Griffith UNIVERSITY
Institute for Glycomics
Queensland, Australia

Rotary
District 9640

ROTARY INTERNATIONAL

Malaria Vaccine Project

PATRONS
Hon Lawrence Springborg
PRID Noel Trevaskis OAM
PRIP Glen W Kinross AO

Left to Right: Dr Reshma Nevagi, Ms Winter Okoth, Ms Mei Fong Ho, Professor Michael Good, Dr Hanan Al-Nazal, Ms Emily Cooper, Dr Danielle Stanisic

MALARIA VACCINE PROJECT NEWSLETTER

ISSUE 6 - MARCH 2020

Malaria Vaccine Project Newsletter Committee

PDG Sandy Doumany
Chair

Gerard Brennan OAM
Committee Member

Laraine Brennan
Committee Member

Nina Kristensen
Development Manager
Institute for Glycomics

Our history

In 2015 Sam & PDG Sandy Doumany attended a Rotary Against Malaria Conference, with Dr Danielle Stanisic as the Guest Speaker on Research for a Malaria Vaccine. She mentioned that the Laboratory needed a Separator which would cost $8000.

Sam took that on board and approached PDG Graham Jones to see if we could raise the money required. Within a week, Graham, Sam & other Rotarians had raised the funds.

The Griffith Rotary Satellite Club was in the formation period and the cheque was presented to Dr Danielle Stanisic (a prospective member) at the next meeting. We all felt this sent a message to the new members **" THIS IS THE POWER OF ROTARY "**

On learning more about the journey for Professor Michael Good and Dr Danielle Stanisic with their research, there was a core of Rotarians who developed a passion to be part of the quest to save the lives of so many men, women and children and eliminate Malaria from the world.

Committee chair PDG Graham Jones AM

Committee
Gerard Brennan OAM
Laraine Brennan *(Secretary)*
Hon Sam Doumany
PDG Sandy Doumany
Theresa Dawson
Neil Jones *(Treasurer)*
Karin Kolenko
Mervyn Powell
PDG Dai Mason
PDG Ross Smith

Rotary District 9640

Malaria Vaccine Project

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Chairman's Message

The year 2019 has been a remarkable one for the Malaria Vaccine Project. Thanks to a $500,000 matching grant from the Federal Government *Medical Research Future Fund* (MRFF) and the continuing efforts of Rotary, we have now raised $1.14 million for the further development of Professor Michael Good's promising malaria vaccine PlasProtecT ®. THANK YOU FOR MAKING ALL THIS POSSIBLE.

It has also been a special year for the malaria research team as they have completed the Phase 1 clinical trials on the Gold Coast, to test the efficacy of the vaccine against a malaria parasite.
Although the Gold Coast trials involved only five volunteers, Professor Good said *"The trials went very well and it was the first time that human subjects have been protected by a whole parasite malaria vaccine—in this case housed in a human red cell".* That is a huge boost going forward and in the coming year Professor Good and Dr Danielle Stanisic will continue Phase 1 trials with the vaccine housed in an artificial membrane called a liposome. This can be freeze-dried and transported anywhere in the world.
The first trip for the liposome vaccine will be Melbourne, hopefully later this year when a much larger sample will be involved. Then it is a seamless transfer to places like Uganda and PNG when PlasProtecT ®will actually BE SAVING LIVES. Professor Good presents more details in this Newsletter.

Australians are remarkably generous people as is aptly demonstrated in the incredible support given to the appeals for drought, bushfires and floods. All three have been horrific events and deserved everyone's support! Yet, in spite of those crippling events, Rotarians and people all over Australia and New Zealand have continued to support the development of PlasProtecT ®which, while it will keep our countries safe from malaria, is destined to have its major impact in our neighbour PNG, Africa and other tropical regions of the world.
The 2019 WHO Report reveals some gains in malaria prevention due to the wonderful work by the Global Fund and RAM. However, *while there are 400,000 children and pregnant mothers dying from malaria each year we must bring PlasProtecT® to them as soon as possible.*

This year must be our greatest year yet! We have set a target of $2,000,000 by the end of 2020. We need this kind of support to enable Professor Good to complete those critical clinical trials with the liposome version of the vaccine. This research is very expensive but it could mean that PlasProtecT ® will be saving lives as early as 2021. Hence my plea to everyone, especially the Corporate Sector, please join this wonderfully humanitarian endeavour.
MBA Lawyers on the Gold Coast have given us a wonderful start to the year with their major corporate sponsorship. I wish to thank Clayton Glenister Managing Partner, Anton Richardson Partner and Rotarian, and their leadership group very sincerely for their timely support. I particularly highlight the fact that MBA Lawyers would like to help us build on the consortium of corporate sponsorships that now includes themselves and Zarraffas Coffee.

