POST

Date: Wednesday, 22 December 2004

Local discovery stalls cancer

By ALISON BATCHELER

Researchers have found a way to stop cancer cells growing.

"This is looking incredibly exciting," said Mosman Park molecular geneticist Peter Klinken.

Professor Klinken, who led the research at the WA Institute for Medical Research, said a newly discovered gene acted like a brake cable in a car to keep cell growth happening at a normal rate.

"If you lose this gene it is like cutting the brake cable, or if it is reduced it is like wearing out the brake pads," Professor Klinken said.

The researchers studied cervical cancer and leukaemia cells in the laboratory and found the cells kept dividing and growing when the levels of the gene – called HLS5 – were low, but growth slowed when levels of the gene were increased.

Professor Klinken said future research might lead to the development of HLS5 screening tests to help people know if they were likely to develop cancer and may lead to gene therapy to protect against tumour growth.

"Its potential is that it could slow the growth of cancer cells – so far we have slowed the growth in cervical cancer and leukaemic cells in the laboratory," he said.

"Down the track, we hope that if we can replace the gene either through gene therapy or some other means we can slow the growth of cancer cells or use drugs to increase HLS5 levels."

HLS5 is a tumour-suppressor gene and the researchers found it was missing in the cancer cells of some major cancers – which may partly explain why they grow.

"The tumour-suppressor part of the chromosome where this gene is located is lost in the cancer cells of quite a lot of human

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cancers, including breast, prostate, ovarian, liver and colorectal – the big ones," Professor Klinken said.

The gene was discovered when researchers noticed that leukaemia cells they had been studying changed from a red cell to a white cell type and became resistant to treatment.

"We were scratching our heads to explain this change and looked for the genes that were responsible and pulled out HLS5 as one of them."

The gene's effects were tested by adding it to human cervical cancer cells in the laboratory.

"It slowed their growth significantly," he said.

Its effects had been successfully tested in mice and offered exciting prospects for future human trials, Professor Klinken said.

The next step was working out how HLS5 could be delivered and applied to human tumours.

"I would hope this might be possible within the next decade.

"We are relying on the gene-delivery specialists to come up with new ways of gene delivery.

"We've got a gene we can deliver, we just need the specialists to tell us how."

He said one of the problems was to ensure the therapy targeted only tumour cells and not healthy cells, as too much HLS5 could also stop the growth of healthy cells.

Further research on the mechanisms and reasons HLS5 levels dropped, which might include a combination of disease-related and environmental factors, was also needed, Professor Klinken said.