

**Cooperative Research Centres Association, Inc.**

*CRCs - Delivering Innovation for Australia*

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## **Media Release**

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### **GENE WEAPONS FOR THE WAR ON DISEASE**

Researchers at Australia's Co-operative Research Centres have made important progress in the uses of genetics to combat cancer, endometriosis and asthma, leading to more effective diagnosis and treatments

**Cancer:** A very significant advance has been achieved by a team from the CRC for Cellular Growth Factors, which has won a global race to determine the structure of a key molecule on the surface of cancer cells.

Known as the EGF (epidermal growth factor) receptor, the molecule is seen by medical researchers as an ideal target for the development of new classes of anti-cancer drugs. The detailed structural information obtained by the CRC researchers now enables such approaches to drug development to be initiated.

"These drugs will bind to the receptor and inhibit the cancer cell's growth by preventing the effects of several of the EGF family of growth factors known to be important in causing cancers to grow," says CRC Director Dr John Flack. "It's a landmark discovery, made amid strong international competition."

**Endometriosis:** Researchers at the Gene CRC are closer to pinpointing the key genes behind the disease endometriosis, which affects one in ten women and causes up to 40 per cent of cases of infertility.

The Gene CRC and its UK partners are conducting a huge international study involving approximately 5000 women – mainly sisters – and their family members. It has compiled the most comprehensive body of information on the disease yet.

By comparing sisters and close relatives with and without the disease, the researchers hope to pinpoint the genes responsible, as a basis for developing effective treatments.

"Projects of this size and complexity can only be run through a structure like a CRC, a multi-skilled research consortium with the critical mass for such a large undertaking," explains Gene CRC CEO Dr Andrea Douglas.

**Cancer:** Researchers at the CRC for Bioproducts are using the natural ability of plants to produce anti-cancer drugs, using a technique known as plant cell culture.

Because some cancer treatments are based on substances from rare or endangered plants, the CRC team decided to use plant cell culture – the growing of plant cells in a nutrient medium – as a low-cost way to convert plant compounds into valuable pharmaceuticals.

“Our research has demonstrated there is a significant potential for using this technology as an alternative for making pharmaceuticals on a large scale,” says Chief Executive of the Bioproducts CRC, Dr Doug Hawley,

**Asthma:** Data from the Human Genome Project has given researchers from the CRC for Asthma Ltd a flying start in identifying genes linked to various forms of asthma.

Asthma has so far proved a particularly challenging disease to link with particular genes, especially in Australia where much is caused by environmental factors, says CRC CEO Philip Bert.

The CRC’s research is a nationwide collaboration involving three states. Promising genes selected from the Human Genome Project are matched against cell types at the Garvan Institute in Sydney to see if they are linked to asthma. Interesting ‘targets’ are then matched against a large DNA database of asthmatics and non-asthmatics held at the University of WA in Perth and the results sent for further tests at the Australian Genome Research Facility in Brisbane.

The CRC team is now exploring the most promising ‘hot genes’ identified by this process to determine their role in the causes and possible treatment of asthma.

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