

*Ollscoil na hÉireann, Gaillimh*  
*National University of Ireland, Galway*  
**Summer Examinations 2004 / 2005**

<b>Exam Code(s)</b>	4BS2
<b>Exam(s)</b>	
<b>Module Code(s)</b>	PM415
<b>Module(s)</b>	
<b>Paper No.</b>	4
<b>Repeat Paper</b>	
<b>External Examiner(s)</b>	Professor Iain Campbell
<b>Internal Examiner(s)</b>	Dr. Maura Grealy Dr. Jill McMahon

**Instructions:** Answer section A **and** two questions from section B. Use separate answer books for each question.

<b>Duration</b>	3 Hours
<b>No. of Pages</b>	1
<b>Department(s)</b>	Pharmacology
<b>Course Co-ordinator(s)</b>	Dr. John Kelly

**Requirements:**

MCQ  
 Handout  
 Statistical Tables  
 Graph Paper  
 Log Graph Paper  
 Other Material

### **Section A**

1. 'Recent advances in basic research have profound implications for pharmacology and therapeutics'. Discuss this statement based on your reading of the recent literature with respect to *one* of the following areas:  
Cancer therapy  
Auto-immune diseases  
Regenerative medicine  
Infectious diseases

### **Section B**

2. 'Research over the past five years has transformed our understanding of G-protein coupled receptors.' Give an account of the main developments and their implications for pharmacology.
3. Give a detailed account of how transcription factors control gene expression. Include key techniques used to obtain this information and give examples of the applications of these findings in drug development and assay design.
4. 'Pharmacogenomics and related technologies will revolutionize drug discovery over the next five years' Discuss.
5. The Irish Government has awarded you 20 million euro to set up a Gene Therapy Research Institute. Give an outline of which disease (or diseases) would be suitable gene therapy targets and which gene therapy vectors would be most appropriate for this research.