teaching the course:	Department of Microbiology and Immunology
Academic year:	Pre-Master courses-2023/2024-second semester
Course title and code:	Selected topics in microbiology and immunology; Code: PHM608
Contact hours (credit hours):	Lecture: 3(3), Total: 3(3)
Course Coordinator:	Dr. Amr Shaker

B- Professional Information

1 - Overall Aims of Course

Upon successful completion of this course, the students should know all about Macrocyclic peptides as newly discovered antibiotics, mechanism of action and spectrum, Magnetotactic bacteria and their applications, The Microbiome in cancer therapy response, Implications of One health concept for clinical microbiology, Redox-active Metabolites and their role in microbial signalling

Intended Learning Outcomes of Course (ILOs)

A. Knowledge and Understanding:

The students should be able to:

a1. Explain the basic knowledge about Macrocyclic peptides as newly discovered antibiotics, mechanism of action and spectrum
a2. Define and understand the Microbiome in cancer therapy response.
a3. Understand the applications of Magnetotactic bacteria.
a4. Understand Implications of One health concept for clinical microbiology

D. intellectual skills

b1. Differentiate between different types of Magnetotactic bacteria.
b2. Be able to use different types of macrocyclic peptides antibiotics.
b3. Professionally write a scientific paper on immunomodulatory effects of natural products
b4. Suggest ideas for One health concept for clinical microbiology.

D. General and Transferable Skills

The students should:

d1. Effectively communicate with other colleague in the same field
d2. Use different available information resources
d3. Manage team work through projects

2 - Course Contents

Topics	No. of hours	Lectures
Macrocyclic peptides as newly discovered antibiotics, mechanism of action and spectrum	9	3
Magnetotactic bacteria and their applications	9	3
The Microbiome in cancer therapy response	9	3
Implications of One health concept for clinical microbiology	9	3
Redox-active Metabolites and their role in microbial signalling	9	3
Total	45	15

3 - Teaching and Learning Methods

1 - Discussion sessions
2 - Presentations

5- Student Assessment Methods

- **Activities:** presentations and assignments to periodically asses the student knowledge and understanding

- **Oral Exam** to assess skills of analysis, scientific thinking as well as scientific discussion
- **Final written exam** to assess the ability of student to remember and retrieve information as well we understanding of the scientific background.

Assessment Schedule

Assessment 1	Oral exam	Week 16
Assessment 2	Final written exam	Week 16
Assessment 3	Activities	All over the course

Weighting of Assessments

Activities	10%
Final-written exam	80%
Oral exam	10%
Total	**100%**

6-List of References

A. Recommended text books

1- Dekaboruah E, Suryavanshi MV, Chettri D, Verma AK. Human microbiome: an academic update on human body site specific surveillance and its possible role. Arch Microbiol. 2020 Oct;202(8):2147-2167. doi: 10.1007/s00203-020-01931-x. Epub 2020 Jun 10. PMID: 32524177; PMCID: PMC7284171
2- Vargas, Gabriele, et al. "Applications of magnetotactic bacteria, magnetosomes and magnetosome crystals in biotechnology and nanotechnology: mini-review." Molecules 23.10 (2018): 2438

3- Luther A, Bisang C, Obrecht D. Advances in macrocyclic peptide-based antibiotics. Bioorg Med Chem. 2018 Jun 1;26(10):2850-2858. doi: 10.1016/j.bmc.2017.08.006. Epub 2017 Aug 19. PMID: 28886999.
4- Allal, L., Mahrous, H., Saad, A., Refaei, S., Attia, M., Mahrous, I., Fahim, M., Elfadaly, S., & Abdelnabi, A. (2019). From Four-Way Linking to a One Health Platform in Egypt: institutionalisation of a multidisciplinary and multisectoral One Health system. Revue scientifique et technique (International Office of Epizootics), 38(1), 261–270. https://doi.org/10.20506/rst.38.1.2958

B. Websites

www.sciencedirect.com
www.springerlink.com
https://www.cdc.gov/
https://pubmed.ncbi.nlm.nih.gov/

7- Facilities Required for Teaching and Learning

- Lecture halls; Data show; computers and internet access, blackboard

Course Coordinator: **Dr. Amr shaker**

Amr Shaker

Acting Head of the Department: **Assoc. Prof. Dr. Sarra Ebrahim Saleh**

Sarra Saleh

Course name	Selected topics in microbiology and immunology
Code	PHM608

Course matrix

Course content	a1	a2	a3	a4	b1	b2	b3	b4	d1	d2	d3
Macrocyclic peptides as newly discovered antibiotics, mechanism of action and spectrum		■			■				■	■	
Magnetotactic bacteria and their applications		■			■				■	■	■
The Microbiome in cancer therapy response				■				■	■	■	■
Implications of One health concept for clinical microbiology	■								■	■	■
Redox-active Metabolites and their role in microbial signaling	■						■		■	■	■

تم الاعتماد فى محضر مجلس قسم الميكروبيولوجيا والمناعة

جلسة رقم (٦) بتاريخ١٤ /٢/ ٢٠٢٤