

REQUIREMENTS

Semmelweis University, Faculty of Medicine Name of the managing institute (and any contributing institutes): Asklepios Campus Hamburg (ACH) of the Semmelweis University / Asklepios Tumorzentrum Hamburg
Name of the subject: in English: Personalized Medicine in Oncology and Hematology in German: Personalisierte Medizin in der medizinischen Onkologie und Hämatologie Credit value: 1 Number of lessons: In total 14 x 45 min lecture: - practical course: - seminar: 7 x 1,5 h Subject type: compulsory course <u>elective course</u> optional course
Academic year: 3, 4 and 5
Subject code: <i>(In case of a new subject, it is filled by the Dean's Office, after approval)</i>
Name of the course leader: PD Dr. Georgia Schilling His/her workplace, phone number: Asklepios Nordseeklinik Westerland GmbH, Norderstrasse 81 - 25980 Sylt / OT Westerland, Tel: +49 (04651) 84-1381 Position: Chief Physician, MD, Oncological Rehabilitation, Oncological Outpatient Clinic Date and registration number of their habilitation: 06.11.2013
Objectives of the subject, its place in the medical curriculum: <p>In the future personalized medicine will become more and more important and accessible to a broader public. Especially in the field of hematology and oncology the hopes of patients are high that a personalized cancer therapy targeting their individual tumor can bring their cure. In this course several aspects of personalized medical oncology will be tackled, ranging from state-of-the-art research to ethical challenges of personalized medicine. It is of utmost importance that students are as early as possible aware of modern developments in current research. This course endeavors to realize this for the field of personalized oncology.</p>
Place where the subject is taught (address of the auditorium, seminar room, etc.): Asklepios Campus Hamburg
Successful completion of the subject results in the acquisition of the following competencies: <ul style="list-style-type: none">• State of the art concepts of personalized oncology, like:<ul style="list-style-type: none">- Monoclonal antibodies AND Antibody-drug conjugates- Specific signal transduction inhibitors (like: tyrosine kinase inhibitors, CDK4/6 inhibitors)- Specific molecular pathology and diagnostic tools (PCR, NGS, panel testing, ctDNA)- Immunotherapy: Specific inhibitors (e.g. checkpoint inhibitors), cell therapies (CAR cells, BiTes), vaccination strategies, other principles- Mechanisms of action, and clinical use in the multidisciplinary setting

- Ethical aspects
- Side effects and management

Course prerequisites:

- Completion of the pre-clinical phase, intended for students in their 5th to 10th semester.

Number of students required for the course (minimum, maximum) and method of selecting students:

Smallest number of participants: 10

Largest number of participants: 30

Method of selecting the participants: Students that applied for the course will be selected by a random number generator, if necessary

How to apply for the course:

- Online registration via O365 at a definite time

Detailed curriculum:

(Theoretical and practical lessons shall be given separately by numbering the lessons (by weeks).

Please provide the names of the teachers of the lectures and practical lessons and indicate guest lecturers. Do not use attachments!

Always attach a CV for guest lecturers!

Lesson 1 (1.5 h): Introduction, development, history and ethical aspects of personalized medicine, PD Dr. G. Schilling

Lesson 2 (1.5 h): Molecular diagnostics, molecular therapy strategies and molecular tumor board, PD Dr. Lukas Heukamp & Dr. Claas Wessler

Lesson 3 (1.5 h): -Antibody-drug conjugates, Dr. Ursula Scholz & PARP-,
-CDK4/6 inhibitors, Prof. Gerhard Gebauer

Lesson 4 (1.5 h): ct DNA, Prof. Karen-Lise Garm Spindler

Lesson 5 (1.5 h): Immunotherapy (vaccination, ICIs, etc.), Prof. Dr. Dirk Arnold & Dr. Theresa Reutter

Lesson 6 (1.5 h): CAR cells, BiTes, new therapies in hematology and oncology – Prof. Ahmet Elmaagagli & Nina Burkhart

Lesson 7 (1.5 h): Side effect management - Hauke Weilert & Dr. Svenja Neumann

Other subjects concerning the border issues of the given subject (both compulsory and optional courses!). Possible overlaps of themes:

- Biochemistry
- (Molecular) Pathology
- Interdisciplinary (Clinical) Oncology

Special study work required to successfully complete the course:

(E.g. field exercises, medical case analysis, test preparation, etc.)

