Gene Signature to Tailor Disease Treatment

Imagine that you walk into a clinic, and your doctor asks whether you consent to have your blood tested for unique biomarkers that can help your medical team tailor an upfront treatment based on your risk profile. This scenario will soon transform patient care in the Leukemia Clinics at Princess Margaret.

Drs. Jean Wang, John Dick, and Mark Minden together with the other leukemia physicians and scientists at Princess Margaret recently developed a biomarker test that can rapidly measure risk in newly diagnosed AML patients. The test, nicknamed the LSC17 score, was derived by studying the patterns of gene expression in leukemia stem cells (LSC). Clinicians will be able to use this rapid test to determine whether a patient who has been diagnosed with AML has a lower chance of being cured by standard therapy and could be enrolled in a clinical trial testing alternative strategies to treat their leukemia.

The LSC17 score is currently being brought into the Advanced Molecular Diagnostic Lab at Princess Margaret, and Drs. Steven Chan, Jean Wang, and Tracy Murphy are planning a trial to test the LSC17 score in newly diagnosed AML patients. Together with clinicians and investigators in Toronto, Hamilton, and Ottawa, they are looking to move this recent discovery from the bench to the bedside.

We met with Dr. Jean Wang to learn more about this recent practice-changing research discovery.

What is the LSC17 score?

We identified a minimal set of 17 genes that were most important for predicting survival in AML patients treated with chemotherapy. The LSC17 score is calculated from the expression levels of these 17 genes in a patient’s blood or bone marrow sample. The score can help to predict whether a patient has a good chance of responding to standard treatment. If the chances are low, an alternative therapy could be considered as part of a clinical trial.

How powerful is this scoring method?

The LSC17 score is very powerful because we developed it using cell samples from a large number of patients (78) who consented to having their blood or bone marrow samples stored in the Hematologic Malignancy Biobank at Princess Margaret. We then derived and tested the score by applying rigorous statistical methods to patient data from AML treatment centres in the US, Germany, Netherlands, and France, as well as here at Princess Margaret. The score can be applied to most AML patients.
Kim Maki and Erin Saretz are Nurse Coordinators working with the Leukemia & Allogeneic Stem Cell Transplant Programs. We had a chat with them over coffee about their responsibilities and what they love about their work.

What is your role in the program?
Our role is to help patients who have a diagnosis of leukemia navigate the cancer system in order to make their journey as seamless as possible. We help coordinate two main areas of their treatment journey:

- Arranging care close to home with the Leukemia Shared Care Program when appropriate
- Coordinating and navigating patients to Allogeneic Stem Cell Transplant if indicated

What inspires you to come to work every day?
It is inspiring to come to work each day knowing that our role makes a big difference in patient’s life by working together as a team. Whether it is our team of colleagues at Princess Margaret, the partnerships with hospitals outside of Princess Margaret, or the relationships we develop with our patients and their families, we feel energized, inspired, and empowered working together to make things happen for our patients.

What do you love in your work?
We love helping patients and their families. We enjoy working with them to build their confidence in the care we are providing. We really love listening to patient stories regarding their experience and knowing what we can strive together to make everything as optimal as possible.

What do you love doing in your spare time?
“I have family who lives in Muskoka & Sudbury so I find it very relaxing getting out of the city to be close to nature,” says Kim. “I love music and going to concerts with friends” added Erin. We both love to travel.

Do you have a message to share to our patient readers?
We have an amazing team of people committed to achieving your treatment goals. We are here to help you, so do not hesitate to approach us when you have any questions and concerns.

Gene Signature to Tailor Disease Treatment continued from pg 1.

What is the next step to bring this discovery to patients?
We have developed the assay using a technology called NanoString, which has a very fast turnaround time of 1-2 days. The assay is being worked up in the molecular diagnostic laboratory at Princess Margaret. Once it is ready to be used for patients, we plan to test the score in a prospective clinical trial in several hospitals in Ontario.

If you like to learn more about this discovery, visit UHN’s interview with Dr. Jean Wang. Go to bit.ly/2gbtjff or scan the QR code on your cell phone to view the video.
Just over a year after Dave and I met, our whole world turned upside down.

We had gone to the hospital to check out what we thought might be a digestive problem, and left with a diagnosis of Chronic Myelogenous Leukemia (CML). Scared, angry and a bit dumbfounded by it all, we – in true Type A style – tackled the disease head-on.

