



## About the Tutor

Guy Sutton's primary research interests are the genetics of neural development and the interactive nature of biological, behavioural and genetic factors in disease processes; in particular, how the brain can affect immunity increasing susceptibility to illness.

He is an Honorary Lecturer in Neuroscience at the University of Nottingham Medical School and has held previous academic appointments at Manchester, Manchester Metropolitan and Cambridge Universities. Guy also lectures in molecular genetics to undergraduate and postgraduate students, including medics, biologists and psychologists, and to health professionals. He has been a visiting researcher to universities in the United States and has conducted research projects and data analysis for various organisations, including the Department of Health and the Medical Research Council. In addition to presenting research at various international conferences and writing for academic publications, Guy has talked about the theoretical and clinical aspects of his research on television and radio.

He has tutored on 'A' level reading parties for students and teachers for several years, and delivered the 2005 Wirral Christmas Lectures in Genetic Disorders and 21<sup>st</sup> Century Neuroscience. He is an associate tutor with Williers Park Educational Trust, Cambridge and runs courses for the National Academy For Gifted & Talented Youth.

## About MBI

MBI (Medical Biology Interactive) delivers one-day and half-day courses, seminars and tutorials in epidemiology, occupational health and the human sciences to the health service, industry and education. All MBI seminars are written and run by academics and health specialists, each of whom has considerable experience in research and its practical applications. Seminars are delivered at the hospital, workplace or school, based on cutting-edge research and current practice benchmarks, and tailored to the needs and concerns of the client.

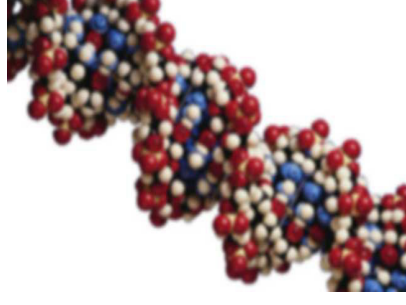
For further information and full programmes, please refer to the contact details on the back of this pamphlet.



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# DNA DAY



*A One-Day Tutorial  
For AS/A2 Level Students  
In Modern Medical Genetics -  
Delivered At Your School*

T U T O R:

**Dr. Guy M. Sutton**

Director, MBI &  
Honorary Lecturer,

University of Nottingham Medical School



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**Seminars & Tutorials For The  
Health Service, Industry & Education**

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## WHY A DNA DAY?

The human genome's gene-containing regions are now effectively sequenced. In years to come, the genome map is likely to revolutionise the practice of medicine and dramatically increase our knowledge of preventing and treating many diseases. It will also impact on academic disciplines from the life sciences to economics.

Genetics is becoming an increasingly relevant component of many university degree courses. This tutorial is thus intended to serve as a comprehensive primer of modern genetic principles and considers the societal and economic ramifications of a genome map, along with other important questions and issues that have arisen from recent research.

## WHICH STUDENTS WILL BENEFIT?

This tutorial is designed primarily for very able A2 level students but will also be useful to:

- any AS students with an interest in the principles and applications of genetics and its contribution to medicine and society.
- those students considering a university degree and/or career in the following subjects:

**Medicine**   **Biology**   **Neuroscience**  
**Biochemistry**   **Dentistry**   **Philosophy**  
**Genetics**   **Nursing**   **Psychology**

The material presented during this tutorial will complement and develop upon topics and issues encountered in AS/A2 level Biology and Chemistry.

## AIMS OF THE TUTORIAL

There are three main aims to this tutorial:

- to provide the student with an overview of elementary and advanced genetic principles and to examine technologies such as gene sequencing, genetic testing and gene therapy.
- to explore post-Human Genome Project genetics, addressing proteomics and gene mapping; to consider the ethical, economic and social consequences of a genome directory.
- to explore contemporary issues in clinical genetics, examining various types of genetic and chromosomal disorders and focusing on the molecular biology and genetics of cancer development.

## TOPICS TO BE COVERED

A variety of topics and issues relating to genetics will be covered. The tutorial can be tailored to your specific requirements and an exemplar programme is provided below:

- **9.00-10.15: Introduction to Genetics**  
*From DNA, genes and chromosomes to transcription, translation and the genetic basis of mutation. With DVD presentation.*
- **10.15-10.50: Beyond Genome Sequencing**  
*Genome sequencing, proteomics and bioinformatics. Medical, legal and ethical ramifications.*
- **11.05-11.50: Genetics & The Internet I:**  
*Explore a sequence of DNA; chromosome browsing; gene sequencing.*
- **11.50-12.30: Medical Genetics**  
*Genetic, chromosomal, mitochondrial and multifactorial disorders. From polydactyly and neural tube defects to autism and schizophrenia.*
- **1.35-2.05: Genetics & The Internet II**  
*Riddle of the Elephant Man; how cancer develops.*
- **2.05-2.30: Epigenetics**  
*Methylation and histone deacetylation, gene expression and gene silencing in health and illness.*
- **2.30-3.15: Focus: Cancer Genetics**  
*The molecular basis of cancer, considering cancer gene families and impaired cellular DNA repair, apoptosis and telomere shortening.*
- **3.15-3.45: The Future**  
*Genetic testing, gene therapy and molecular therapies for treating disease.*
- **3.45-3.55: Conclusions & Questions**

## FORMAT

The tutorial is delivered in your school and runs throughout the school day. Tutorial date can be arranged by contacting MBI. Format is varied, with interactive, multimedia lectures and group discussions.

Each school receives an interactive CD-ROM featuring tutorial material, genetics exercises and activities together with web links. Students each receive a comprehensive 24-page tutorial pack containing material presented during the tutorial. In addition, teachers will receive passwords to the MBI website to access weekly GeneBlog research updates to keep them abreast of developments in neuroscience.

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# MBI

## OTHER

### SEMINARS & TUTORIALS

#### FOR THE HEALTH SERVICES & INDUSTRY

MEDICAL GENETICS  
(FOR GENERAL PRACTITIONERS)

METHODS IN  
MOLECULAR BIOLOGY

EPIDEMIOLOGY & STATISTICS  
IN CLINICAL PRACTICE

HEALTH &  
STRESS MANAGEMENT

BRAIN DAY FOR THE  
HEALTH & EMERGENCY  
SERVICES

#### FOR EDUCATION

BRAIN DAY  
(FOR A2 LEVEL STUDENTS)

STRESS DAY  
(FOR A2 LEVEL STUDENTS)