

Europeans *for* Medical Progress

Europeans for Medical Progress is an independent, not-for-profit organisation of scientists dedicated to improving human health by modernising biomedical research. There is alarming evidence that animal experiments provide results that, when applied to humans, can prove misleading or fatal. These tests exhaust precious research funding, waste valuable time, produce ineffective solutions, and delay progress toward human cures.

Europeans for Medical Progress Trust is a registered charity: 1039411. We focus on rigorous scientific analysis of animal experimentation to assess the balance of help or harm to human health. We aim to protect human health by promoting human-specific medical research. We seek to educate the public, scientists, the media and the Government about the sophisticated biomedical research techniques that enable genuinely fruitful study of human biology.

Help us put patients before profits

Europeans for Medical Progress/
Europeans for Medical Progress Trust
PO Box 53839
London SE27 0TW
Tel/Fax: 020 8265 2880
info@curedisease.net
www.curedisease.net

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Success at party conferences

 EMP had a stand at the Labour Party

Conference in Bournemouth in September. It was a tremendous opportunity for us to engage with MPs, health executives and policy makers. We were delighted with the level of interest and agreement we encountered.

We spoke to a large number of MPs and ministers, including the Prime Minister, and gave them copies of our half-hour film, *Safer Medicines*. We hope that they will watch the film and be encouraged to view the issue of animal testing in a new light.

The constant negative publicity surrounding the whole issue of animal testing has made it difficult for MPs to address this issue seriously. We believe that watching *Safer Medicines* will help them to recognise the importance of the issue for public health and to break the taboo over discussing it. We want to get MPs talking about animal testing, armed with an insight that they have never had before.



*Health Minister Ben Bradshaw
with EMP Director Kathy Archibald*

Newsletter Winter 2007/08

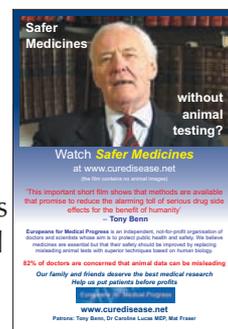


LIBERAL DEMOCRATS

We also hosted a fringe event at the Liberal Democrat Party Conference in Brighton, where we showed *Safer Medicines*. The film was very well received and a lively Q&A session followed.

Action

If you can help by distributing our leaflets we will be delighted. Donations towards postage and printing will be greatly appreciated.



Watch *Safer Medicines* on our website or order a DVD copy for only £5. We have also made available a 10 minute version, a 3 minute trailer, plus 4 minutes of footage of the launch of the film in the House of Commons, hosted by our patron Tony Benn.

If you know any secondary school teachers please encourage them to ask us for a free copy. An order form is on our website.

Please make a donation to help us cover the costs of producing the film and distributing it free of charge to teachers and MPs. We simply cannot afford to do this without you.

We have already received hundreds of requests from schools, and extend our grateful thanks to Kate Ridgway and RGM Media for producing the DVDs for us.

Change of address

Please note our new address and telephone number.

BBC apologises to EMP

The BBC Editorial Complaints Unit has upheld two complaints made by EMP concerning the programme 'Monkeys, Rats and Me'. In a ruling which attracted fury from lobbyists for animal testing Colin Blakemore and Clive Page, the BBC admitted that the programme suffered from an unacceptable lack of balance and must not be aired again.

The programme team, in cahoots with pro-animal testing lobby group RDS (Research Defence Society), solicited letters from Professors Blakemore and Page in an unsuccessful attempt to overturn the ruling.

We are now pressing the BBC to uphold our complaint regarding accuracy, since the central premise of the programme - that treatments such as deep brain stimulation (DBS) for Parkinson's disease and dystonia resulted from experiments on monkeys - is false. DBS was actually pioneered in patients, not monkeys.

So - watch this space! Our letters of complaint and the BBC's response can be viewed on our website.

BBC Today programme

EMP's director Kathy Archibald was invited to debate with Lord Robert Winston on BBC Radio 4's flagship news programme, Today, on 17th July. The pretext of the discussion was the publication of a new booklet by the Coalition for Medical Progress and the RDS, entitled 'Medical Advances and Animal Research.'