WHO WILL BE NEXT?

PDG Graham Jones, AM

INSIDE THIS ISSUE

INTRODUCING NINA KRISTENSEN

Hi, I'm Nina Kristensen and I am the recently appointed Institute for Glycomics Development Manager.

Having grown up on the Gold Coast and now raising a family here, I am passionate about the amazing advances that are happening in our own backyard that will ultimately positively impact the world for future generations.

In my role, I enjoy connecting with people who share the same passion and understanding their individual 'why'. The collaborative efforts of Rotary with the Malaria Vaccine Project prove that no matter how large or small the individual contribution is, it creates a snowball effect that demands attention on the global stage.

The team of dedicated scientists under the direction of Professor Michael Good AO at the Institute for Glycomics are forging ahead and paving the way to an effective Malaria Vaccine.

I am excited to see what this year will bring, to lay the foundation for a new decade ahead.

Thank you, to the tireless efforts of Rotarians in bringing vision to reality.

"His research interests are in immunity and vaccine development for malaria and streptococcus"

CREATING A LEGACY
PROFESSOR MICHAEL GOOD AO

Michael Good is a National Health and Medical Research Council (NHMRC) Senior Principal Research Fellow at Institute for Glycomics, Griffith University.

His research interests are in immunity and vaccine development for malaria and streptococcus. With his group, he has developed candidate vaccines for the prevention of both infections and these have entered clinical trials.

Rotary has been a strong supporter of Professor Good's malaria vaccine research which has now seen volunteers vaccinated with the novel malaria vaccine that he and his group have developed. They are now giving vaccinated individuals a live malaria infection, under close medical supervision, to determine the level of protection that it induces.

Professor Good is the former Director of the Queensland Institute of Medical Research (QIMR) and a former Chairman of the National Health and Medical Research Council of Australia.

He graduated MD PhD DSc from the University of Queensland and the Walter and Eliza Hall Institute of Medical Research in Melbourne and undertook postdoctoral training at the NIH in Bethesda, Maryland.

In 2008 he was made an Officer of the Order of Australia (AO), in 2009 he won the Australian Museum CSIRO Eureka Prize for Leadership in Science and in 2010 was awarded an NHMRC Australia Fellowship.

He is a Fellow of the Australian Academy of Technological Sciences and Engineering, of the Australian Academy of Health and Medical Sciences, of the Queensland Academy of Arts and Sciences and of the Royal Society of Biology. He is an International Fellow of the American Society for Tropical Medicine and Hygiene.

When reflecting on his career and his motivation Professor Good stated that "Discovering nature is a privilege and when you can combine that with doing something to directly reduce human suffering, then that is an honour"

MALARIA VACCINE PROJECT UPDATE

We are making good progress with the trial.

We have now vaccinated five individuals and we have subsequently given them a malaria infection to test whether the vaccine is working. We are very excited to be able to say that some of the volunteers were completely protected. Furthermore, these volunteers had no previous exposure to malaria which might have otherwise contributed to their protection. We can say that the vaccine was able to induce an immune response which provided this very high level of protection. This is the first time that a malaria vaccine has shown complete protection for anyone against the blood stages of malaria.

However, not all volunteers were protected. We are working to understand if there are differences in the immune responses of those who were protected and those who were not.

In parallel to this exciting development, we are looking at ways to preserve and store the vaccine so that it may be easily deployed in areas of the world where the vaccine is most needed.

The vaccine is currently made fresh just prior to administration. We will not have that luxury in malaria-endemic countries, often where there may not even be refrigeration.

We have developed a method that reduces the vaccine to a powder which can then be re-hydrated with water prior to use. This has been very successful in our animal model and we are hopeful of soon being able to test this powdered vaccine in human trials.

I would like to thank Dr Danielle Stanisic and her team of staff and students for the wonderful progress that they have made.

Professor Michael Good AO

12 March 2020

Malaria Vaccine Project

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ROTARY DISTRICT GOVERNOR'S PARTNER PROJECT UPDATE

Shauna Bolton is very happy with the support for her project which she promoted when she accompanied her husband Harry on his official visits around the District.

