

UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For The Following Qualification:—

B.Sc. (Intercal)

Surgery 2: Cell Biology of Neoplasia

COURSE CODE : **SURG0002**

UNIT VALUE : **0.50**

DATE : **28-APR-05**

TIME : **10.00**

TIME ALLOWED : **3 Hours**

UNIVERSITY OF LONDON
(University College London)

BSc Degree 2005

TUMOUR BIOLOGY SURG 0002 : CELL BIOLOGY OF NEOPLASIA

28 April 2005: 10.00 to 13.00

Answer both Sections A and B: 5 questions from 2 sections

Please answer each Section in a separate answer book

You should allow about 1 hour for Section A and 2 hours for Section B

One third of marks allocated to Section A

SECTION A Answer ONE of the following three questions

A1 Describe one cell signalling path which results in mitogenesis. Choose 2 of the proteins in this path and explain why and how they are being targeted in cancer therapy.

A2 Describe the interactions with the cell cycle of two proteins each of which is the product of a gene responsible for an inherited predisposition to cancer. For each protein, name the cancer syndrome, then discuss the impact of the protein on oncogenesis.

A3 What are retinoids? Explain their molecular mechanism of action. Describe a) one example of how retinoids have been used clinically to prevent cancer and b) one example of their successful use in cancer therapy.

SECTION B Answer FOUR of the following seven questions

B1. What is 'Knudson's hypothesis'? How has it furthered our understanding of familial and sporadic carcinogenesis and what do you think are its limitations? Illustrate your answer with reference to specific cancer types.

PLEASE TURN OVER

SURG 0002 SECTION B *continued*

B2 Give examples of paracrine and/or autocrine actions of growth factors (except TGFbeta family) which contribute to two steps in tumorigenesis.

B3 Outline the function of p53 and the mechanisms that control the cellular levels of p53 protein. How may the function of p53 be subverted in cancer?

B4 Describe, using diagrams, the cellular mechanisms of apoptosis. How does apoptosis play a role in cancer? Give examples.

B5 Briefly describe the actions of TGFbeta in cancer that are different to those of other growth factor families.

B6 Outline the evidence to support the proposition that dysregulation of the sonic hedgehog signalling path is crucial to the formation of certain **named** malignancies.

B7 Which cancer is associated with BrCA1 and BrCA2 ? Outline some of their cellular actions which underpin carcinogenesis.

END OF PAPER