

CHILDREN'S MEDICAL RESEARCH CENTRE (CMRI):

We are grateful for the hospitality of the Children's Medical Research Institute, who last night, hosted us for a tour of the laboratories. After we were warmly welcomed by Jennifer Philps (Community Relations Manager) Professor Tracey Bryan gave a most interesting and informative presentation of the wonderful research undertaken by CMRI in the Cell Biology Unit, particularly with respect to "inherited marrow failure and cancer".

We were also privileged to witness a demonstration by one of the senior researchers, on the use of the Corning Cell Counter (that our club donated).

We learned about the telomeres (the protective caps at the ends of chromosomes) and how telomerase maintains telomeres in cancer cells and in stem cells.

Professor Bryan explained that unlike normal cells, cancer cells do not decay with age and that is mainly due to the telomerase. Monitoring the cell count and cell health is an important tool used in cancer diagnosis and assists doctors in their treatment decisions.

As chemotherapy attacks both cancer and healthy cells, dosage is restrictive. Telomerase Inhibitors have been proven to make chemotherapy more effective, especially at the more suitable lower (chemotherapy) doses.

With respect to inherited bone marrow, failure, the only effective curative therapy is bone marrow transplant which relies on a finding a compatible donor. However, even then, such treatment can lead to serious complications. Recent research findings have determined that gene therapy, as a cure for telomere-related bone marrow failure can be effective with fewer risk of complications.

This procedure involves:

- Removal of cells from patient's blood or bone marrow
- Purification of the blood stem cells
- Genome editing to correct mutation
- Isolation of corrected stem cells and re-infusion into the patient.

Cell counting allows researchers, through experimentation, to measure amount of telomerase; determine the ability of telomerase to extend DNA and the numbers of cells with gene-edit. In 2024, our club donated \$7000 to purchase this Cell Counter, which CMRI received in September. We were advised the this has made the task of cell counting enormously faster, more accurate and provides increased depth of data.

Where the analysis of a cell sample, previously was undertaken manually, under a microscope, was slow and laborious, taking about one hour (3600 seconds) with potential risk of human error, this is now conducted using the Corning Cyto Smart Cell Counter in just 5 seconds.



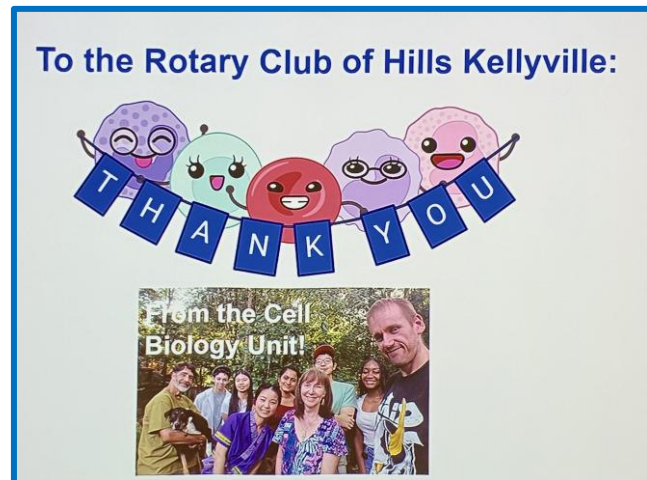
The resultant analysis is not only faster but provides clearer, on-line imaging and can also measure the relevant health of the cells.



It was such a delight to meet the many researchers who attended our session and to hear directly from them about their experiences at CMRI.



Many thanks to you all and a special thank you to Jennifer Philps for coordination this visit which was one of our most enjoyable meetings so far, this year. Thank you also for the delicious dinner.



President John van den Burg thanked Jennifer Philps, Professor Tracey Bryan, all the other CMRI researchers and staff and presented a contribution for the wonderful dinner that was served.