Kathy explained, with examples, that there is abundant evidence that animal experiments have often delayed and misled medical progress. Lord Winston became irritated and asserted that '[animal research has been the most valuable thing in any aspect of medical research - and still is.](#)' He further accused our argument of being pseudo-scientific and said that we should focus on ethics because there is no scientific argument to be had.

This, of course, is what we have come to expect from proponents of animal testing. Since they are unable to engage with our reasoned scientific case, they try to deflect the debate onto ethics instead, and then claim that one has to choose between animals and humans. The truth, however, is that the surest route to medical progress is via human-focused research, not animal research.

Jane Higgs 1924-2007

We were saddened by the death in July of one of our staunchest supporters, Jane Higgs. Jane was a

remarkable and dedicated woman, whose tireless efforts and achievements on behalf of patients (as a respected physiotherapist who pioneered 'frog breathing' for polio patients) and animals were an inspiration to many. We were tremendously honoured that she requested donations to EMP instead of flowers at her funeral. We are deeply grateful to Jane and her many friends for £1,220 raised and for much valued help and support.

Europeans *for* Medical Progress Trust

ASA rejects Pro-Test complaint

In a rare victory for honesty and common sense, in November, pro-animal testing lobbyists Pro-Test lost their complaint to the Advertising Standards Authority (ASA) about one of our leaflets. They disagreed with the assertion by Mike Hancock, CBE, MP that: '[It is astonishing that animal testing has never been scientifically evaluated and the process is long overdue.](#)'

Mr Hancock told the ASA:

['No doubt the vested interests who make a great deal of profit from experimenting on animals may wish to split hairs, and mislead, in attempt to discredit this fact - but a fact it is nevertheless.'](#)

Pro-Test argued that three inquiries into animal testing had been conducted and claimed that these constituted a scientific evaluation of the practice. However, EMP Trust pointed out that these inquiries focused on ethics and legislation and did not constitute scientific evaluation. In fact, all three inquiries called for reviews of the reliability and relevance of animal research. The ASA agreed with EMP Trust and rejected Pro-Test's claims.

Pro-Test also complained about a statement on the leaflet by EMP Trust that:

['Hormone replacement therapy increases women's risk of heart disease and stroke. Millions of prescriptions were based on monkey data, which predicted the opposite.'](#)

Pro-Test claimed that HRT was not prescribed on the basis of monkey data but EMP Trust provided abundant evidence to show that it was. The ASA's draft recommendation was to reject this complaint as well - at which point Pro-Test decided to withdraw the complaint. Clearly, they wanted to limit their embarrassment on publication of the ASA's decision to one rejection rather than two.

These complaints highlight the contrast between Pro-Test and EMP Trust: EMP Trust's position is based on rigorous scientific evidence, while Pro-Test's case rests on claims which it cannot substantiate.

Science journalist Robert Matthews wrote an article in the Daily Express concerning the ASA's decision, in which he said:

'[T]he ASA has rejected the complaint, but seems to have struggled with the fact that Hancock is right: animal testing has never been subjected to scientific scrutiny. When a new drug has to be tested, no-one knows for sure if the outcome has any relevance for humans.

...Supporters of vivisection also like to claim that virtually all of today's wonder-drugs have benefited from animal research. Yet, as animal testing is mandatory, it's no surprise that every breakthrough has been through this testing. It's as rational as crediting scientific breakthroughs to the wearing of lab-coats.'

You can read the article on our website, along with the ASA's adjudication.



Reaching the public

Members of the Trust have been active on the radio, in schools and at public talks, educating people about the latest methods available in medical research. A talk at Croydon Cafe Scientifique generated a lot of interest and thoughtful

questions, as did school talks in Oxford, London and St Albans.

A showing of *Safer Medicines* to the Oxford Humanist Society resulted in an informative and lively debate, as it did at Oxford University, hosted by VERO (Voice for Ethical Research at Oxford: www.vero.org.uk)

In June Canadian radio station, Animal Voices, interviewed Kathy Archibald and The Trust's Science Consultant, Dr Margaret Clotworthy, about the scientific case against animal testing. Topics covered ranged from the potential of embryonic stem cells to the use of animals in the EU REACH initiative to examine the safety of chemicals in the environment.