The progress total is $14,000 and it would be most welcome if any Clubs would like to add to the support of Shauna's Project The Malaria Vaccine Project.

This project is at a critical stage of it's development so every donation helps in the journey to complete the clinical trials and prepare for the major phase of field trials in Malaria endemic countries in the world.

THREE TIMES IS NOT A CHARM!

When I first contracted Malaria I was on a school trip to Karachi.

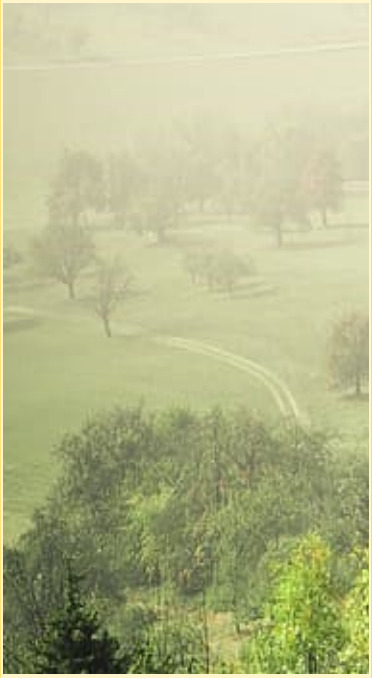
I was a teenager and I was fortunate that I was very healthy prior to the infection and I was able with special drugs to recover. I was very sick at the time with a high fever, sweating, and a flu-like illness which happened a few weeks after I had been bitten by several mosquitoes.

I had a very high fever, nausea, vomiting, a severe headache followed by constant diarrhea.

I have had malaria more than once, in fact three times and I still need to take precautions when **I** travel to a malaria area.

I know that malaria does reoccur and I usually get it in a slightly weaker form, but I still get the vomiting, diarrhea and severe headaches. It causes me loss of energy, which can persist for years. I still get occasional relapses.

-Karin Kolenko
Rotary Club of Hope Island



IT IS WHY I GO TO WORK EVERY DAY

After my PhD I travelled to Papua New Guinea (PNG) to undertake field work for a related malaria research project. I spent a number of weeks in Madang collecting samples from volunteers who had previously had malaria. Madang has constant transmission of the malaria parasite. It was an eye-opening experience as a malaria researcher to have this time in PNG and to see the impact of malaria firsthand instead of just reading about it in journal articles and books.

PNG is quite unique as it has four of the malaria parasite species that can infect humans *(Plasmodium falciparum*, *P. malariae*, *P. vivax* and *P. ovale*).

A malaria infection begins when an infected mosquito bites you. The parasite travels via your bloodstream to the liver where it develops for 7-10 days. It is then released into the blood-stream in a form that is able to infect red blood cells. *P. vivax* and *P. ovale* are able to form dormant or "sleeping" stages in the liver that can be reactivated many months after the initial infection. If you are infected with either of these parasites it is possible to suddenly have malaria parasites in your blood and develop clinical malarial disease many months after the initial infection. During my time in PNG I took the anti-malarial mefloquine, which would have killed any malaria parasites that emerged from my liver into the blood-stream and I would be completely unaware that I had been infected with the parasite.

Six months later I was working in the USA. There was a bad cold and flu season that year with many people sick. I initially had a very bad headache and was feeling quite tired and assumed I had a cold or the flu. I had periods of feeling better and then suddenly I would start to feel tired and a bit feverish and the headaches would return, particularly at the very base of my skull.

One night I woke myself up because I was shivering so hard that my bed was rattling and I was drenched in sweat. I continued to go to work just thinking I was "under the weather" and mentioned it to the girls I shared an office with, one of whom went in and informed my boss (Dr. D) that she thought I might have malaria.

I was quickly sent to a doctor who after hearing my travel history and speaking to Dr. D, sent me to the local hospital.

Despite my travel history and the insistence of Dr. D that this was malaria, they insisted on ruling out other causes. I will always remember Dr. D sitting by my bed in the ER holding my hand while they did a lumbar puncture to rule out meningitis. Eventually I was given anti-malarial drugs, one to kill the parasites in the blood and primaquine to kill any remaining parasites in the liver.

