

Prostate Cancer Support Group - Northern Beaches

Affiliated with the Prostate Cancer Foundation of Australia

Proudly sponsored by Hammond Care, Health and Hospitals Limited

*A program of support serving men of all ages, their families, carers and friends
before, during and after diagnosis*

Newsletter No. 185 - January 2019

Editor: Mary Jones

**Our next meeting will be held on
Tuesday, 5 February 2019 at 6:30pm**

Please come along and bring your friends

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Monthly Meetings

All people are welcome to attend our regular monthly meetings. No notice is required - simply come along and introduce yourself, or contact us via the website.

When:

Meetings of our support group are held on the 1st Tuesday of the month except in January.

Usual Location:

The Cottage, Mona Vale Hospital, Coronation Street, Mona Vale.

Time: 6:30pm till 8:30pm

Tuesday 5 February

Unfortunately our speaker for February has just announced that she is unable to attend and so we are looking for a new speaker.

So come along on Tuesday for a surprise evening.

It's always good to gather with friends and enjoy the supper afterwards.

December Meeting Report.

As always it was good to finish off a great year with a social get-together amongst friends. We had an enjoyable evening, good food, great entertainment from Alan Taylor and lots of quirky questions from Norma.

We trust that Christmas and the New Year were pleasant, preparing you for 2019.

Researchers have developed a test to detect a DNA marker common to all cancers.

By Abu Sina, Laura G. Carrascosa and Matt Trau, Researchers have developed a test that could be used to diagnose all cancers. It is based on a unique DNA signature that appears to be common across cancer types.

The test has yet to be conducted on humans, and clinical trials are needed before we know for sure if it can be used in the clinic.

Each cancer type, whether it be breast or bowel cancer, has different genetic and other features. A test that detects one cancer may not work on another.

Researchers have long been looking for a commonality among cancers to develop a diagnostic tool that could apply across all types. Our research, published in the journal Nature Communications, has found that cancer DNA

forms a unique structure when placed in water. The structure is the same in DNA from samples of breast, prostate and bowel cancers, as well as lymphoma. We used this discovery to develop a test that can identify the cancerous DNA in less than ten minutes.

How our test works

Current detection of cancer requires a tissue biopsy – a surgical procedure to collect tissue from the patient’s tumour.

Researchers have been looking for a less invasive diagnostic test that can detect cancers at an earlier stage. One possibility, still in development, is a liquid biopsy, testing for circulating cancer DNA in the blood.

Our test also uses circulating cancer DNA but involves a different detection method.

Nearly every cell in a person’s body has the same DNA, but studies have found that cancer’s progression causes this DNA to undergo considerable reprogramming.

This change is particularly evident in the distribution pattern of a tiny molecule called a methyl group, which decorates the DNA.

A normal cell DNA’s distinct methyl pattern is crucial to regulating its machinery and maintaining its functions.

It is also responsible for turning genes on and off. Altering this pattern is one of the ways cancer cells regulate their own proliferation.

This methyl patterning has been studied before. However, its effect in a solution (such as water) has never been explored.

Using transmission electron microscopy (a high-resolution microscope), we saw that cancerous DNA fragments folded into three-dimensional structures in water. These were different to what we saw with normal tissue DNA in the water.

In the lab, gold particles are commonly used to help detect biological molecules (such as DNA). This is because gold can affect molecular behaviour in a way that causes visible colour changes.

We discovered that cancerous DNA has a strong affinity towards gold, which means it strongly binds to the gold particles.

This finding directed us to develop a test that can detect cancerous DNA in blood and tissue. This requires a tiny amount of purified DNA to be mixed with some drops of gold particle solution.

By simply observing the colour change, it is possible to identify the cancerous DNA with the naked eye within five minutes.

The test also works for electrochemical detection – when the DNA is attached onto flat gold

electrodes.

Since cancer DNA has higher affinity to gold, it provides a higher relative electrochemical current signal in comparison to normal DNA.

This electrochemical method is highly sensitive and could also eventually be used as a diagnostic tool.

Why this matters -

For this test to work properly the DNA must be pure. So far we have tested more than 200 tissue and blood samples, with 90 per cent accuracy. Accuracy is important to ensure there are fewer false positives – wrongly detecting cancer when there is none.

The types of cancers we tested included breast, prostate, bowel and lymphoma. We have not yet tested other cancers, but because the methylation pattern is similar across all cancers it is likely the DNA will respond in the same way.

