

From the Library

"When we see a flash of lightning, it is because the lightning is emitting light, which might have to travel several kilometers toward us before reaching our eyes. Ancient philosophers wondered how the speed of light affected the act of seeing. If light travels at a finite speed, then it would take some time to reach us, so by the time we see the lightning it may no longer actually exist. Alternatively, if light travels infinitely fast then the light would reach our eyes instantaneously, and we would see the lightning strike as it's happening. Deciding which scenario was correct seemed beyond the wit of the ancients." (Sing, Simon. *Big Bang. The Origin of the Universe*. New York: Harper Collins, 2004:87)

Numerous studies have evaluated the ability of confocal scanning laser ophthalmoscopy to discriminate between healthy optic nerves and those with established glaucoma. In a prospective study the Confocal Scanning Laser Ophthalmoscopy Ancillary Study Group documented that several baseline topographic optic measurements alone or combined with baseline clinical and demographic factors were significantly associated with the development of primary open angle glaucoma. The authors suggest longer follow up is required to evaluate the true predicted accuracy of this technique. (*Arch Ophthalmol* 2005;**123**:1188-97)

Recently, three international groups published the DNA sequence of parasites that cause Chagas' disease, African sleeping sickness, and leishmaniasis. These deadly ailments kill 125 000 people every year and they also compromise blood banks. Treatments derived from the DNA sequencing work are still several years away but this work represents new hope in the battle against these diseases. (*Sci Am* 2005;**293**:29-30)

The pathophysiology of eating disorders is incompletely understood although certain

psychological traits have been identified. Recently, investigators from the Karolinska Institute in Stockholm have suggested that abnormal levels of auto-antibodies against hormones called melanocortins are a crucial part of the cause of these two diseases. Melanocortins are small protein molecules that carry messages between nerve cells in the brain. They are involved in regulating a variety of complex behaviours including food intake. (*Proc Natl Acad Sci USA* 2005; September 29 (epub ahead of print))

In a controversial paper published in 2001 in *Nature* it was reported that genetically modified corn ended up where none should have been in the Mexican state of Oaxaca. The following year the journal retracted the paper because of insufficient evidence, but subsequent Mexican government studies backed the initial report. Now a report analysing over 150 000 seeds from 870 maize plants in 125 fields in Oaxaca suggest that transgenic maize has not survived in these fields. The question of whether transgenic varieties of maize may survive in other environments is unanswered. (*Proc Natl Acad Sci USA* 2005; August 10:928-34)

Stroke in the young patient (under the age of 50) has usually been seen as a poor prognostic sign. However, in a recent study young people who had ischaemic strokes but no obvious risk factors did not appear to require long term secondary prevention. After 6 years the risk of a second vascular event was approximately 2% when no risk factors existed compared to 67% when five traditional risk factors could be identified. (*Neurology* 2005;**65**:609-11)

The practice of homeopathic medicine continues despite a lack of scientific evidence of its efficacy. Indeed, a meta-analysis of 110 randomised double blind trials of homeopathy with 110 trials of conventional medicine suggested that the reported beneficial effects in the trials of

homeopathy are unlikely to be specific and are most probably compatible with placebo effects. (*Lancet* 2005;**366**:726-32)

Recent reports suggest that physicians often do not comply fully with published guidelines. In a retrospective analysis of patients enrolled in a large managed care organisation investigators found that a large number of individuals thought to require treatment for glaucoma or suspected glaucoma are falling out of care and are being monitored at rates lower than expected from recommendation of public guidelines. Prospective studies are needed to confirm these findings and to determine the reasons for low rates of effective care being provided to glaucoma patients. (*Ophthalmology* 2005;**112**:1494-9)

High endogenous concentrations of oestrogen are a known risk factor for breast cancer. Impairment of oestrogen synthesis induced by chronic stress may explain a lower incidence of breast cancer in women with high stress. In a study of more than 6000 women participating in the Copenhagen City heart study investigators found a significant reduction in the risk of breast cancer in women with self reported high levels of stress. They emphasise, however, that impairment of normal body function should not be considered a healthy response and accumulative health consequences of stress may be disadvantageous. (*BMJ* 2005;**331**:548-50)

An amazing number, almost half, of all medicines prescribed today have a striking common feature. At a molecular level they act on the same type of target—the G-protein coupled receptors (GPCRs). This group of receptors appears to be extremely versatile with a response to a large number of neurotransmitters. Researchers have isolated at least 650 GPCR genes, about 330 of which might be blueprints for receptors worth targeting in future drug development. (*Sci Am* 2005;**293**:51-7)