

Under the Microscope with Professor Peter Leedman

RPH is joining researchers in the USA to investigate the effect of hormones on breast and prostate cancer.

RPH Director of Research and Deputy Director of WAIMR, Professor Peter Leedman has received \$1.39 million from the National Health and Medical Research Council to investigate how hormones act in breast and prostate cancer.

This considerable grant will allow WAIMR researchers at the RPH campus to work with UWA and American researchers to analyse how several molecules control the key drivers of growth in breast and prostate cancer – the oestrogen and testosterone signalling pathways, respectively.

“What we are trying to do is better understand how oestrogen and testosterone activate these pathways and use this information to design new ways to prevent this from happening.”

Prof Leedman’s team recently discovered several new molecules in breast cancer patients that play an important part in regulating hormone action.

“We are currently assessing whether these proteins may be useful markers in breast cancer to improve diagnosis and possibly to help in prediction of outcomes,” he said.

The team is looking at breast cancer tissue samples thanks to an extensive Royal Perth Hospital database in conjunction with the Pathology Department. “From these samples we can assess the levels of each protein in cancer cells and relate that to their outcome.”

In other studies, the team will examine how breast and prostate cancer cells grow in the absence of the proteins. “We are expecting that by removing one or more of these molecules altogether the rate of cancer cell growth will change”.

The team is also working to solve the three-dimensional structure of each of the new molecules and in doing so, hopes to understand the molecular surfaces upon which they can target new therapies.

“The long term goal of the work is to lead to more effective therapies which are much needed since many young women and older men are still dying from breast and prostate cancer.”

The work to date has been generously funded by RPH Medical Research Foundation, NHMRC, Cancer Foundation of WA and the National Breast Cancer Foundation.