Primaquine was the only drug at that time which could kill the liver-stages. I had not taken it when I left PNG, and a proportion of the population cannot take this drug without risking serious side effects. I spent a week in hospital and received my diagnosis of *P. vivax* infection 6 weeks later via a letter from the New York State Department of Health. It was a number of weeks until I felt completely better.

I often get asked why I didn't recognise that I had malaria. I had recent travel to a malaria endemic country. The shaking and shivering in bed are classic malaria "rigors" and the cycles of feeling unwell and feeling better perfectly matched the 2 days of parasite development in the red blood cell before the parasites bursts out and invades new red blood cells. I was later told that the intense headache at the back of my head was "classic *P. vivax* infection".

In my defence, most of my direct experience with malaria up until that point had been with rodent models of malaria. I can also recognise in hindsight that towards the end I had quite severe brain fog which was likely caused by the infection.

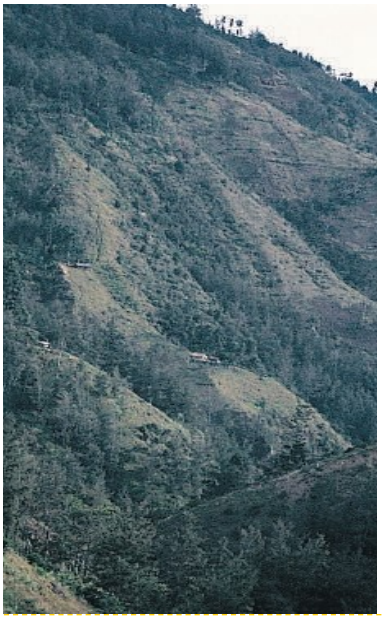
I am very grateful that I had access to excellent health care to rapidly treat the infection, despite the ER doctor's initial reluctance to accept that I had malaria. It is very upsetting to me that many people with malaria do not have that advantage, they cannot afford treatment and because of that over 400,000 people will die each year, many of them young children.

This was just my experience of a single infection-I cannot imagine what it must be like to have multiple bouts of malaria infection every year. Both this experience, and my experiences from working in PNG, really highlight for me why the development of an effective malaria vaccine is critical.

It is why I go to work every day to work on our vaccine and it is why I continue to raise awareness of this terrible infectious disease.

-Dr Danielle Stanisic
Associate Research Leader
Malaria Vaccine Project
Institute for Glycomics

LIVING WITH MALARIA



The standard warm shower fell from the sky in buckets for a good 20 minutes as it always did. You could set your watch by it. It was 2pm in the highlands of Papua New Guinea in mid 1981 and I was part of a Pacific Islands Regiment patrol from Wau to Salamau as an exchange Australian officer helping to train local soldiers.

Hot, steamy and soaked we paused for the inevitable “brew” stop. Within moments mosquitoes posed far more of a threat than our pretend enemy as they swarmed around us. Just like they always did. Before leaving Australia, I had been on a course of quinine tablets which I was assured by the Regimental Medical Officer would prevent me contracting malaria. No one told the mosquitoes of the PNG Highlands. I was also instructed to use Army issue insect repellent and the ubiquitous mozzie net when sleeping which I did without fail.

After several weeks of patrolling and time spent in barracks outside Port Moresby, my exchange was at an end and I returned home to Canberra.

Soon after the fun began.

“Within a week I had the worst “flu” I had ever had with lots of night sweats, feeling freezing when it was hot and high fever”

Within a week I had the worst “flu” I had ever had with lots of night sweats, feeling freezing when it was hot and high fever. At first the Army medical staff diagnosed glandular fever which was always going around at the Royal Military College Duntroon where I was posted.

The following day I had the shakes and was taken to Duntroon Hospital where I was admitted and a blood sample taken. It seems the mosquitoes had breached my defences as I was informed I had contracted malaria and rest was required. Fortunately my infestation was what was described as “uncomplicated” which meant I did not display severe symptoms such as jaundice or coma. I was young and very fit which may have helped. Within a 10 days my symptoms had disappeared and I was released from hospital and resumed military duties.

Nothing much else was said to me at the time and as a young officer I went about my duties as normal putting the experience behind me. Five years later I was serving in Townsville and out of the blue a recurrence of bad “flu” beset me. This time when I reported sick my Army Medical Record showed I had contracted malaria in PNG in 1981 and after examination and testing I was to my surprise told it was recurring malaria and that it my happen at significant intervals for decades. And it has. Since 1986 I have had around 6-7 recurrences none of which have been severe. Recently I had another bout and it had been so long since a previous event that it wasn’t until I was reminded by a fellow Rotarian that I had contracted malaria in PNG in 1981 that it struck me that it was with me again.

