

<b>Molecular Diagnostics</b>						
<b>Module Code</b>	<b>Workload</b> 180 hrs.	<b>Credits</b> 6	<b>Semester</b> 1	<b>Frequency of Module</b> Each semester	<b>Duration</b> 1 Semester	
<b>1</b>	<b>Module Components</b>		<b>Teaching Language</b>	<b>Contact Hours</b>	<b>Self Study</b>	<b>Class Size</b>
	a) Biomarkers in Diagnostics		a) English	a) 22,5 hrs.	a) 67,5 hrs.	a) 15
	b) Immunological Techniques		b) English	b) 22,5 hrs.	b) 67,5 hrs.	b) 15
<b>2</b>	<p><b>Learning Outcomes</b></p> <p>After successful participation in the module the students ...</p> <p><b>Analysis (4)</b></p> <ul style="list-style-type: none"> <li>... apply selected high-throughput methods to quantify potential biomarkers</li> <li>... describe methods of transcriptomics, proteomics and metabolomics</li> <li>... distinguish between current methods in immunology</li> <li>... justify the use of different diagnostic methods</li> <li>... use immunological methods to determine immunological parameters</li> <li>... evaluate aspects of biomarker patents</li> </ul> <p><b>Evaluation (6)</b></p> <ul style="list-style-type: none"> <li>... compare different applications of biomarkers</li> <li>... select suitable methods for biomarker identification and development</li> <li>... evaluate literature results</li> </ul>					
<b>3</b>	<p><b>Individual Component Content</b></p> <p>a) Methods in biomarker research and immunology, Examples of DNA/RNA sequencing and transcriptomics, proteomics, metabolomics and immunology, theoretical approaches and regulations for biomarker identification and validation, current applications of biomarkers in diagnosis and prognosis as well as for patient stratification and therapy control, analysis of practical case studies</p> <p>b) Immunological methods, immunological methods in diagnosis and prognosis, as well as patient stratification and therapy control, analysis of practical case studies</p>					
<b>4</b>	<p><b>Teaching Methods</b></p> <p>a) Lecture</p> <p>b) Lecture</p>					

<b>5</b>	<b>Prerequisites</b> Knowledge in biology, molecular biology, biochemistry and instrumental analytics
<b>6</b>	<b>Methods of Assessment</b> a) Graded Assessment 1sbK (Written Exam) (3 LP) b) Graded Assessment 1K (Written Exam) (3 LP)
<b>7</b>	<b>Applicability of Module</b> Precision Medicine Diagnostics M.Sc. (PMD)
<b>8</b>	<b>Person Responsible for Module</b> Prof. Dr. Hans-Peter Deigner (Module Responsible) Prof. Dr. Hans-Peter Deigner (Lecturer)
<b>9</b>	<b>Reading List (Core Texts and Recommended Texts)</b> a) Biomarkers: In Medicine, Drug Discovery, and Environmental Health. John Wiley & Sons 2010, Editor(s): Vishal S. Vaidya, Joseph V. Bonventre, Lottspeich, Engels (Hrsg.) (2006), Bioanalytik, Spektrum Verlag, 2.Aufl. b) Carl A. Burtis et al. (2012), Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Elsevier, 5. Aufl. Lela Buckingham and Maribeth L. Flaws (2007), Molecular Diagnostics: Fundamentals, Methods and Clinical Applications, F.A. Davis Company.