HUDSON INSTITUTE OF MEDICAL RESEARCH

**SUMMER 2023** 

# HUDSON NEWS

"I feel like the luckiest unlucky person, and I hope by sharing my story that we can make early detection everyone's story."

- Jessica Clark, rare ovarian cancer survivor

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Let's change the odds on ovarian cancer. Donate today.



# Director's message

**Professor Elizabeth Hartland** 



### Changing the odds on ovarian cancer

As medical researchers, we spend a lot of our time looking at numbers, establishing which changes or effects are significant and which are not.

But some numbers are always more significant than others. Such as the fact that five Australian women will be diagnosed with cancer every day. And that 70% of them are diagnosed at an advanced stage.

These numbers are much more than statistics. They are the lives of our mothers, sisters, daughters, partners and perhaps ourselves.

Sadly, ovarian cancer detection and survival rates have not improved in decades. That is why this disease is such an important focus of our work at Hudson Institute. As with many other cancers, we need better tools for early diagnosis as well as more effective treatments for ovarian cancer.

As you will read in the following pages, Hudson Institute has promising ovarian cancer research underway. As well as new avenues of treatment, our researchers are working on better and faster methods of detecting this killer disease.

One of the major issues we face is that ovarian cancer is so difficult to detect – the symptoms are very similar to those many women experience every month with their natural cycle. Dr Andrew Stephens is aiming to change that, working with Cleo Diagnostics on game-changing tests that could save lives and unnecessary surgery.

Associate Professor Simon Chu and his team used an unconventional method to access data on the rare forms of ovarian cancer that they study. The story of how they and a determined group of women from around the globe used social media to benefit them shows the power of the community to create change. An exciting new discovery comes from Professor Paul Hertzog and Dr Nicole Campbell, who used their 20 years of work with interferons to uncover an entirely new avenue for ovarian cancer treatment. Their study, published in the highly prestigious journal *Nature*, is the start of a new research direction that will make a positive difference to many lives.

You will also hear from a young woman living with the uncertainty that ovarian cancer brings. Jessica Clarke's inspiring story shows how life's priorities change when this disease enters the picture – she is now using her voice to amplify calls for more funding, more awareness and a greater focus on ovarian cancer research.

I am extremely proud of the work we are doing at Hudson Institute to change the statistics around this disease. We hope that one day diagnosed patients face odds that are less daunting and more hopeful.

Please give generously to our Festive Appeal. With your commitment, together we can support the innovative research that helps improve survival rates for more Australians affected by ovarian cancer.

You can read more about our research on our website or stay up to date with it all by subscribing to our mailing list at hudson.org.au

With gratitude,

**Professor Elizabeth Hartland** Director and CEO

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- Survivor Sisters doing it for themselves
- When patient becomes expert

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## Life turned upside down:

what causes ovarian cancer at a young age?

Jessica Clark at home with husband Ben and daughter Matilda. She also has a son, Louie

#### Jessica Clark calls herself the luckiest unlucky person in the world – but she still wants to know why she got ovarian cancer at such a young age.

In 2016, not long after her 21st birthday, engrossed in study and

looking to the future, cancer was definitely not part of her plans.

Neither was starting a family.

But when the diagnosis came, Jessica's priorities were instantly shifted; apart from the realities of trying to beat the disease she suddenly had some urgent questions to answer.

"I had a different path that I envisioned for myself. And suddenly, there were things that were much bigger and much more important, like my health, having a family, having a partner who cared, living. A career was at the very back of my mind. My life got flipped, and what I wanted became very different."

"It is the most lethal gynaecological cancer. And it doesn't get the airtime it deserves. That's not good enough." Jessica Clark The particular form of cancer she had was a rare one: a Juvenile Granulosa Cell Tumour.

Even among the rare forms of cancer this one

is uncommon. Granulosa Cell Tumours (GCT) make up between five and seven per cent of malignant ovarian cancers, and, of these, the juvenile form (which can develop at any age) is a tiny fraction of that figure.