In January this year I started to sweat at night under the air conditioning, had raised temperatures, headaches and fatigue all of which I put down initially to flu in an aging man! The GP thought otherwise.
Malaria is an intermittent part of my life which I do not feel threatened by in any way. I was fortunate to have a mild case sans complications. However, I can do without the rare recurrences which I do find debilitating as I get older. For others not so fortunate it can cause major heath issues or be fatal.

I pay homage to those eminent medical professionals at Griffith University working on a vaccine and Rotarians raising funds for this essential world health cause.
I know with your expertise and the assistance of Rotary fundraising a vaccine will be produced to eliminate this insidious threat to human health.

-Roger Emmerson
Rotary Club of Hope Island

Malaria Vaccine Project

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THANK YOU ROTARY CLUB OF SURFERS PARADISE AND ROTARY CLUB OF MERMAID BEACH

On 11 February a special event was held at the Institute for Glycomics to recognise the valuable contribution of the Surfers Paradise Rotary Club and Mermaid Beach Rotary Club to the malaria vaccine project. The event followed a meeting of the Malaria Vaccine Project Committee who were able to meet with the representatives of the clubs.

The Rotary Club members hosted by Professor Michael Good and Dr Danielle Stanisic were given a tour of the laboratory. Following the tour a morning tea was held at which Rotary Club of Surfers Paradise President Adrian Smallacombe and Bill White on behalf of the club spoke of their support for our project. Bill White presented the Institute with a cheque from the club for $8000.
Prof Good thanked the Rotary Club of Surfers Paradise for their tremendous support. He mentioned especially the two race days which were held in 2018 – 19 and noted the effort required to run those functions. He also expressed thanks for Rotary's continuing efforts on behalf of the project.

The Malaria Project was raised by PDG Graham jones on a visit to the Rotary Club of Mermaid Beach. Members of the club attended the event at the Institute, including Ghana born Dr Robert Mensah, who was very interested as Ghana presents a large malaria problem. A cheque for $5,000 was presented by the President of Rotary Club of Mermaid Beach, Cliff Harmsworth.

A big thank you to Surfers Paradise Rotary Club and Mermaid Beach Rotary Club for their generosity to the Malaria Vaccine Project.

ROTARY CHARITY RACE DAY—12 OCT 2019

On the 12th of October the Rotary Club of Surfers Paradise held its 17th annual charity race day.

Some 250 people attended this gala occasion which was held in the Events Centre at the Gold Coast Race Club, Aquis Park. The Surfers Paradise Rotary Club has previously supported our Project and once again they graciously invited the Malaria Vaccine Project Committee to join with them in arranging the event.

The Steering Committee composed of Bill White and Bert Shenko from the Surfers Paradise Rotary Club, Regina Tucker from the Griffith University Club and Laraine Brennan and Gerard Brennan from our Committee carried on their good work from the previous year.

On the day the Events Centre was beautifully decked out and made a great impact on entry to the venue. Unfortunately heavy rain continued to fall as we made our way to the tables and not long after the local races were cancelled. Fortunately great television coverage was available of races being conducted at other venues and betting facilities were available for all those races. A sit-down luncheon including scrumptious desserts was available from a buffet.

The MC for the day was Russ Walkington who provided an informative commentary and kept the proceedings moving efficiently.