EMBO Reports

In September a 1,000 word letter by Kathy Archibald and Margaret Clotworthy was published in the prestigious science journal, European Molecular Biology Organization Reports, in response to an opinion piece by the RDS entitled 'The ethics of animal research.'

The RDS article would not have been so bad if they had kept to their title and discussed only the ethical dilemmas surrounding the use of animals in medical research. However, they also claimed that the development of new medicines and treatments is 'all made possible by animal research'. We felt obliged to point out that the ASA ruled in 2005 that such claims are misleading and should not be repeated.

We asked: 'How much more evidence of failure is needed before we consider directly assessing the worth of animal tests relative to the latest tests that are now available?' And we pointed out that 'the results of evidence-based medicine often conflict with the agenda of special interest groups.'

The RDS accused EMP of 'deliberately and systematically distort[ing] scientific arguments to their own ends.' Yet while we seek unprecedented scientific scrutiny of animal tests to predict drug safety - the track record of which is abysmal - RDS campaigns to prevent it.

It is particularly baffling that the RDS chose to criticise 'EMP's scientific ignorance' by citing the story of thalidomide. They claim that 'the thalidomide tragedy arose owing to a lack of animal safety testing.' This claim is starkly contradicted by the highly respected Committee on Safety of Medicines, who concluded that; 'With thalidomide...it is unlikely that specific tests in pregnant animals would have given the necessary warning: the right species would probably never have been used.'

The acknowledged difficulties of mimicking a whole system can scarcely be addressed by studying the wrong system, i.e. a different species, yet this is what supporters of animal testing repeatedly suggest. Many scientists who are not motivated by a particular agenda recognise this, as illustrated by the following quote from Professor Michael Goodyear in the British Medical Journal in 2006:

'[A] relative lack of severe toxicity in animal models should never be construed as a guarantee of safety in man, as the story of thalidomide taught us.'

See the full text of our letter on our website.



In June members of EMP Trust attended a European Medicines Agency workshop in London held to discuss ways of avoiding a repeat of the infamous Northwick Park clinical trial of March 2006 (where six healthy young men almost died after taking a new drug 'proven' safe in monkeys at 500 times the dose).

Virtually every speaker lamented the uncertainty inherent in the use of animals as a basis for extrapolation to humans. Kathy Archibald suggested that new human-based technologies could be more reliable and should be compared directly with currently required animal tests - a contribution which generated much attention and some agreement. EMP Trust made a similar point in its submission to the EMEA's consultation on requirements for 'first in man' clinical trials of potential high risk medicines.



MHRA Consultation

In November, EMP Trust responded to a call by the Medicines and Healthcare products Regulatory

Agency for submissions on its future directions with a document outlining our call for an independent scientific evaluation of animal tests for drug safety. We hope the MHRA will seize this opportunity to appraise the current state of technology in order to make drug development a safer and more efficient process, for everybody's benefit.

Microdialysis Conference

Dr Clotworthy attended the 4th International Conference on Clinical Microdialysis, held in Robinson College, Cambridge in September. Microdialysis involves inserting a thin probe, surrounded by a semi-permeable membrane that allows biochemicals from the area of the body into which the probe has been located to be collected for analysis. The samples are very tiny and so the organ or tissue can be monitored continuously without harming the patient. Microdialysis can be used to monitor what is happening on the biochemical level in many tissues and organs, including the brain, and is useful for assessing responses to drugs or simply to check that an organ is still functioning and not deteriorating.

Congress on Alternatives

In September Dr Clotworthy attended the 14th International Congress on Alternatives held in Linz, Austria, which brought together experts from industry, academia and the European Centre for the Validation of Alternative Methods (ECVAM) to present their latest findings and discuss ways of moving away from relying on animal tests.

Projects included better ways of modelling the brain, lungs, eyes and gut, amongst others. A presentation on an *in vitro* model of human skin by MatTek showed that while the model did not give exactly the same results as tests on rabbit skin this was because their results actually mimicked human skin more accurately. This highlights the absurdity of attempts to

validate non-animal methods by comparing them to animal tests - the objective should surely be to replicate human skin, not rabbit skin.



