

## Course description for Postgraduates, School of Basic Medicine

Course Title: Advanced Medical Molecular Biology		Course Code: 510.804		
Course Category: <input type="checkbox"/> High-level course <input type="checkbox"/> International course <input checked="" type="checkbox"/> Advanced international courses <input type="checkbox"/> Common course				
Course Type: <input type="checkbox"/> 1st-level discipline basic courses <input checked="" type="checkbox"/> 2nd-level discipline basic courses <input type="checkbox"/> Optional professional courses				
The methods of Assessment: English Exam				
Teaching Method: taught in English		Applicable Educational Level: Master <input type="checkbox"/> Doctor <input checked="" type="checkbox"/>		
The Beginning of the Term: the first semester	Total Hours/Teaching Hours: 80h		Credits: 4	
Applicable Specialty: medical & Pharmacy students				
Name of the Teachers of the Course Group	Professional Title	Major	Age	Academic Direction
Zuohua Feng (responsible teacher)	Professor	Biochemistry and molecular biology	59	tumor immune regulatory mechanism, tumor metastasis mechanism & biological therapy and gene therapy of tumor
Feng Zhu	Professor	Cellular and Molecular Biology	46	Carcinogenesis & Chemoprevention
Guimei Zhang	Professor	Biochemistry and molecular biology	59	tumor immune regulatory mechanism, tumor metastasis mechanism & biological therapy and gene therapy of tumor
Wuxing Dai	Professor	Biochemistry and molecular biology	46	Cellular signal transduction and disease
<b>Aim of the course</b>				
On the basis of the postgraduate course of medical molecular biology, we will introduce the latest research on advanced medical molecular biology. Aim to improve the ability of the Ph.D. and M.D. graduate program design and experimental technology.				
<b>Characteristics of the course and course content design</b>				

Medical Molecular Biology is an important basic subject, which theories and techniques penetrate into the various subject areas. The contents include 3 major parts: the basic principle of molecular biology, the main technical theory of molecular biology & Molecular Biology and Medical Research.

The basic theory section introduces the structure and function of genes and genomes, regulation of gene expression. This section focuses on the basic theoretical knowledge in order to achieve the theory of Molecular Biology applied to medical research for graduate students.

Technical theory section introduces the basic theory of main techniques of molecular biology, including amplification of nucleic acids *in vitro*, genetic engineering and nucleic acid hybridization. The aim is to make the graduate students better grasp and apply molecular biology techniques into the medical scientific experiments.

The section of molecular biology and medical research describes the relationship between genetic variation and disease, the significance of genome research in medicine, and the theory of gene diagnosis and gene therapy. This section focuses on the research ideas in the medical molecular biology field. Improve the ability of the graduate students to solve problems in their research projects.

**Teaching methods:** Theory Teaching, Seminars, PowerPoint

**Course Outline:** (Seminars, Total Class Hours /Teaching Hours: 80/48)

Advanced Genome Research	6h
Advanced Gene Expression Regulation	8h
Advanced Genetic engineering	8h
Advanced Techniques in Molecular Biology	12h
Advanced Gene Diagnosis and Gene Therapy	4h
RNA World	4h
Bioinformatics and its application in medicine	6h

**Guide Books:**

No fixed teaching materials.

Teaching methods: Seminars & Latest Authoritative References

**Main ReferenceBooks:**

1. *Frontiers in Computational Genomics*, Michael Y. Galperin , et al.
2. *RNA world*
3. *Molecular Cell Biology*, 4th edition, Harvey Lodish, et al.