האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Cancer genetics for genetic counsellors - 94928

Last update 18-04-2024

HU Credits: *2*

Degree/Cycle: *2nd degree (Master)*

Responsible Department: *Bio-Medical Sciences*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *Ein Karem*

Course/Module Coordinator: *Dr. Shiri Shkedi-Rafid*

Coordinator Email: *shirish@hadassah.org.il*

Coordinator Office Hours:

Teaching Staff:

Dr. Shiri Shkedi-Rafi

Course/Module description:

The course aims at developing the theoretical, clinical and molecular knowledge about hereditary cancer syndromes.

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:

1. Understand the genetic and molecular pathways involved in hereditary cancer susceptibility.
2. Identify the differential diagnosis of cancer susceptibility syndromes.
3. Provide cancer genetic counseling (building a pedigree, risk calculation, referring to genetic testing).
4. Get to know the current genetic testing.
5. Understand the psychological aspects of cancer genetic counseling.
6. Get to know guidelines in Israel, the US and Europe about surveillance to carriers.

Attendance requirements(%):

Teaching arrangement and method of instruction:

Course/Module Content:

1. Genetic and molecular pathways of hereditary cancer.
2. Retinoblastoma
3.Hereditary breast cancer
4. Hereditary prostate and gynecological cancers.
5. Prediction models and variant classification.
6. Hereditary colorectal cancer.
7.Rare cancer predisposition syndromes.
8. Mosaicism and new mutations.
9. Personalized medicine.
10. Pedigree evaluation.

Required Reading:

Hampbel et al. A practice guideline from the American College of Medical Genetics and Genomics and the National Society of Genetic Counselors: referral indications for cancer predisposition assessment. Genetics in Medicine 2015; 17(1):70-87.
Rosenthal et al. Exceptions to the rule: Case studies in the prediction of pathogenicity for genetic variants in hereditary cancer genes. Clinical Genetics 2015; doi: 10.1111/cge.12560
Friedman et al. Low-level constitutional mosaicism of a de novoBRCA1 gene mutation. British Journal of Cancer 2015;1–4.
Doherty et al. Testing for Hereditary Breast Cancer: Panel or Targeted Testing? Experience from a Clinical Cancer Genetics Practice. Journal of Genetic Counseling 2014;

Gronwald J. Selected aspects of genetic counselling for BRCA1 mutation carriers. Hered Cancer Clin Pract. 2007 Mar 15;5(1):3-16.
Lynch HT, Shaw TG. Practical genetics of colorectal cancer. Chin Clin Oncol. 2013 Jun;2(2):12.
Chang KL, Brown L. Screening for hereditary cancer syndromes. Am Fam Physician. 2015 Jan 15;91(2):125-31.
Dinjens WN, Dubbink HJ, Wagner A. Guidelines on genetic evaluation and management of Lynch syndrome. Am J Gastroenterol. 2015 Jan;110(1):192-3.
Agarwal R, Liebe S, Turski ML, Vidwans SJ, Janku F, Garrido-Laguna I, Munoz J, Schwab R, Rodon J, Kurzrock R, Subbiah V; Pan-Cancer Working Group. Targeted therapy for hereditary cancer syndromes: hereditary breast and ovarian cancer syndrome, Lynch syndrome, familial adenomatous polyposis, and Li-Fraumeni syndrome. Discov Med. 2014 Dec;18(101):331-9.
Pinheiro H, Oliveira P, Oliveira C. Hereditary cancer risk assessment: challenges for the next-gen sequencing era. Front Oncol. 2015 Mar 23;5:62. doi: 10.3389/fonc.
Rosenthal ET, Bowles KR, Pruss D, van Kan A, Vail PJ, McElroy H, Wenstrup RJ. Exceptions to the rule: Case studies in the prediction of pathogenicity for genetic variants in hereditary cancer genes. Clin Genet. 2015 Jan 14. doi: 10.1111/cge.
Metcalfe KA, Mian N, Enmore M, Poll A, Llacuachaqui M, Nanda S, Sun P, Hughes KS, Narod SA. Long-term follow-up of Jewish women with a BRCA1 and BRCA2 mutation who underwent population genetic screening. Breast Cancer Res Treat. 2012 Jun;133(2):735-40.

Additional Reading Material:

Grading Scheme:

Written / Oral / Practical Exam 100 %

Additional information:

Participation should be authorized by the course's coordinator