US Research Council calls for replacement of animal testing

'Toxicity Testing in the Twenty-first Century: A Vision and a Strategy' was published in June. It compares the coming revolution in toxicity testing to the discovery of penicillin, the elucidation of the DNA double helix and the development of computers.

The report repeatedly acknowledges that animal tests are of dubious relevance. The authors are clear that the emphasis must shift from unwieldy whole animal studies to rapid, comparatively inexpensive, relevant tests using (preferably) human cells, exploiting our increasing understanding of how damage occurs at the genetic and cellular level. The report concludes:

'The vision for toxicity testing in the 21st century articulated here represents a paradigm shift from the use of experimental animals and apical end points toward the use of more efficient *in vitro* tests and computational techniques.'

The authors expect the paradigm shift to encounter resistance, as toxicological testing practices are **'deeply ingrained.'**

There are clear parallels with drug safety testing, where regulators insist on animal studies, despite decades of evidence that animal tests are not predictive of drug safety in humans. No fewer than 92% of drugs fail in clinical trials following successful completion of the regulatory animal test regime.

This report closely mirrors our suggestions for a battery of state-of-the-art tests based on human biology to assess drug safety and is a tremendous endorsement of the merit of our case for reform of drug safety testing. A more detailed summary and link to the report is available from our website.

Rodent test proven redundant



Scientists from 18 pharmaceutical companies and the UK NC3Rs (National Centre for the Replacement, Refinement and Reduction of Animals in

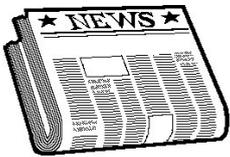
Research) have collaborated to publish a review of acute toxicity tests in animals in the journal *Regulatory Toxicology and Pharmacology*. The study shows that the single dose acute toxicity test - long

campaigned against by anti-vivisectionists - is in fact redundant.

The test is supposed to determine whether a drug is too toxic to proceed with, which organs it affects and what starting dose to use in clinical trials. However, the study found that it fulfils none of these objectives.

The authors hope that their evidence will persuade regulatory agencies that the test should no longer be required.

This groundbreaking study highlights the need to evaluate the supposed value of other animal tests that are still used before new drugs enter humans.



Medical research in the news

Root cause of childhood leukaemia discovered

Researchers have identified a key cell in the bone marrow which, when combined with a second mutation, leads to childhood leukaemia. Scientists were only able to make this breakthrough by studying 4 year old twin girls, one of whom has developed leukaemia while the other (thus far) remains free of the disease.

Dr Bruce Morland, consultant paediatric oncologist at Birmingham Children's Hospital and chairman of the Children's Cancer and Leukaemia Group, said:

'The identification of the leukaemic stem cell has been one of the 'Holy Grails' for cancer biologists and this study certainly brings us one step closer.'

Professor Vaskar Saha, professor of paediatric oncology at Cancer Research UK commented: 'This important paper shows how leukaemia develops, and how it can persist even after therapy. By identifying the cells involved, it raises the hope that we will be able to identify children at risk of relapse, and develop new, targeted drugs to treat the disease.'

CEO of Eli Lilly calls for drug safety revolution



Speaking in October in the US, the head of pharmaceutical company Eli Lilly, Sidney Taurel, called for major improvements in the way in which post-marketing drug surveillance is carried out.

'The use of prescription medicines always will be a matter of balancing benefits and risks. Fortunately, systems are now within our grasp to more quickly identify both the true benefits and the full extent of risks associated with medicines in widespread use.'

Sidney Taurel accused the US FDA, medical professionals and industry of failing to collaborate and take advantage of the latest information technologies in order to ensure that drugs are adequately followed once they have been released onto the market.

Phase IV (post-marketing) clinical trials are lengthy and expensive but extremely important as very rare side effects may only be detected once a drug has been taken by many thousands of patients. Approximately half of all drugs that make it to market are withdrawn or relabelled due to unforeseen side effects, and it is vital that these side effects are picked up as swiftly as possible.

Currently, more than 1,200 commitments (89% of those made) by companies to conduct post-marketing safety assessments remain unfulfilled in the US alone.

