

Lessening the impact of cancer-causing hormones

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Professor Peter Mackenzie

Increasing the production of proteins that help rid the body of toxins may play a crucial role in the fight against breast and prostate cancer, researchers from Flinders University believe.

Professor Peter Mackenzie (pictured), a Senior Principal Research Fellow in the School of Medicine, is leading a novel study that aims to boost the body's supply of UGT enzymes – a family of proteins that eliminate fat soluble chemicals from the body by making them water soluble so they become less toxic and pass through the kidneys more readily.

Fat soluble chemicals include many therapeutic drugs, vitamins, environmental pollutants and the two steroid hormones oestrogen and testosterone.

While most fat soluble chemicals are not directly harmful, their levels need to be controlled as they can accumulate in the body to toxic levels.

As oestrogen and testosterone are known to stimulate the growth of breast and prostate cancers, their removal by UGT enzymes may help reduce cancer growth.

Professor Mackenzie said his research will analyse the properties of five specific enzymes responsible for metabolising oestrogen and testosterone to see how they can be maximised in cancer cells to lower hormone levels.

By increasing the amount of enzymes, Professor Mackenzie said it is hoped that [hormone](#) levels in cancer cells can be reduced, thereby preventing or delaying the spread of disease.

“The initial stages of breast cancer are driven by oestrogen – once a cell changes to become a cancer, oestrogen contributes to its growth and it’s the same with [prostate cancer](#), its growth is fuelled by abnormal androgen action,” Professor Mackenzie said.

“So if we can find a way to maximise the amount of enzymes made in these cells it might help reduce growth driven by oestrogen or testosterone because without this growth, hormone-dependent cancers such as breast and prostate cancer can’t survive,” he said.

“Unfortunately it will take some time to understand the underlying mechanisms, and then the next battle will be to find a drug that can increase the enzymes without being toxic or affecting the growth of the

[cancer](#) cell in a positive way.”

The three-year study will also investigate how therapeutic drugs can be used more effectively “so when they’ve carried out what they’re supposed to do, they leave the body and don’t accumulate to toxic levels”, Professor Mackenzie said.

Provided by Flinders University

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