Jessica Clark pictured at Hudson Institute viewing ovarian cancer cells with Dr Simon Chu(L)

continued next page



L-R: Dr Maree Bilandzic, Jessica Clark and Dr Simon Chu in the ovarian cancer research lab at Hudson Institute.

But apart from an incredibly supportive mother and her boyfriend (and later husband) Ben, Jessica had some powerful allies in her fight.

One was her specialist, Professor Tom Jobling, a world-renowned expert in these cancers. The other was Associate Professor Simon Chu's Hormone Cancer Therapeutics research

group at Hudson Institute, which specialises in the study of this type of cancer.

She also tapped into an incredible international team, the GCT Survivor Sisters, whose Facebook group has become a powerful tool for empowering women with GCT and providing evidence for researchers like Dr Simon Chu.

But even with such wonderful resources in her corner, Jessica knows the statistics and she knows that her cancer battle is not yet won. These cancers have a high recurrence rate, meaning Jessica lives with the knowledge that her cancer might return. With the

"With ovarian cancer like I had, juvenile GCT, you will have it for life. I have no evidence of disease, but you have to be tested, regularly. I will have to do that forever. That's a really scary thing." Jessica Clark

lack of reliable tests for detecting ovarian cancer, it's a fear that is shared by thousands of women. Hudson Institute researchers are working to change that (see page 5).

Now, Jessica is getting on with her life. She's as busy as any young mother of two, but she also has another passion: raising awareness of ovarian cancers and raising funds for

"Please, for me, for my daughter, for my mother, for your sister, for your daughter, for your wife. Please fund this cancer research. We have to give energy, time, money, talk about this cancer, so that the reality for women diagnosed with it is changed."



5 Australian women will be diagnosed with **ovarian cancer every day** 

# 70% of them are diagnosed in the advanced stages

Let's change the odds on ovarian cancer. Donate today.



more research.

*You can join us in changing the odds on ovarian cancer with a tax-deductible gift before 31 December 2023.* 

# **Ovarian cancer testing** breakthrough: new hope

In medical research, the path from laboratory bench to patient bedside is usually a very long one. And when it comes to breakthroughs in specific testing for ovarian cancer, it is a path that no-one has yet navigated successfully. But that could be about to change, thanks to some generous donors, a lot of hard work and a great deal of persistence, here at Hudson Institute.

There is currently no accurate and reliable early detection test for ovarian cancer – the most lethal of all gynaecological cancers.

Because the symptoms are often vague, ovarian cancers can be indistinguishable from common, non-cancerous diseases, so invasive surgery to remove the ovaries remains the only way to definitively diagnose the presence of malignant disease.

However, the 80–90 per cent of women who have this surgery do not have cancer, meaning they have to endure unnecessary anxiety and trauma from the surgical procedure due to the lack of accurate early diagnostic technology.

Hudson Institute aims to change that.

The facts around this disease are stark:

- Diagnosis usually occurs when the disease is advanced
- Accurate diagnosis involves invasive surgery and often the removal of ovaries
- 49 per cent of those diagnosed will only live for five years
- This survival rate has not changed in half a century.

### New ovarian cancer testing technology

Using a novel biomarker identified by three Hudson researchers, Cleo Diagnostics is working to develop more accurate ovarian cancer testing, starting with a triage test, and hopefully culminating with the holy grail: a simple early detection blood test.

The triage test aims to prevent the unnecessary surgery that is now so common, meaning patients will know before surgery whether their condition is malignant or benign, allowing them to be treated appropriately.

In many cases it will also mean retaining their fertility.

And the benefits go far beyond detecting cancers. They include:

- Better care for women with noncancerous tumours
- Cost savings in the health care system (government, hospital, health insurance)
- More efficient allocation of priority surgical beds
- Community benefits associated with reduced hospital stays.



