Course Specifications
From the academic year 2017-2018 up to and including the

Immunology and immunotherapeuticals (J000423)

Course size
(nominal values; actual values may depend on programme)

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
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<tr>
<td>3.0</td>
<td>90 h</td>
<td>25.0 h</td>
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Course offerings and teaching methods in academic year 2018-2019

A (semester 1)  Dutch  guided self-study  10.0 h
lecture  15.0 h

Lecturers in academic year 2018-2019

Deforce, Dieter
FW01 lecturer-in-charge

Offered in the following programmes in 2018-2019

| Master of Science in Pharmaceutical Care | 3 | A |
| Master of Science in Drug Development   | 3 | A |

Teaching languages

Dutch

Keywords

Immunity, auto-immune diseases, immunogenicity, vaccines, immuno-pharmaceuticals, cytokines.

Position of the course

Understand the aspects of the immune system affecting on the one hand the immune system in health and disease, the therapeutic effect of the immune system in the treatment of a disease (immunodeficiency, auto-immunity, infection, transplantation, vaccination), and on the other hand the immunogenicity of biological medicines.

Contents

- An overview of the composition and various functions of the human immune system.
- The present state of disease mechanisms in auto-immune diseases and other immune mediated illnesses.
- The principles of defining targets for immunotherapy.
- Present and future fields of application in the pharmaceutical biotechnology with respect to immunotherapy.
- The pharmaceutical interactions with the immune system.
- The possible side effects of some therapeutics mediated through the immune system.
- The various types of vaccines and related strategies.

Initial competences

Having successfully finished the courses: animal cell and tissue biology, biochemistry and biophysics I and II and general microbiology. Having followed or registered for biotechnology and protein medicines. Or having acquired the intended competences in one or the other way.

Final competences

1. Understand the basic principles of immunology.
2. Know the various functions and actors in the immune system and be able to detect their relation with each other.
3. Understand the disease mechanisms on the basis of immune mediated diseases.
4. Know the possible pharmaceutical interactions with the immune system.
5. Understand the immunological side effects of certain pharmaceutics.
6. Know the targets for immunotherapy.
7. Know the different types of vaccines.

Conditions for credit contract

(Approved)
Access to this course unit via a credit contract is determined after successful competences assessment.

Conditions for exam contract
Access to this course unit via an exam contract is unrestricted.

Teaching methods
Guided self-study, lecture, practicum.

Learning materials and price
The students can buy a syllabus (price 10 euros). The slides being used in the hearing colleges will be made available to the student on Minerva.

References
Immuno-Biology, Ja neway and Travers, Garland Publishing.

Course content-related study coaching
The students have various opportunities to ask questions, individually or in group: before and after the hearing college, or, by way of exception, by appointment in the lecturer's office.

Evaluation methods
end-of-term evaluation and continuous assessment.

Examination methods in case of periodic evaluation during the first examination period
Oral examination.

Examination methods in case of periodic evaluation during the second examination period
Oral examination.

Examination methods in case of permanent evaluation
Written examination, oral examination, participation, assignment, job performance assessment, report.

Possibilities of retake in case of permanent evaluation
examination during the second examination period is not possible.

Calculation of the examination mark
Theorie: periodegebonden, Practicum: niet-periodegebonden.
Het practicum wordt voor 5 van de 20 punten in rekening gebracht. Bij niet deelname aan het practicum kan als totaalcijfer maximaal 6 op 20 behaald worden ongeacht de punten op theorie. De eindscore is geen mathematisch totaal van de punten op individuele vragen.

(Approved)