It is a promising start, though further analysis with more samples is needed to prove its clinical use.

The next step is to do a large clinical study to understand how early a cancer can be detected based on this novel DNA signature. We are assessing the possibility to detect different cancer types from different body fluids from early to later stages of cancer.

We are also considering whether the test could help monitor treatment responses based on the abundance of DNA signatures in body fluid during treatment.

Source - *The Conversation*

Prostate tumour growth driven by one cut2

Posted by **Wendy Winnall** on January 22, 2019 at 2:34pm

Some prostate cancers are more aggressive than others. They grow quickly, spread and become resistant to drugs. Developing better treatments for aggressive prostate cancers is a major research priority. Results have been published from a new study indicating an alternative to hormone signalling may be driving the growth of some aggressive prostate cancers. This study has uncovered a new way to target prostate cancer, aside from drugs that suppress testosterone.

Aggressive prostate cancers don’t usually stay localised for long. They spread and rapidly become resistant to drugs such as hormone therapy (androgen deprivation therapy). Researchers are trying to understand what makes aggressive prostate cancers different to non-aggressive ones. They also want to know what is

driving the growth of these tumours. This information uncovers weaknesses that can be exploited by new drugs and treatments.

How do prostate cancers grow without hormones?

Interesting research has shown that testosterone and its receptor are not always necessary for prostate cancer growth. This is particularly so for metastatic castration resistant prostate cancer (mCRPC). Production of the testosterone receptor (androgen receptor) is switched off in some mCRPC tumour cells. These cells are resistant to drugs that target testosterone signalling, as they no longer need testosterone to grow. Alternative cellular processes must exist that drive the growth of these tumours.

What are these processes and how can we target them? This question was the subject of a research project conducted by scientists from the US. The team was led by Prof Michael Freeman from Cedars-Sinai Medical Center in Los Angeles. Results are published in the journal Nature Medicine.

To start this project, the researchers used a technique called computational biology. They used algorithms to analyse data derived from a previous experiment. The dataset included information about gene usage from 2,115 prostate cancer tumours, including 260 mCRPC tumours. This data was used to find out which genes are being used by the different tumours.

The researchers used this information to identify proteins that turn on (or off) specific genes used by mCRPC tumours. These gene regulators are proteins called *transcription factors*. They are the first step in switching on or off the production of proteins from specific genes. Some of these gene regulators are very specific, only affecting one or a few genes. Others are master-regulators, that can affect many hundreds of genes. These master regulators are often very influential; they can change the actions of a cell. Master regulators of gene use can affect processes such as growing and dividing, moving to another location, or performing a specific function.

The computational approach uncovered a number of possible master regulators in mCRPC cells. Some were identified that we already knew about. The exciting news is that a new one was identified, called *onecut2*.

Discovery of *onecut2* in prostate cancer cells

Onecut2 was not previously known to be a master regulator for prostate cancer. The predicted activity of *Onecut2* was greater than the testosterone receptor. Therefore, *onecut2*

seemed to be working very hard inside the cells to control genes that combine to drive tumour growth.

The next step was to confirm the presence and role of *onecut2* in prostate cancer cells. To do this, the researchers conducted experiments using cells grown in the laboratory and using mice. This is known as basic research. Research in laboratory and mouse experiments are where most discoveries happen. These experiments are necessary, before new drugs and treatments can be developed for humans.

To read the whole article go to -

<https://tinyurl.com/ya78ghu9>

Seniors Festival 2019

Throughout February on the Northern Beaches there are many and varied workshops, information days and demonstrations all aimed at the seniors in our area to enhance their years. Topics include the digital age, inspiring seniors exercise, having FUN is the key, do it YOUR way – at home, express yourself – its never too late, just to name a few. Brochures will be available at our meeting, or can be obtained from Council's customer services centres in Dee Why, Manly and Avalon or your local library. Bookings are necessary for most of the events.