L-R: Dr Andrew Stephens and Richard Ullman (CLEO Diagnostics), pictured at Hudson Institute.

#### The generosity of donors

Hudson Institute is grateful for the long-term support from the Ovarian Cancer Research Foundation (OCRF), which has nurtured this research from the laboratory bench through to the commercialisation phase.

Without the generosity of our donors, the essential discovery science would never happen in the first place. Only through the ongoing support and commitment of the community will we be able to progress this research further.

### When patient becomes expert

Despite encountering more than her share of health challenges, 92-year-old Delva Walker has the most positive outlook you are ever likely to encounter.

A survivor of both stomach cancer (13 years ago) and breast cancer, Delva recently visited Hudson Institute armed with plenty of questions for Professor Richard Ferrero and Dr Caroline Skene.

A passionate advocate for medical research, Delva can often be heard asking, "Why isn't there more funding for stomach cancer research?"

"In 2010, I had a radical gastrectomy for stomach cancer," she said. "It was successful surgery, and I didn't have to have chemo or radiation. "In Hudson's newsletter I saw that Richard Ferrero was researching gastric cancer, so I wrote to him and he replied."

Contacting Prof Ferrero was the start of a mutually beneficial relationship that gave Delva the chance to contribute to his vital research and helped Hudson Institute scientists further their work.

"I was searching for more information about stomach cancer, symptoms etc. and the fact that gastric ulcers can lead to stomach cancer," she said. "This information must be made available to the public."

Even in her tenth decade, Delva has no plans to slow down. Whether it's continuing her advocacy for awareness-building and funding for stomach cancer research, or perfecting her home-made orange marmalade, she has a lot of living left to do.

Now, more than 13 years after surviving stomach cancer, Delva Walker is an inspiration, for her positivity and attitude of taking each day as it comes.

She continues to support Hudson Institute's research with donations and advocacy, all aiming to see more advancements made in stomach cancer research.





### Harnessing the immune system to fight ovarian cancer

In a distinguished scientific career lasting four decades, Professor Paul Hertzog has just about seen it all - but seeing his team's latest research published in the influential journal Nature was a proud moment.

While the publication carries prestige, it was the huge amount of work by many team members of the Hertzog lab over several years that gave him the most pride - specifically what it could mean for the treatment of ovarian cancer.

This research in the Hertzog lab, initially driven by PhD student (now Dr) Zoe Marks and post-doctoral scientist Nollaig Bourke, and continued by Dr Nicole Campbell, builds on 20 years of work harnessing the body's own system of signalling proteins, specifically one that Prof Hertzog discovered in 2004, Interferon epsilon (IFN-e).

Their latest research established that IFN-e exists naturally in the female reproductive tract, particularly around the ovaries, but is absent in patients with ovarian cancer.

So they tested it on ovarian cancer tissue samples, and their pre-clinical results were striking, confirming that IFN-e was a very effective tumour suppressor in ovarian cancer.

Prof Hertzog and the team established that IFN-e serves to protect the healthy body against the development of ovarian cancer, meaning it could potentially be used as a new way to fight the disease.

Last year more than 1,000 Australians died of ovarian cancer, and the likelihood of living more than five years with the disease is still less than 50 per cent," "At Hudson Institute we are Prof Hertzog said.

now able to produce pure IFN-e,

incredibly valuable research into

how and where it can be used

which allows us to conduct

most effectively."

Prof Paul Hertzog

"It is often diagnosed late, and the most common treatments have limited effectiveness, with resistance to chemotherapy a major factor. It is a disease where new insights were needed."

Dr Campbell built on the Hertzog research group's understanding of IFNs in controlling inflammation, infections and cancer, to show that IFN-e combatted ovarian cancer by activating the body's immune response to the fight tumours. This places IFN-e in the exciting new class of anti-cancer drugs called immunotherapies.