After two years of drug therapy, it became clear that the leukemia medications were not working and Dave began to consider a stem cell transplant. We were encouraged to find out that not one, but two unrelated donors came out to be perfect match to Dave – it’s like a miracle, even the doctors were stunned. This was when our journey truly began.

Within a few months, Dave underwent “conditioning therapy” to prepare his body for the transplant. It was a grueling process that included intense radiation and chemotherapy. This was the most risky part of the transplant because of the possibility of infection. It also signaled the beginning of what would turn out to be an incredibly difficult recovery process that often seems never-ending. In addition to intense fatigue and a lack of appetite, Dave continues to deal with graft versus host disease (GVHD) which has left him without a sense of taste or smell.

Despite these intense challenges, we feel blessed to have made it to the four-year mark.

We approach each day with a positive attitude and a lot of laughter, which helps lighten the load. Like any caregiver, it has been very difficult to witness Dave’s pain and discomfort, to live with a sense of uncertainty, and to wrestle with the fear of losing him. It has been beneficial to learn to take each day as it comes.

It is often said that positive things come out of negative situations, and this journey has really been no different. We cherish special moments more – a magical trip to Hawaii, attending music festivals, cooking a great meal together (even though Dave still can’t taste anything), making each other laugh, and being with friends and family. A particularly happy memory was our Light the Night Walk with the Leukemia and Lymphoma Society. It was a celebration that we had made it through the first year after transplant.

My journey as a caregiver has not been an easy one, but I have learned to embrace my role. If you are a caregiver, here are 4 useful things to know:

1. Take care of yourself. Caregivers are often overcome with stress. Taking care of our loved ones, while maintaining our daily life, leaves us little time to take care of ourselves. Make sure you have your own caregiver, such as a friend you can vent to, cry, laugh with and, talk about something other than illness.

2. Ask questions. Although there are so many information sources available, which can be overwhelming at times, it’s important to ask questions and be an active participant in the treatment plan.

3. Let go of the “old.” Accept that your life will never be what it was before the diagnosis and work on establishing a new and purposeful reality.

4. Network. Find patient and caregiver support groups with people who share your experiences. It is comforting to talk to people who have been through what you are going through, especially if your friends and family are struggling to understand how you feel.

Written by Sue Martin. She lives in Toronto with her husband Dave, who had a stem cell transplant in 2012. Dave and Sue are working to establish a stem cell transplant support group so feel free to get in touch if you’d like more information. Contact dave.mercer@mac.com OR sue@stepinmarketing.ca.
myUHN Patient Portal:
A secure way to access to your personal health information

If you are a patient at Princess Margaret, you can now access your personal health records at any time by using your smartphone, tablet, or computer.

Please ask your clinic for a registration code on your next visit. If you do not have an upcoming appointment, you may go to your clinic reception or ask for a registration code at Health Records at Princess Margaret.

You will need this code in order to create your myUHN account. The clinic will also provide you with instructions on how to register. For more information regarding myUHN you can call, email, or visit the website:

Telephone Support Line: 416-340-3777
E-mail: myUHN@uhn.ca
Website: http://wwwuhn.ca/PatientsFamilies/myUHN

What will I see in myUHN Patient Portal?

- Your UHN appointments. You can also receive appointment reminders.
- Your UHN lab results as soon as they are ready, including results dating back to 2008
- Your UHN reports, such as pathology and imaging reports, and clinic notes dating back to May 1, 2015
- Links to education resources, medical dictionaries, and other helpful websites

How useful is having a myUHN Patient Portal account?

Having quick and safe access to your health record can help you:

- Keep track of your appointments and results
- Remember what you talked about to your health care team
- Because you can see your results before your next appointment, you can prepare for your questions ahead
- Better understand and manage your care
- Share information with trusted family members and friends or health care providers outside UHN

The Princess Margaret Cancer Foundation raises and stewards funds to support the Princess Margaret Cancer Centre, one of the top 5 cancer research centres in the world. The Princess Margaret is a comprehensive cancer centre that offers full suite of services at the provincial, national and international levels, and is a key resource for complex cancer care spanning the continuum from diagnosis to palliation and survivorship across disease sites. Philanthropy is critical to making this possible.

For more information on how you can help support our leukemia program at the Princess Margaret, please contact:

Anthony Keating,
Campaign Director
e-mail: anthony.keating@thepmcf.ca
Website: www.thepmcf.ca

The Princess Margaret Cancer Foundation


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