Norma's January Quiz

1. When was decimal currency first introduced to Australia?
2. Where did Adelaide get its name?
3. Which Beatle wrote the theme music for the film "Live and let die"?
4. In which Australian town did Ned Kelly make his last stand?
5. Who gave his name to the vacuum cleaner?
6. What did Jordan Gatling invent?
7. Why were Victorian policemen known as Peelers?
8. Before being rolled in coconut what are the sponge squares of Lamingtons dipped in?
9. What is the collective name for a group of Platypuses?
10. Who assassinated Abraham Lincoln?
11. What is the international dialling code for Australia?
12. What item of clothing did the Duke of Windsor give his name to?
13. Where is the Bridge over the River Kwai located?
14. What is the principal crop of the United Arab Emirates?
15. What is the year 2019 in the Chinese calendar?

Answers to Norma's November Quiz

1. What is considered to be the earliest Christmas day party game? *Blind Man's Buff*
2. Which Bing Crosby song was the highest selling pop single for many years? *White Christmas*
3. Which two sauces are the traditional ones to serve with turkey? *Cranberry and Bread*
4. What does Queen Elizabeth 2nd give out to her subjects on Boxing Day? *Boxes of poor relief*
5. Hedera helix is the Latin name for a well - known Christmas plant, which one? *Ivy*
6. What does the word Christmas mean? *Christ's Mass*
7. Name 3 English Kings who were crowned on Christmas Day. *William the Conqueror, Edward the Confessor & Henry the Eight*
8. One of the seven dwarfs wore glasses, name him. *Doc*
9. Name the other six dwarfs. *Dopey, Happy, Sneezy, Sleepy, Grumpy and Bashful*
10. What did my true love send to me on the sixth day of Christmas? *Six Geese a laying*

Publicity

One of the main aims of the NB Prostate Cancer Support Group is to reach out to men and their families and provide information and emotional support for those diagnosed with Prostate Cancer. PCFA Ambassador Programme we may be able to reach more men's groups and clubs and spread the word about the importance of regular testing for prostate cancer.

This year, we are hoping that with the support of the PCFA Ambassador Programme we may be able to reach more men's groups and clubs and spread the word about the importance of regular testing for prostate cancer.

If you know of any organisation that may benefit from having one of the Ambassador Speakers visit them please let one of the committee members know.

We are always seeking ways to reach the public and articles about our Group have appeared in Pittwater Online News and the 'What's on Pittwater' website provides information about our meetings.

Disclaimer

From time to time in our newsletters we provide information about developments in the diagnosis and treatment of prostate cancer, research articles, documents, presentations and other interesting materials. However, the Group's Executive and the editor of this newsletter do not have the medical expertise required to make an informed evaluation of the conclusions and recommendations presented in such materials, and we have not verified such conclusions and recommendations through The information presented in this newsletter must not be interpreted as being endorsed or recommended by the Executive or the editor. Any recommendations made in

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such materials may not be applicable in your particular case.

Before implementing any recommendations made in the materials that are reported, it is essential that you obtain advice from appropriately qualified medical professionals. The view of the Group's Executive is that no two prostate cancer cases are alike and that no single treatment option is better than any other in all cases. While the information in this newsletter should be of interest, there is no substitute for getting informed medical advice from your own GP, specialists and other medical professionals.

Contact Us

Postal address

Northern Beaches Prostate Cancer Support Group
PO Box 324, Mona Vale, NSW 1660

Web site

Our web site provides details about the activities of the group, meetings, contact persons and lots of other useful information:

www.prostate-cancer-support-nb.org

Personal support

If you would like support, advice or assistance contact any of the committee:

Treasurer - Alan Taylor Phone: 02 9981 2616

Library - Ron Jones Phone: 02 9997 2709

Programme Organiser -

Denise Taylor Phone: 02 9981 2616

Catering - Jo-Ann Steeves Phone: 02 9918 6575

Eleanor Swansbra Phone: 02 9918 6428

Norma Norman Phone: 02 9918 4929

Committee member, newsletter editor and web site manager:

Mary Jones Phone: 0409 909 356

Email: info@prostate-cancer-support-nb.org

Useful websites:

www.pcfa.org.au Telephone: 02 9438 7000

See PCFA Newsletters online at:

www.pcfa.org.au/articleLive/pages/PCFA-Newsletters.html

Other useful links-

www.prostatehealth.org.au

www.cancercouncil.com.au, www.acf.com.au

www.prostate-cancer-support-act.net

www.prostate-cancer-support-sydneynorth.org

If you are aware of news, products, publications, web sites, services or events that may be of interest to members of the group I'd be happy to be informed of them.

Past issues of our newsletters can be viewed on our website: www.prostate-cancer-support-nb.org

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