"Immunotherapies have been very successful in the treatment of other types of cancer, but they have had limited success in ovarian cancer we're looking to change that," Dr Campbell said.

"We know that in High Grade Serous Ovarian Cancers (the commonest form of ovarian cancer) tumour cells recruit and activate 'immunosuppressive' cells that prevent antitumour immune cells from attacking the tumour. So, we're aiming to develop new therapeutics

that can reverse that process and improve survival rates."

> Prof Hertzog explained that since his laboratory's discovery of IFN-e in 2004, a great deal of progress has been made, with Hudson Institute leading the world in this type of research.

"We now know that Interferon epsilon acts as a natural booster of immunity to infections. Our recent discovery is that it also acts as a tumour suppressant, and that it is lost during the process of ovarian tumour formation. The next question we need to ask is simply whether replacing this lost IFN-e could eliminate these cancers in a safe and efficient way." says Prof Paul Hertzog.

Yes, I would like to donate to change ovarian cancer odds

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### **Survivor Sisters doing it for themselves**

make informed decisions.



Dr Simon Chu looking down a microscope in the ovarian cancer research lab at Hudson Institute.



L-R: Dr Simon Chu and Jessica Clark in the ovarian cancer research lab at Hudson Institute.

When it comes to rare forms of cancer, researchers and patients share the same problem – finding enough information from which to

For Associate Professor Simon Chu and Research Assistant Maria Alexiadis, specialising in Granulosa Cell Tumours (GCT), it sometimes means searching the globe for tissue samples and case studies.

For women with this rare form of ovarian cancer, information about the disease was even harder to come by.

Kaye Ackermann from Charlotte, North Carolina, USA, found that the time after diagnosis was a struggle as many doctors have very limited knowledge of this rare condition.

The solution, for patients and researchers, came from an unlikely source.

#### A social media solution

Not far away, Kim Eroh was facing the same issues following her GCT diagnosis, so she turned to social media and created the solution with a Facebook group.

"I founded GCT Survivor Sisters in 2012 with four members and a goal to connect to others who had this rare cancer," Ms Eroh said.

They realised they had a unique opportunity to gather information about their experiences, and to find common ground in their diagnoses, treatments and outcomes.

What they didn't realise was that they were also creating a unique and valuable resource for GCT researchers.

That is where Hudson Institute came in. The group made contact with A/Prof Chu, and a patient-researcher partnered collaboration was formed to study what could be the world's largest untapped resource of firsthand data on this rare disease.

A/Prof Chu's Hormone Cancer Therapeutics research group is striving to bring hope to GCT patients – through better diagnosis, early detection and more targeted treatment.

"Effectively, what this group has done is build a medical database with some amazing information. What's even more special is that they chose to share that database with us, so that we can understand the unmet needs that are most important to these special women, for example, helping us to develop better treatments," A/Prof Chu said.

Meanwhile, the Survivor Sisters group has grown to over 1,800 members worldwide and their members have become 'experts' through their own experiences, supporting each other through a cancer that very few understand.

As Kim Eroh said: "We are thrilled that Hudson Institute has seen value in our data and has provided the opportunity to present it to the cancer research community.

"We are making a difference in the lives of women with GCT, and this research is the pinnacle of our efforts to date."



"Please, for me, for my daughter, for my mother, for your sister, for your daughter, for your wife. Please fund this cancer research."

- Jessica Clark



### Power our research with your legacy.

Leaving a gift in your Will to Hudson Institute will allow us to power new and innovative treatments and cures for current and future generations.

Our team is here to help with any queries.

Please contact Connie Honaker at

**t:** +61 450 524 565

e: connie.honaker@hudson.org.au

L-R: Lachy Kinsella and his sister, Isabelle Kinsella. Lachy is a survivor of neuroblastoma cancer.



Join us in changing the odds on ovarian cancer with a taxdeductible gift before 31 December 2023.

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