

**2011/12**

**MEDICAL & SCIENCE MEDIA**

**Genetics  
SOFTWARE**

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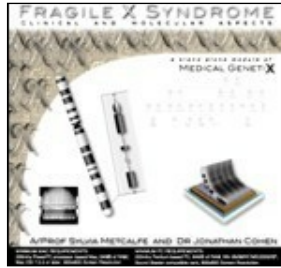
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<http://www.msmedia.com.au/genetics-software.php>

[Cat #: MU-8](#)**Fragile X Syndrome – Wins**

Fragile-X Syndrome is a stand-alone interactive CD-ROM integrating the genetics and clinical features of fragile X syndrome.



It is produced by Associate Professor Sylvia Metcalfe from the University of Melbourne and Dr Jonathan Cohen from the Fragile X Alliance.

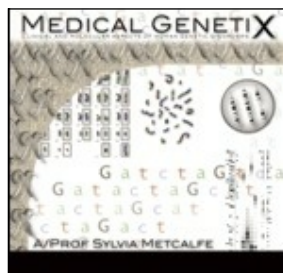
The program covers clinical diagnosis, laboratory diagnostics, and personal perspectives and includes high quality media such as videos, animations and interactive images from Australian families. Multiple choice questions, glossary of terms and references are also included.

This program will be useful for students studying human genetics, medical and biomedical courses, and for continuing professional education.

**Authors:** Associate Professor Sylvia Metcalfe, Dr Jonathan Cohen.

[Cat #: MU-9](#)**Medical GenetiX – Wins****Clinical and Molecular Aspects of Human Genetic Disorders**

The explosion of knowledge in human genetics and applications of genetic technologies has resulted in a proliferation of concepts that are often difficult to impart in the limited context of lecture-based teaching. Furthermore, although we can engage students in discussions on the social and ethical issues in genetics, there is often reluctance to participate actively in a large group.



Medical GenetiX is an innovative multimedia program for undergraduate medicine and biomedicine students that presents the concepts of human genetics and heredity within the clinical context of various chromosomal and single-gene disorders. The chromosomal disorders featured are trisomy 21 (Down syndrome), trisomy 18 (Edward syndrome) and Klinefelter syndrome; and the single-gene disorders are cystic fibrosis, Duchenne muscular dystrophy, Huntington disease and beta-thalassaemia.

Building on basic molecular biology - knowledge of the structure of DNA and genes, transcription and translation is assumed - Medical GenetiX presents the science of genetics and heredity in a consistent modular framework across each of the clinical disorders. The three main modules and their sections are: Clinical Diagnosis - clinical features, family histories and pedigrees (for single-gene disorders), and molecular pathogenesis, the underlying molecular basis of the condition; Laboratory Diagnostics - DNA testing (for single-gene disorders), karyotyping (for chromosomal disorders), and pathology testing; and Counselling and Ethics, based on videos of counselling sessions related to a particular learning issue, with advice on counselling techniques and ethical issues.

Medical GenetiX includes interactivity through a variety of approaches: drag-and-drop exercises, self-test questions and 'rollovers' that reveal more detail, as well as role-playing to explore ethical issues of relevance to genetic

counselling. Comprehensive feedback and hints are given for the exercises and tests. An on-screen glossary of terms is also available at any time. Books, articles and websites are listed as references and for further reading.

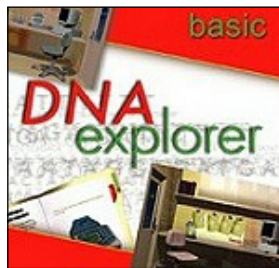
**Author:** Dr Sylvia Metcalfe

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[Cat #: MU-13](#)

### **DNA Explorer – Wins**

An ability to access and analyse biologically relevant data is essential for biomedical scientists - there are few, if any, experiments undertaken these days that do not involve some element of online data analysis, ranging from literature and DNA sequence searches to 3D molecular modelling. However, even simple analysis tasks often require many different software packages and databases to be used in a co-ordinated manner.



Students begin by exploring a "virtual laboratory" where they are presented with a microbiological problem - a suspected case of smallpox. Background information is included in the program but in order to solve the problem students must investigate DNA sequences using global biology databases. DNA explorer provides a framework for students to access the relevant databases, interpret their findings and consider their implications.

**Authors:** Richard Strugnell, Brendan Crabb, Carol Ginns, Terry Judd, Gregor Kennedy and Mike Keppell



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