

Course syllabus for

Immunology 2, 7.5 credits

Immunologi 2, 7.5 hp This course has been cancelled, for further information see Transitional provisions in the last version of the syllabus. Please note that the course syllabus is available in the following versions: <u>Autumn2009</u>, <u>Autumn2013</u>, Spring2018

Course code	1BA040
Course name	Immunology 2
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedical Laboratory Science
Level	G2 - First cycle 2
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Laboratory Medicine
Decided by	Programnämnden för Biomedicinska analytikerprogrammet
Decision date	2009-04-22
Revised by	Education committee LABMED
Last revision	2020-09-02
Course syllabus valid from	Spring 2018

Specific entry requirements

Passed courses about at least 105 credits from semester 1-4 at biomedical laboratory science programme Specialization Laboratory Medicine and passed course in immunology and immunological methodology.

Objectives

The general aim of the course is that the student should acquire advanced knowledge in immunology and immunological methodology.

Knowledge and understanding On completion of the course, the student should be able to:

- explain at the molecular level how the immune defence counters and combates bacterial and viral infections
- summarise at the molecular level mechanisms around allergy, different hypersensitivity reactions and autoimmunity
- explain at the molecular level how the immune system can cause rejection reactions after a

transplantation

• account for different immunological methods

Skills and abilities On completion of the course, the student should be able to:

- independently plan and carry out immunological analyses
- explain the analysis principle for each method and document, interpret and assess analysis result
- critically review and present a scientific article orally

Judgement and approach On completion of the course, the student should be able to:

- Analyse and identify his need of additional knowledge to develop his skills
- Reflect over and refer to scientific texts in the area of immunology

Content

The course gives advanced knowledge at the molecular level about the components of the immune system and their role at the innate and adaptive immune defence.

Laboratory experiments, 1.5 hp

Grading scale: VU

Laboratory sessions that are included are analysis of human effector cells against selected antigen with immunoassays, cell separation methods and flow cytometry with Fluorescence Activated Cell Sorter (FACS).

A workbook is used during laboratory sessions and the importance of quality assurance will be discussed.

Immunology - theory and methodology, 6.0 hp

Grading scale: VU

In this part is discussed:

- the structure and function of the antibodies
- antigen presentation of MHC-molecules,
- recognising of antigen by T-cells
- development of lymphocytes, their receptors and diversity
- immunity that is mediated by T- och B-cells
- the role and function of the cytokines

- how the immune system functions of defence against bacterial and viral infections and different principles for vaccination

In addition be discussed clinical immunology regarding:

- hyperactivity of the immune system during allergy, hypersensitiveness and autoimmunity

- rejection reactions after transplantation

Under the method section, principles of immunological methods are treated such as production of monoclonal antibodies, immunoassays, proliferation- and cytotoxicitysassays, detection of cytokines, cell separation methods and flow cytometry.

In this part, seminars are also included, where scientific articles are presented and are discussed.

Teaching methods

Learning activities during the course, lectures, written summary of a scientific article, participation in seminar with oral presentation of a scientific article and laboratory sessions that are completed with a written complete laboratory report are.

Examination

As examination format, written final examination, laboratory report and written and oral presentation of scientific article are included.

For the grade Pass of the entire course is required passed on the two parts of the course, which implies approved laboratory report, approved examination and participation in seminar and submission of summary of scientific article. For the grade Pass with distinction of the entire course is required passed with distinction on the two parts of the course, which implies passed with distinction laboratory report, passed with distinction examination and participation in seminar and submission of scientific article.

In case of absence during oral presentation, the responsible teacher will assign the student an additional task that should be submitted and approved.

All laboratory sessions are compulsory.

In case of absence from compulsory parts, an agreement between the student and responsible teacher concerning supplementary qualification is made.

In case of absence an agreement concerning supplementary examination is made between the student and the responsible teacher. One re-examination is given in connection to the course and during a re-examination week in August. At failed laboratory session, the student has the opportunity to redo the laboratory session at another occasion. The students who not are passed after regular examination session have a right to participate at five further examination sessions.

Transitional provisions

The course has been cancelled and was offered for the last time in the autumn semester of 2019. Examination will be provided until the spring of 2021 for students who have not completed the course.

Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

Literature and other teaching aids

Parham, Peter The immune system

Fourth edition. : New York : Garland Science, 2014. - 620 s. med var. pag. ISBN:978-0-8153-4466-7 LIBRIS-ID:17109530 URL: Länk Library search Lindkvist, Annica; Trumstedt, Kerstin

Kompendium i immunologisk metodik - laborationer Immunologi 2

Institutionen för laboratoriemedicin, 2012