



INSTITUTO DE HIGIENE E
MEDICINA TROPICAL
DESDE 1902

SCHISTOSOMIASIS

CU characterization:

CU name:

Schistosomiasis

Scientific area acronym:

HM

Duration:

Semestral

Working hours:

58

Contact hours:

31

ECTS:

2

Observations:

Optional CU

Teacher in charge and respective teaching load in the CU:

Silvana Maria Duarte Belo (18 hours)

Other teachers and respective teaching load in the CU:

Isabel Maurício (9 hours)

Manuela Calado (12 hours)

Pedro Ferreira (12 hours)

Docente convidado (5 hours)

Intended learning outcomes (knowledge, skills and competences to be developed by the students):

After this unit, students should be able to:

1. Relate the etiological agents of schistosomiasis, their developmental stages and the induced pathology in humans.
2. Understand the host-parasite-environmental dynamics in the scope of population mobility, climate change on schistosomiasis expansion.



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Intended learning outcomes (knowledge, skills and competences to be developed by the students): (continuation)

3. Be aware of bioinformatics application tools in schistosome research.
4. Select and apply molecular methods in the diagnosis of schistosomiasis.
5. Consider preventive measures in the emerging scenario of drug-resistant schistosomes.
6. Intervening factors in the epidemiology and transmission of helminths.
7. Propose the adequate measures for planning and monitoring a schistosomiasis control programme.

Syllabus:

- I. Schistosomiasis: etiological agents, geographical distribution and impact on public health.
- II. Host-parasite interaction and epidemiological intervention factors.
- III. Pathology and treatment.
- IV. Bioinformatics tools for characterization of schistosome isolates.
- V. Schistosomiasis diagnosis through conventional and molecular methods.
- VI. Resistance to infection and to schistosomicide drugs.
- VII. Preventive and control measures.

Teaching methodologies (including assessment):

- Lectures 4h
- Theoretical-practical training classes 6h
- Laboratorial practical sessions 13h
- Tutorial supervision 8h
- Seminar 4h
- Evaluation 1h
- Autonomous work 29h

Evaluation methods

Continuous evaluation based on class frequency (10%) and active participation in lab work and group sessions. Seminar (40%).

Written report, with circa 2000 words (except graphs and reference list) 50%.



SCHISTOSOMIASIS

References for consultation / mandatory existence:

- Catalano S, Sène M, Diouf ND, Fall CB, Borlase A, Léger E, Bâ K, Webster JP (2018). Rodents as Natural Hosts of Zoonotic *Schistosoma* Species and Hybrids: An Epidemiological and Evolutionary Perspective From West Africa (2018). *J Infect Dis*. 2018 Jul 2;218(3):429-433. doi: 10.1093/infdis/jiy029
- Crellen T, Walker M, Lamberton PH, Kabatereine NB, Tukahebwa EM, Cotton JA, Webster JP (2016). Reduced Efficacy of Praziquantel Against *Schistosoma mansoni* Is Associated with Multiple Rounds of Mass Drug Administration. *Clin Infect Dis*. 2016 Nov 1;63(9):1151-1159. doi: 10.1093/cid/ciw506. Epub 2016 Jul 28.
- García-Bernalt Diego J, Fernández-Soto P, Febrer-Sendra B, Crego-Vicente B, Muro A.J (2021). Loop-Mediated Isothermal Amplification in Schistosomiasis. *Clin Med*. 2021 Feb 1;10(3):511. doi: 10.3390/jcm10030511
- Gillardie ML, Babba O, Mahinc C, Duthel M, de Bengy C, et al (2021). Molecular approach to the epidemiology of urinary schistosomiasis in France. *PLoS Negl Trop Dis*. 2021 Jul 6;15(7):e0009515. doi: 10.1371/journal.pntd.0009515.
- Leger E, Webster JP (2017). Hybridizations within the Genus *Schistosoma*: implications for evolution, epidemiology and control. *Parasitology*; 144(1):65-80. doi: 10.1017/S0031182016001190.
- Pei He, Gordon CA, Williams GM et al (2018) Real-time PCR diagnosis of *Schistosoma japonicum* in low transmission areas of China. *Infectious Diseases of Poverty* (2018) 7:8
- Riccardi N, Nosenz F, Peraldo F, Sarocchi F, Taramasso L (2017). Increasing prevalence of genitourinary schistosomiasis in Europe in the Migrant Era: Neglected no more? *PLoS Negl Trop Dis* 11(3):e0005237. doi:10.1371/journal.pntd.0005237
- Rokni MB. (2012). *Schistosomiasis*. 310p.<http://www.intechopen.com/books/schistosomiasis>
- Tabios IKB, Sato MO, Tantengco OAG, Fornillos RJC, Kirinoki M et al (2022). Diagnostic Performance of Parasitological, Immunological, Molecular, and Ultrasonographic Tests in Diagnosing Intestinal Schistosomiasis in Fieldworkers from Endemic Municipalities in the Philippines. *Front Immunol*. 2022 Jun 14;13:899311. doi: 10.3389/fimmu.2022.899311.