Usually the system relies on doctors reporting instances where they suspect their patients have suffered an adverse reaction to a treatment; in the UK this is known as the Yellow Card system. However, it has long been acknowledged that as few as 1-10% of adverse drug reactions are reported.

A failure by doctors to make the difficult distinction between adverse reactions and disease symptoms can prove potentially fatal, as patients may be given drugs that are more harmful than helpful. The incidence of deaths from prescription drugs has more than doubled in 10 years, according to figures published in October.

Dr Peter Maguire, deputy chairman of the BMA Board of Science, said:

'This big rise in fatal and serious adverse drug reactions should be a wake-up call to all doctors.'

In the 10 years to 2005 the number of prescriptions rose from 485m to 752m, and the cost to the NHS from £4bn to £8.2bn. Labour MP Paul Flynn warned: 'We are heading towards pharmageddon' (the prospect of a world in which medicine produces more ill health than health).

Diabetes drug causes heart failure



With disturbing echoes of the Vioxx debacle, another blockbuster drug, Avandia, has been found to increase the risk of congestive heart failure and heart attack - by as much as 72% in patients with a history of heart disease.

Dr. David Graham, associate director for science and medicine at the FDA, testified that:

'...In the nearly eight years that Avandia has been sold, it has caused roughly 80,000 additional sudden cardiac deaths and nonfatal heart attacks.'

Disturbingly, it seems that Avandia's manufacturer, GlaxoSmithKline, has been aware of an increase in cardiac risk since 2000 and, along with the FDA, threatened scientists who tried to raise the alarm about the drug. US Congressman Bart Stupak observed: 'the FDA's apparently callous disregard for the safety of diabetics taking Avandia is very reminiscent of the Agency's failure to move on Vioxx when substantial safety signals first became known.'

Avandia has also been found to increase the risk of a serious eye condition, macular oedema, and bone fractures in women.

It is clear that insufficient testing of the drug's effects in humans took place both before and after marketing. Dr Ike Iheanacho, editor of the Drug and Therapeutics Bulletin commented wryly:

'Having produced a new treatment, drug companies take great care to avoid testing it too exhaustively in patients ...Sometimes, for the drug industry, ignorance is bliss.'

Biochip to improve drug safety

The DataChip is a new biochip containing more than 1,000 human 3D cell cultures arranged to mimic the human body. Scientists at the University of California collaborated with Solidus Bioscience in the US to design a rapid, cheap, automatable way of screening new drugs in a much more complex and realistic way than that provided by individual 2D cell cultures. The Datachip incorporates liver tissue cultures as the liver has an important role in breaking down drugs, sometimes altering their toxicity or potency. One of the exciting things about the DataChip is that it could be modified to reflect the make-up of individual patients, leading to more personalised medicine.

Virtual TB cell



Presently, no one really understands why most of the bacteria which cause tuberculosis succumb to drugs within weeks whilst a stubborn population can continue to cling on for months. In an effort to understand this better, scientists at the University of Surrey have created a virtual bacterium on computer, which they hope will greatly speed up the search for new drugs. The model has been validated by testing real-world scenarios which show that the model

responds in the same way in which the bacterium is known to behave.

More scanner news



'It is so powerful it can capture an image of the entire heart in just two beats' - Steve Rusckowski, chief executive of Philips Medical Systems

In November a new CT (Computed Tomography) scanner that uses only a fraction of the X-ray radiation normally required to produce a CT image of the body was unveiled by Philips in the US. The Brilliance CT generates a 3D rotatable image of the body more quickly than an ordinary CT scan and in much greater detail. This could be very useful when looking to see if cancers have spread, for example.

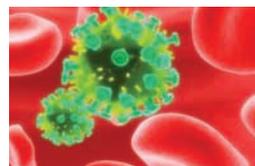
Cancer tissue bank opens

'Samples of tissue and body fluids from patients are fast becoming the cornerstone of cancer research' - Professor Herbie Newell, Cancer Research UK



OnCore UK is a national resource that aims to collect samples of every type of cancer from all tissues of the body for research. Patients at a limited number of NHS Trusts can now donate removed tissue, and the scheme should soon be rolled out across the UK, enabling patients to directly contribute to the search for treatments if they wish. The bank will also liaise with other existing tissue banks. Cancers come in many forms, so the more samples researchers have at their disposal the more relevant information can be gleaned and the more confidence scientists can have that their results will apply to patients.

