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# Testi del Syllabus

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Resp. Did.	<b>BULLA ROBERTA</b>	<b>Matricola: 008898</b>
Docenti	<b>BULLA ROBERTA, 4 CFU</b> <b>MACOR PAOLO, 2 CFU</b>	
Anno offerta:	<b>2023/2024</b>	
Insegnamento:	<b>984SV - IMMUNOLOGIA MOLECOLARE E IMMUNOTERAPIA</b>	
Corso di studio:	<b>SM53 - GENOMICA FUNZIONALE</b>	
Anno regolamento:	<b>2022</b>	
CFU:	<b>6</b>	
Settore:	<b>MED/04</b>	
Tipo Attività:	<b>B - Caratterizzante</b>	
Anno corso:	<b>2</b>	
Periodo:	<b>Primo Semestre</b>	
Sede:	<b>TRIESTE</b>	

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## Testi in italiano

<b>Lingua insegnamento</b>	INGLESE
<b>Contenuti (Dipl.Sup.)</b>	<ul style="list-style-type: none"><li>- General aspects of the immune system and immune response</li><li>- Antibodies / monoclonal antibodies / recombinant antibodies / human antibodies in diagnosis and for therapeutic purposes</li><li>- Immune system and cancer / cancer immunotherapy</li><li>- Hypersensitivity and therapeutic neutralization of the immune system</li><li>- Immunodeficiencies and therapies</li><li>- Vaccines</li><li>- transplantation: role of the immune system and therapeutic prevention of its activation</li></ul>
<b>Testi di riferimento</b>	<ul style="list-style-type: none"><li>- SLIDES / Journal articles</li><li>- Cellular and Molecular Immunology, Abbas, Elsevier</li></ul>
<b>Obiettivi formativi</b>	<p>In accordance with the "Dublin Descriptors" principles for Master's Degree Programmes, the course aims to ensure that students can demonstrate the following</p> <p><b>KNOWLEDGE AND UNDERSTANDING</b></p> <ul style="list-style-type: none"><li>- knowledge of the cellular and molecular mechanisms that control the innate and acquired immune response under physiological and pathological conditions and of most recent development in the immune-therapeutic approaches</li></ul> <p><b>APPLYING KNOWLEDGE AND UNDERSTANDING</b></p> <ul style="list-style-type: none"><li>- be able to determine when and how the immune response supports the body's defense against injury (infection, neoplasia)</li></ul> <p><b>MAKING JUDGEMENTS</b> - Judgment autonomy is developed while studying the material in preparation for the final exam. In this phase, the student</p>

tests her/his ability to assimilate, deepen and integrate the concepts learned in class.

COMMUNICATION SKILLS - During class, active student participation is encouraged. The use of appropriate scientific terms is required at this stage.

LEARNING SKILLS - Learning skills are developed so that students are able to learn independently. Learning skills are assessed using the specified assessment methods.

