News in Brief

NOBEL PRIZES 2006: RECOGNITION IN THE RNA WORLD

This year's Nobel Prizes recognised research in the world of RNA.

Physiology & Medicine: In this category the Nobel Prize went to Andrew Fire and Craig Mello, for the discovery of RNA interference (RNAi). This mechanism occurs naturally in plants and animals. It allows a gene to be "silenced", either to regulate expression of the gene, or to protect against viral infection.

In the laboratory, RNAi can be induced by introducing custom-made double-stranded RNA sequences into cells. This has revolutionised the field of genetics research: previously, to study the effect of shutting down a gene, one had to engineer "knockout" animals or cell lines. This process was painstaking and could often be unsuccessful if disabling the gene caused death at a very early stage of development. With RNAi, the effect of gene silencing can be studied in the adult animal or mature cell.

Pilot studies of RNAi have shown its promise as a gene therapy system. Injection of RNAi targeted to the ApoB gene can reduce the level of circulating apolipoprotein B in many organs, including the liver. RNAi in therapeutic diseases is currently too expensive to use on a daily basis, so the statin drugs have little for fear for now. However, new vistas of treatment are likely to emerge as the technology matures and economies of scale emerge.

Chemistry: The Nobel Prize in Chemistry went to Roger Kornberg. His work is on the process of transcription in eukaryotes. During the transcription process, information encoded in genomic DNA is processed into messenger RNA. Transcription had previously been studied in primitive organisms such as prokaryotes (for example, bacteria). However, it became clear that the picture was far more complicated once this research was extended to more complex eukaryote cells. Eukaryotes include plants, worms, and humans.

Kornberg's major breakthrough came in 2001, when he crystallised purified RNA Polymerase II, an enzyme that helps messenger RNA obtain its information from DNA. By exposing these crystals to high-energy X-rays, he was able to determine their structure at the atomic level. Further research is being done on the many large protein complexes that bind this enzyme.

Kornberg has quite a Nobel pedigree. His father, Arthur Kornberg, won the Nobel Prize in 1959 for work on DNA and RNA. After completing his PhD, the junior Kornberg worked with Nobel Laureates in Cambridge such as Aaron Klug and Francis Crick. At the age of 22, he co-authored a paper with his father and Paul Berg, who won his own Nobel Prize in 1980.

This year's award is the sixth time in over a century that a parent and child pairing of Nobel Laureates has occurred.

(Sources: Nobel Prize website. Nobelprize.org; Nature online news (2 October 2006) and Nature online news (4 October 2006))

NOBEL SPOOFS INCLUDE FUNDAMENT FINDINGS

While the real Nobel Prizes were being announced, the spoof Ig Nobel Prizes were also being unveiled for 2006. These parodies of the Nobel Prizes were given out for achievements that "first make people laugh, then make them think". Organised by the scientific humour journal *Annals of Improbable Research*, they are presented by genuine Nobel Laureates at a ceremony at Harvard University.

The first Ig Nobels were awarded in 1991 for discoveries "that cannot, or should not, be reproduced".

This year's Ig Nobels include:
Medicine: The Termination of Intractable Hiccups with Digital Rectal Massage, by Francis Fesmire, Majed Odeh, Harry Bassan and Arie Oliven.

Mathematics: How many photos must be taken to almost ensure no one in a group shot has their eyes closed, by Nic Svenson and Piers Barnes.

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Ornithology: Why woodpeckers do not get headaches, by Ivan Schwab and the late Philip RA May.

Acoustics: Why the sound of fingernails scraping on blackboards is so annoying, by D Lynn Halpern, Randolph Blake and James Hillenbrand.

It is not immediately clear what spurred the technique used by Fesmire *et al* to control intractable hiccups. However, some doubts remain as to whether it will be deployed as a standard strategy.

(Source: BBC News Online)

AGE VERSUS EXPERIENCE

A study recently published in the *Annals of Surgery* reports that a surgeon's age does not necessarily correlate with operative mortality.

These findings are the result of an analysis of national Medicare data of nearly 461,000 patients who underwent one of eight different surgical procedures between 1998 and 1999.

Overall, surgeons above the age of 60 had slightly higher death rates with certain complicated cardiac and cancer related procedures than did those aged 41 to 50 years. However, this was evident only among surgeons who performed comparatively few of such procedures, and was not associated with mortality rates for other surgeries.

Surgeons aged 40 and below were found to have operative mortality rates comparable to those among their older colleagues.

Co-author Dr Jennifer Waljee of the University of Michigan comments that "surgeon age … should not be a primary factor when patients are making a choice". Instead, they should also consider procedural volume, specialisation, practice setting and reputation.

(Source: CNN Health)

FIRST ARTIFICIAL HEART APPROVED

The US Food and Drug Administration (FDA) recently approved the first totally implanted artificial heart for patients who are not eligible for a cardiac transplant.

Manufactured by Massachusetts-based Abiomed, the Abiocore Implantable Replacement Heart is intended for those who are close to death and have no other options.

Approved for use in up to 4,000 patients a year, it comprises a two-pound mechanical heart which pumps in place of the patient's diseased organ, which is removed during surgery.

The system was approved under the FDA's Humanitarian Use Device provision, which seeks to encourage the development of medical devices to treat rare conditions.

(Source: CNN Health)

COMMUNITY-ASSOCIATED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (CA-MRSA) INFECTION

Infections caused by CA-MRSA, an emerging antibiotic resistant infection which has become endemic in some overseas countries usually manifest as skin and soft tissue infections, and occur in otherwise healthy people. More serious complications may result in pneumonia, septicemia, and surgical wound infection. Furthermore, CA-MRSA is more infectious and likely to cause outbreaks in susceptible groups. CA-MRSA strains have peculiar microbiologic and genetic characteristics. They tend to be more susceptible to non-lactam antibiotics than the hospital-acquired MRSA strains.

During January through October 2006, the Centre for Health Protection has received nine local reports of CA-MRSA infection. The patients comprised four males and five females, age range between 25 to 42. Three of them presented as skin infection, eight as abscesses and two as fever. There was one fatal outcome.

For more information on MRSA, please visit the website of CHP at http://www.chp.gov.hk/content390e.html?lang=en&id=12.

(Source: Infection Control Branch, Centre for Health Protection, Hong Kong)

COUP FOR CANCER RESEARCH

Husband-and-wife team Neal Copeland and Nancy Jenkins are the latest high profile scientists to make the trans-global move to Singapore, leaving the National Cancer Institute in Maryland, USA, to join A*Star's Institute of Molecular and Cell Biology.

Their new Cancer Genetics Laboratory at the Biopolis will focus on lung, colon and breast malignancies, and aims to produce complete genetic models of specific cancers within the next two years.

They are ranked among the top 50 scientists worldwide whose published papers are most cited, and join other luminaries like Dr Alan Colman (who helped clone Dolly the sheep) and Sir David Lane, who are currently also based in Singapore.

(Source: The Straits Times) ■