AIDS vaccine woes continue



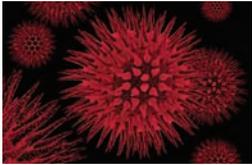
'Mice lie, monkeys sometimes lie, and humans never lie. Some monkeys have lied to us this time' - Peggy Johnston, head of the US National Institutes of Health's

AIDS vaccine programme

20 years after the first successful AIDS drug, AZT, was discovered by testing cells in petri dishes, the struggle to find a successful vaccine against the virus that causes AIDS continues to fail. In October a new vaccine made by Merck which uses a virus related to the common cold as a delivery system was withdrawn from trials after it was found to actually increase the rate of infection.

More promising is the news that Harvard scientists have identified 273 potential new HIV targets (for drugs) by studying thousands of human genes in test tubes. Likewise, the introduction of a genetic test for an anti-HIV drug, Ziagen (also known as Abacavir), means that patients will now be able to take the drug safely – or if they are unsuited, they can find this out before risking their lives and take a different drug instead. This test is necessary because a clinical trial showed that patients with a certain genetic mutation develop a potentially life-threatening heart problem.

Hepatitis C virus begins to yield secrets



Hepatitis C is a virus that can be spread through bodily fluids such as blood. According to the British Liver Trust, 20% of patients with a chronic infection go on to need a liver transplant due to severe liver damage and consequently liver cancer or liver failure.

Scientists at the University of Birmingham studying human liver tumour cells infected in the lab with the Hepatitis C virus have discovered that the virus can spread directly from cell to cell, a discovery which sheds light on its ability to evade the immune system. This had never been observed before in Hepatitis C and will inform future research efforts to target the virus.

Stem cells for safer medicines



Stem Cells for Safer Medicines (SC4SM), a not-for-profit company, was founded in October by the Department of Health and the Association of the British Pharmaceutical Industry (ABPI). Human stem cell technology will allow for much more predictability in terms of screening out compounds that will be toxic to the liver, said a spokesperson for the ABPI, adding that '**currently it's not much better than tossing a coin**'.

Capsant Neurotechnologies Ltd, with Southampton University and King's College, London are using 3D human stem cells to test new drugs. Professor Lars Sundstrom, Chief Scientific Officer of Capsant, commented:

'Essentially, we are making mini-organs in a dish so that the testing of new pharmaceutical products can be carried out more accurately.'

In December scientists in the US revealed a human embryonic stem cell test for predicting drug effects on the foetus. They found a specific cell response to drugs that have been linked to autism when prescribed to pregnant women.

Alzheimer's Disease mice fail to mimic human responses to drugs

'Testing drugs against AD on animals is not easy because animals don't develop the disease' - Professor Sascha Weggen, Heinrich-Heine-University, Germany

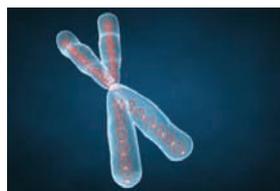


In August, scientists in America studying breeds of mouse supposed to mimic Alzheimer's Disease reported that some fail to respond to treatments already used in

patients (*Journal of Biological Chemistry*). The researchers admitted that this mismatch between outcomes in mice and humans could lead to effective drugs being missed, stating that: '**These compounds may seem to be ineffective on these mice, while it's actually the mouse breed that is to blame.**'

Furthermore, the researchers acknowledged that studying drugs in such mice simply won't provide insight into what happens in patients' brains: '**Our study shows that these mouse breeds may not reflect what may really happen in the brains of Alzheimer's patients if they were treated with such compounds in future clinical studies.**'

This study echoes findings by US National Cancer Institute scientists in 1997 that xenograft mice models, where human tumours are grown in immune-compromised mice, miss effective cancer treatments.



Gene regulation differs hugely between the mouse and human liver

Mice and humans may share over 90% of their genes, but vital differences exist in how

those genes are turned on or off. Scientists at the Massachusetts Institute of Technology have now quantified these differences for the liver, and found variations in up to 89% of the sites they examined.

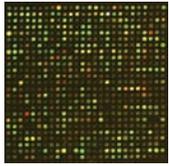
Bilharzia research boosted by switch to human-based methods

By harnessing the latest DNA technology researchers have developed a better way to study the parasites that cause bilharzia, a serious disease affecting the developing world. Instead of infecting rodents with the parasites, the new method involves collecting samples directly from infected people. The work has been awarded the NC3Rs 3Rs Prize 2007.

This will clearly lead to a better understanding of the disease, which should help to combat it more effectively. Study leader, Dr Charlotte Gower, said:

'Using the non-animal techniques has also improved our scientific results because we can now reflect the genetic variation in the natural population of parasites. We demonstrated that the traditional method of growing parasites can bias results by skewing the genetic variation.'

Major progress through large genetic studies



Epidemiology - the study of populations - has long been used to reveal the links between diseases and environmental or dietary risk factors, for example between smoking and lung cancer, low levels of folic acid during pregnancy and spina bifida, asbestos and cancer, etc. Now population studies are being linked with genetic analyses to find out which gene forms predispose people to certain diseases.

In 2007, researchers began to discover the extent to which our genomes differ from person to person and the implications of this variation for deciphering the genetics of complex diseases. Techniques that scan for hundreds of thousands of genetic differences at once are linking particular variations to particular diseases in ways that were simply not possible before.

In a hugely significant study, Wellcome Trust scientists analysed blood samples from over 17,000 people in an effort to link genes with common diseases, and their efforts have paid off handsomely. In June, they reported finding genes linked with depression, Crohn's disease, coronary heart disease, hypertension, rheumatoid arthritis and both type 1 and 2 diabetes. This research could lead to tests to identify those most at risk of developing these diseases, and may eventually lead the way to targets for new drugs.

Recent months have brought exciting news in the endeavour to link genetics and bowel cancer: using whole genome analyses, researchers in London and Edinburgh identified a gene form that increases the risk of developing bowel cancer by 20% (July 2007), while at the end of 2007, Cancer Research UK scientists discovered two new mutations that seem to triple the risk of developing bowel cancer. These discoveries may eventually be incorporated into a screening programme to identify those most at risk in order to ensure they are monitored appropriately.

An international team of researchers identified a gene variant that appears to predispose children to asthma. This was accomplished by comparing DNA from over 900 asthmatics with more than 1,200 healthy volunteers (July 2007).

September 2007 was a good month in the effort to link genes and cancers:

* Italian and UK scientists studying breast cancer biopsies have identified a gene that is turned on at lower levels in particularly aggressive breast cancers. In the future it may be possible to test patients for the activity of this gene in order to decide which women need the most intensive treatment, thus minimising side effects to women who do not need the most aggressive treatments and ensuring that those who do need it receive it sooner.

* A genetic test for prostate cancer was announced by Gen-Probe. The current test which looks for a protein called Prostate Specific Antigen in the blood has a high false-positive rate, without picking up all actual cancers, meaning that men may have to have extra tests, with all the unnecessary extra stress that an uncertain diagnosis causes. This new test measures the activity of a gene which is only turned up in prostate cancer. Unfortunately, at this stage it will probably only be made available to men thought to be at high risk of the disease because of the cost (£200 versus £10 for the conventional test).

* Scientists in Aberdeen announced that they have identified two genes that can be used to predict when a patient's breast cancer will not respond to a treatment - docetaxel. The researchers made their discovery by studying samples of tumours from patients in the lab, and are now looking to see whether their results will apply to new patients. This discovery brings personalised medicine a step closer, and could reduce the time taken to identify which drug will work for a patient, increasing the likelihood of success and eliminating the need to suffer side effects from drugs that will not help anyway.

UK researchers are currently embarking on a massive study, including 14,000 volunteers, to find out which genes are associated with osteoarthritis, which affects more than 2 million people in the UK alone. Currently, there are no drugs to treat this painful, debilitating disease, so patients must rely on painkillers - which are not without risk (eg. Vioxx). If genetic factors can be uncovered this will inspire the search for effective new drugs.



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