<b>Prerequisiti</b>	Basic knowledge of Immunology, Pathology, microbiology
<b>Metodi didattici</b>	Frontal lessons, seminars and discussion of scientific articles
<b>Altre informazioni</b>	<p>Paolo Macor - Dept of Life Sciences, University of Trieste - Q building - Room 301 - pmacor@units.it</p> <p>Roberta Bulla, Ph. D. Edificio R - stanza 222/ R-Building - Room 206, Via A. Valerio 28, 34127 - Trieste. Tel: +39-040-5588646 e-mail rbulla@units.it Orario di Ricevimento/ Office hours Previa appuntamento / Upon appointment</p>
<b>Modalità di verifica dell'apprendimento</b>	<p>The final written exam consists of 31 multiple-choice questions, followed by an oral exam. The written and the oral examination contribute to the overall mark</p> <p>The following evaluation scheme will be adopted</p> <ul style="list-style-type: none"><li>- Excellent (30 -30 cum laude): excellent knowledge of the subjects</li><li>- Very good (27 -29): good knowledge of the subjects</li><li>- Good (24-26): good knowledge of the main subjects</li><li>- Satisfactory (21-23): the student does not fully master the main subjects of the course, but has the basic knowledge</li><li>- Sufficient (18-20): minimal knowledge of the main subjects of instruction</li><li>- Unsatisfactory (&lt; 18): The student does not have an acceptable knowledge of the content of the various topics of the course.</li></ul> <p>The methods for testing learning will be explained to students by the lecturer in the first introductory lecture</p>
<b>Programma esteso</b>	<p>General characteristics of the immune response. Effector mechanisms of humoral immunity Effector mechanisms of cell-mediated immunity Immunological memory: mechanisms and cells involved Immunological tolerance: mechanisms and cells involved Mucosal immunology Host-parasite interaction: general principles of immune defence against bacterial and viral infections. Transplantation immunology: antigens involved, mechanisms of rejection, reactions of the graft to the host. Autoimmunity: specific organ and non-organ manifestations, mechanisms of development. Hypersensitivity diseases: Main models of immune-mediated damage according to Gell and Coombs. Type I hypersensitivity: cells and molecules involved, chemical mediators, mechanisms of damage, in vivo and in vitro diagnostic tests. Type II hypersensitivity : mechanism of injury and main manifestations with special reference to neonatal hemolytic disease and transfusion reactions. Hypersensitivity of type III: experimental models (serum sickness and Arthus reaction) and examples of pathology in humans, clearance of immune complexes and mechanisms of injury, diagnostic tests. Hypersensitivity type IV: contact allergy and tuberculin type reaction. Mechanisms of damage and diagnostic tests. Congenital and acquired immunodeficiencies: primary immunodeficiencies: affected areas of the immunocompetent system and main clinical manifestations. Secondary immunodeficiencies. Human</p>

immunodeficiency virus and acquired immunodeficiency syndrome.  
 Immunotherapy: - Development and characterization of polyclonal antibodies / monoclonal antibodies / recombinant antibodies / human antibodies and their use in diagnosis and therapeutic purposes; - Vaccines as a preventive approach against infections; - Cancer immunotherapy, including antibody-based immunotherapy, vaccines, cellular immunotherapy, CAR -T cells.  
 The role of the immune system in cancer development.  
 Cancer immunotherapy  
 Immunology of pregnancy, the foetus and the newborn

**Obiettivi Agenda 2030 per lo sviluppo sostenibile**

Questo insegnamento approfondisce argomenti strettamente connessi a uno o più obiettivi dell'Agenda 2030 per lo Sviluppo Sostenibile delle Nazioni Unite

**Obiettivi per lo sviluppo sostenibile**

Codice	Descrizione
3	Salute e benessere



**Testi in inglese**

	English
	<ul style="list-style-type: none"> <li>- General aspects of the immune system and immune response</li> <li>- Antibodies / monoclonal antibodies / recombinant antibodies / human antibodies in diagnosis and for therapeutic purposes</li> <li>- Immune system and cancer / cancer immunotherapy</li> <li>- Hypersensitivity and therapeutic neutralization of the immune system</li> <li>- Immunodeficiencies and therapies</li> <li>- Vaccines</li> <li>- transplantation: role of the immune system and therapeutic prevention of its activation</li> </ul>
	<ul style="list-style-type: none"> <li>- SLIDES / Journal articles</li> <li>- Cellular and Molecular Immunology, Abbas, Elsevier</li> </ul>
	<p>In accordance with the "Dublin Descriptors" principles for Master's Degree Programmes, the course aims to ensure that students can demonstrate the following</p> <p><b>KNOWLEDGE AND UNDERSTANDING</b></p> <ul style="list-style-type: none"> <li>- knowledge of the cellular and molecular mechanisms that control the innate and acquired immune response under physiological and pathological conditions and of most recent development in the immunotherapeutic approaches</li> </ul> <p><b>APPLYING KNOWLEDGE AND UNDERSTANDING</b></p> <ul style="list-style-type: none"> <li>- be able to determine when and how the immune response supports the body's defense against injury (infection, neoplasia)</li> </ul> <p><b>MAKING JUDGEMENTS</b> - Judgment autonomy is developed while studying the material in preparation for the final exam. In this phase, the student tests her/his ability to assimilate, deepen and integrate the concepts learned in class.</p> <p><b>COMMUNICATION SKILLS</b> - During class, active student participation is encouraged. The use of appropriate scientific terms is required at this stage.</p> <p><b>LEARNING SKILLS</b> - Learning skills are developed so that students are able to learn independently. Learning skills are assessed using the specified assessment methods.</p>