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Requirements for participation in classes and the possibility to make up for absences:

- 75% attendance
- Missed classes will be made up for in self-study.

Methods to assess knowledge acquisition during term time:

(E.g. homework, reports, mid-term test, end-term test, etc., the possibility of replacement and improvement of test results)

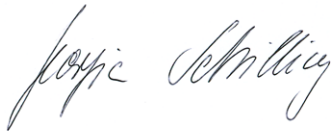
- Oral contributions

<p>Requirements for signature:</p> <ul style="list-style-type: none"> • 75% attendance • Signed register
<p>Type of examination:</p> <ul style="list-style-type: none"> • Written exam
<p>Requirements of the examination: <i>(In case of a theoretical examination, please provide the topic list; in case of a practical exam, specify the topics and the method of the exam)</i></p> <ul style="list-style-type: none"> • Therapeutic interventions: <ul style="list-style-type: none"> ○ General aspects of immunotherapy: mechanism of action and clinical „key“ results Immunotherapy-related side effects ○ Targeted therapies and molecular driven therapeutic strategies • Molecular pathology diagnostic procedures: <ul style="list-style-type: none"> ○ next generation sequencing ○ ctDNA diagnostic and therapeutic aspects <p>Example:</p> <p>Zu den Immuntherapien in der Hämatologie/Onkologie gehören nicht:</p> <ul style="list-style-type: none"> A. Antikörper-Wirkstoff Konjugate (ADC) B. Checkpoint-Inhibitoren C. CAR-T-Zelltherapie D. BITE-Antikörper E. Autologe Stammzelltherapie <p>Welche Antwort ist falsch:</p> <ol style="list-style-type: none"> 1. Immunologie und Onkologie sind seit dem 19. Jahrhundert eng miteinander verbunden. 2. Die Nebenwirkungen von Immuntherapien sind autoimmunologische Phänomene und meist harmlos. 3. Die Behandlung von irAEs beruht auf immunsuppressiven Medikamenten. 4. Patienten mit einer Pseudoprogression sprechen auf die Immuntherapie an. 5. Die (neuro)radiologischen Ansprechkriterien mussten der Immuntherapie angepasst werden.
<p>Method and type of evaluation: <i>(Method of calculating the final mark based on the theoretical and practical examination. How the mid-term test results are taken into account in the final mark.)</i></p> <ul style="list-style-type: none"> • 100% written exam
<p>How to register for the examination?:</p> <ul style="list-style-type: none"> • 75 % attendance is sufficient as a basic requirement to be admitted to the exam
<p>Possibilities for exam retake:</p> <ul style="list-style-type: none"> • 2 times
<p>Printed, electronic and online notes, textbooks, guides and literature (URL address for online material) to aid the acquisition of the material:</p> <ul style="list-style-type: none"> • Personalized Medicine in Oncology. Ari Vanderwalde (Hrsg.), ISBN-13: 9783036528212, MDPI AG • Molekulare Onkologie - Entstehung, Progression und Therapie von Krebs. Christoph Wagener, Oliver Müller, ISBN: 9783132433540, Thieme Verlag • Psychosocial Impact of Personalized Therapies in Oncology. Schilling G, Schulz-Kindermann F. Recent Results Cancer Res. 2018;210:181-190. doi: 10.1007/978-3-319-

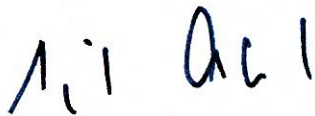
64310-6_11.PMID: 28924686

- **Basic principles of immunotherapy**. Schilling G, Arnold D. Radiologe. 2020 Aug;60(8):682-686. doi: 10.1007/s00117-020-00720-3.

Signature of the habilitated instructor (course leader) who announced the subject:



Signature of the Director of the Managing Institute:



Hand-in date: 03th of November 2022

Opinion of the competent committee(s):

Comments of the Dean's Office:

Dean's signature: