

ACUMEN

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EU and U.S. to collaborate on rare diseases

European Commission and the U.S. National Institutes of Health announce plans to join forces on rare diseases

The two institutions have announced plans to coordinate their funding on research into rare diseases. The objective is to quicken medical breakthroughs for people suffering from rare diseases which affect between 6-8 per cent of the EU population.

Such collaboration on rare diseases is unprecedented between the EU and U.S. The cooperation will bring together ongoing research projects from both sides of the Atlantic, establishing common funding priorities for future research in the field and reducing overlapping investigations.

Under the new directive, all future European projects will be designed to work together in this way.

The European Commission and the NIH will meet on a regular basis to explore opportunities for further cooperation and to decide joint actions. The next meeting is due to take place in Washington in early 2011.

Furthermore, the European Commission has announced that it will allocate more than 100 million euros for research and innovation on rare diseases, including trials of promising treatments.



Gene therapy 'memory boost hope'

Breakthrough in Alzheimer's memory problem

A team of U.S. scientists has announced that a new gene therapy technique, which aims to ease memory problems associated with Alzheimer's disease, has been successfully tested in mice.

Researchers increased levels of a neurotransmitter, EphB2, a chemical that is known to help brain cells signal to one another. They believe EphB2 plays a fundamental role in memory and that manipulation of EphB2 could help reduce or even prevent some of the worst effects associated with Alzheimer's.

The mouse models used in the study demonstrated that when levels of the chemical were reduced, healthy mice developed memory symptoms similar to those seen in mice bred to have a condition similar to Alzheimer's. Conversely, the 'Alzheimer's' mice were given gene therapy which enhanced levels of EphB2, causing their memory symptoms to disappear.

This is a truly promising development and has the potential to develop a new field for the treatment of patients with the condition, an illness which is set to further increase in prevalence in line with the ageing global population.



Clue to Prostate Cancer

Latest research suggests link between finger length and prostate cancer caused by exposure to testosterone *in utero*

The length of a man's finger can provide clues to his risk of prostate cancer, according to a new study conducted by the *British Journal of Cancer*. The investigation concluded that men whose index finger was longer than their ring finger were significantly less likely to develop the disease.

The discovery was made after comparing the hands of 1,500 prostate cancer patients with those of 3,000 healthy men. The length of the fingers is determined before birth and is thought to relate to sex hormone levels in the womb. Those who were exposed to lower levels of testosterone before birth have longer index fingers and may be better protected against prostate cancer.

This finding could allow doctors to select at-risk men for ongoing screening in combination with family history and genetic testing to detect early signs of the disease and enact swift treatment. However, Dr Helen Rippon, head of research at The Prostate Cancer Charity, warns that men with shorter index fingers should not be unduly worried: "They share this trait with more than half of all men and it does not mean they will definitely develop prostate cancer in later life".



Fish oil holds key to stroke treatment

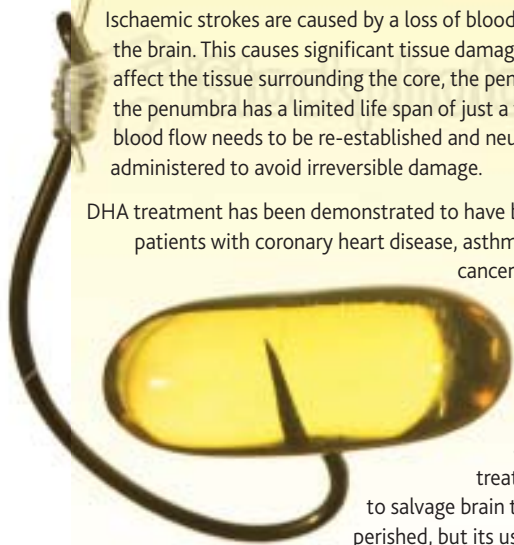
U.S. team determine agent may limit irreversible brain damage caused by strokes

New research has discovered that Docosahexaenoic acid (DHA), an essential omega-3 fatty acid, can be utilised as a therapeutic agent for the protection of brain tissue in studies of acute ischaemic strokes. Furthermore, DHA can promote the recovery of brain function, even when administered up to five hours after the stroke has occurred.

The study, led by Dr Nicolas Bazan at the Louisiana State University Health Sciences Center, concluded that these findings may not only provide a target for new stroke treatments, but may also afford vital information about the length of the therapeutic window.

Ischaemic strokes are caused by a loss of blood flow to a region of the brain. This causes significant tissue damage and can severely affect the tissue surrounding the core, the penumbra. When injured, the penumbra has a limited life span of just a few hours in which blood flow needs to be re-established and neuroprotective therapy administered to avoid irreversible damage.

DHA treatment has been demonstrated to have beneficial effects in patients with coronary heart disease, asthma, rheumatoid arthritis, cancer and age degeneration, but its potential in stroke treatments has not been previously explored. Bazan and his team have been able to assert that DHA treatment is not only able to salvage brain tissue that would have perished, but its use also renders some of the affected areas indistinguishable from normal tissue within a week.



FP7 reaches halfway point



Mid-term review of European Seventh Framework Programme states that targets are being met

The 50 billion euro Seventh Framework Programme (FP7) is meeting all targets and expectations, according to a recent review of its function thus far. A panel of 10 independent experts were employed by the European Commission to conduct a thorough review over the last six months to assess the areas where FP7 is fulfilling ambitions, and those where improvements could be made.

The review highlights that necessary enhancements of FP7 could lead to significant strategic shifts before the end of the programme in 2013, with R&D initiatives set to receive increased funding. The panel have cited that a 'quantum leap' must be made in simplifying the administrative aspects of FP7, while imparting greater trust to researchers and a greater tolerance to risk taking.

The panel also cited the current European Research Area needs to be developed to overcome fragmentation in research, while simultaneously improving relations between EU level and national level programmes to improve efficiency. Furthermore, the report encourages the Commission to promote and encourage marginalised but fundamentally important R&D figures, such as women in science, and small and medium sized companies, which play a key role in providing innovation.

The Commission will now discuss the proposals and decide on the most effective manner in which to employ them both in FP7 and its successor, FP8. The Commissioner for Research, Science and Innovation, Marie Geoghegan-Quinn, stated: "I am determined to make continuous improvements in our support for research and innovation".

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95 per cent of all gene variations mapped

Project to sequence human DNA variations nears completion

The 1000 Genomes Project has announced that they have successfully mapped 95 per cent of all variations in human DNA. The initiative aims to sequence and compare the DNA of 2,500 individuals from around the world, in a bid to develop a better understanding of diseases and the production of possible treatments.

The news comes just over a decade after the draft human genome was first published. This public-private project has also discovered that each of us carry, on average, some 75 variations which may play a role in inherited disorders. Since its inception, the work has provided invaluable knowledge in the development of viable new therapies and the pursuit of personalised healthcare.

An individual's genome is comprised of some 3 billion base pairs of DNA, shared between 23 pairs of chromosomes that are found in every cell of our bodies. Around 3 million of these base pairs vary from person to person; it is these so-called single nucleotide polymorphisms that the 1000 Genomes Project is trying to identify.

The genomes of 179 people from four different populations were partially sequenced, while samples from 697 individuals across seven populations were sequenced for genetic material that is responsible for encoding proteins in the body. This has produced a relatively inexpensive and highly sophisticated database of human genomics. Work to sequence the final 5 per cent continues, with all data made accessible to scientists online.