Basic knowledge of Immunology, Pathology, microbiology

Frontal lessons, seminars and discussion of scientific articles

Paolo Macor - Dept of Life Sciences, University of Trieste - Q building - Room 301 - pmacor@units.it

Roberta Bulla, Ph. D.  
Edificio R - stanza 222/ R-Building - Room 206, Via A. Valerio 28, 34127 - Trieste.  
Tel: +39-040-5588646  
e-mail rbulla@units.it  
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Previa appuntamento / Upon appointment

The final written exam consists of 31 multiple-choice questions, followed by an oral exam. The written and the oral examination contribute to the overall mark.

The following evaluation scheme will be adopted

- Excellent (30 -30 cum laude): excellent knowledge of the subjects
- Very good (27 -29): good knowledge of the subjects
- Good (24-26): good knowledge of the main subjects
- Satisfactory (21-23): the student does not fully master the main subjects of the course, but has the basic knowledge
- Sufficient (18-20): minimal knowledge of the main subjects of instruction
- Unsatisfactory (< 18): The student does not have an acceptable knowledge of the content of the various topics of the course.

The methods for testing learning will be explained to students by the lecturer in the first introductory lecture

General characteristics of the immune response.

Effector mechanisms of humoral immunity

Effector mechanisms of cell-mediated immunity

Immunological memory: mechanisms and cells involved

Immunological tolerance: mechanisms and cells involved

Mucosal immunology

Host-parasite interaction: general principles of immune defence against bacterial and viral infections.

Transplantation immunology: antigens involved, mechanisms of rejection, reactions of the graft to the host.

Autoimmunity: specific organ and non-organ manifestations, mechanisms of development.

Hypersensitivity diseases: Main models of immune-mediated damage according to Gell and Coombs. Type I hypersensitivity: cells and molecules involved, chemical mediators, mechanisms of damage, in vivo and in vitro diagnostic tests. Type II hypersensitivity : mechanism of injury and main manifestations with special reference to neonatal hemolytic disease and transfusion reactions. Hypersensitivity of type III: experimental models (serum sickness and Arthus reaction) and examples of pathology in humans, clearance of immune complexes and mechanisms of injury, diagnostic tests. Hypersensitivity type IV: contact allergy and tuberculin type reaction. Mechanisms of damage and diagnostic tests.

Congenital and acquired immunodeficiencies: primary immunodeficiencies: affected areas of the immunocompetent system and main clinical manifestations. Secondary immunodeficiencies. Human immunodeficiency virus and acquired immunodeficiency syndrome.

Immunotherapy: - Development and characterization of polyclonal antibodies / monoclonal antibodies / recombinant antibodies / human antibodies and their use in diagnosis and therapeutic purposes; - Vaccines as a preventive approach against infections; - Cancer immunotherapy, including antibody-based immunotherapy, vaccines, cellular immunotherapy, CAR -T cells.

The role of the immune system in cancer development.

Cancer immunotherapy  
Immunology of pregnancy, the foetus and the newborn

This course explores topics closely related to one or more goals of the United Nations 2030 Agenda for Sustainable Development (SDGs)

## **Obiettivi per lo sviluppo sostenibile**

<b>Codice</b>	<b>Descrizione</b>
3	Good health and well-being