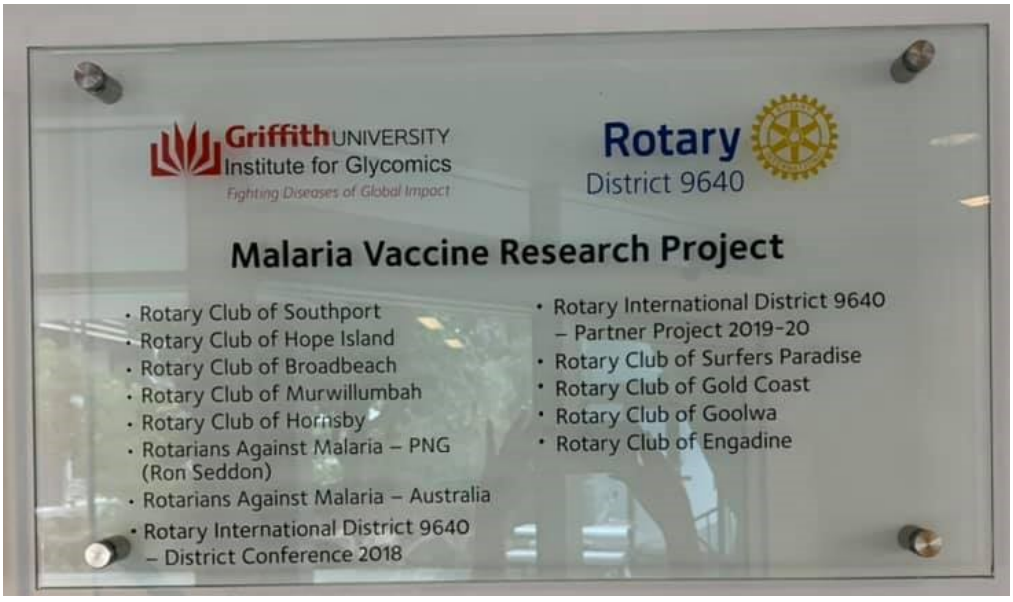
Prizes were awarded for the best dressed male and female and the best hat. In addition there was a fashion parade featuring beautiful creations by Liz Clift International Spring Collection. Every guest received a gift voucher from Liz which was appreciated by all the ladies.

A live auction of several items was conducted together with a raffle with multi draws and exciting prizes. Our thanks to the sponsors who supported this event with the donation of items and prizes.

Proceeds from the day were dedicated to our Project and drought relief.

We are already in the planning stages for another Race day this year and look forward to working with Surfers Paradise Rotary Club and our donors again.

Gerard and Laraine Brennan



IT'S ON THE BOARD!

We are pleased to acknowledge the additions of the following Clubs to the Malaria Vaccine Research Project board at the Institute for Glycomics:

- Rotary International District 9640—Partner Project 2019-20
- Rotary Club of Surfers Paradise
- Rotary Club of Gold Coast
- Rotary Club of Goolwa
- Rotary Club of Engadine

MBA LAWYERS JOIN THE FIGHT AGAINST MALARIA

This year will be MBA Lawyers 50th anniversary. They have longevity and they are highly respected on the Gold Coast and beyond. However, they are much more than that as they have a human arm that reaches out to the community through various initiatives and contributions to local groups.

"I cannot imagine more than 400,000 children born into this world every year without any hope of ever walking, kicking a soccer ball or going to school"

To celebrate their golden anniversary they have become a major corporate sponsor of the Malaria Vaccine Project (MVP)!!

The sponsorship was launched at the Institute for Glycomics (Griffith University) on March 11 when MBA partners, the MVP Committee and senior officers of the Institute met to seal the partnership. It also provided a special opportunity for MBA personnel to experience the malaria research first-hand from Professor Good, Dr Stanisic, and Institute Director Professor von Itzstein.

Partner Anton Richardson, himself a Rotarian, captured the moment when he said, "We have always been community-minded but we wanted to take on a larger humanitarian project that would impact people's lives and build new hope. The Malaria Vaccine Project has all the hallmarks for that because I cannot imagine more than 400, 000 children born into this world every year without any hope of ever walking, kicking a soccer ball or going to school. I am thrilled and very grateful to all of the MBA Lawyers Partners and my colleagues for endorsing this proposal.

MBA Lawyers will start their sponsorship by dedicating funds raised at their "Anniversary Dinner" to the malaria research taking place at the Institute. However, their goals are more extensive than fund raising. Clayton added, "We'd like to encourage other corporate groups at the Gold Coast to get behind this malaria vaccine, which has been created at Griffith University right here on the Gold Coast. We see ourselves as a lighthouse for a corporate consortium that will make this history-making scientific endeavour a reality."

Graham Jones, Chair of the Malaria Vaccine Project said, "Our Committee welcomes MBA Lawyers as a major corporate sponsor for this project and is excited by its passion to bring other corporate sponsors on board. The timing is perfect as we envisage clinical trials beginning to save lives in endemic countries by 2021, providing we can meet our $2 million target to complete the Australian version of the trials this year."

Malaria Vaccine Project

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OUR PARTNERS

Rotary District 9640

Griffith UNIVERSITY Institute for Glycomics Queensland, Australia

Rotary | Rotary Australia World Community Service

RAM

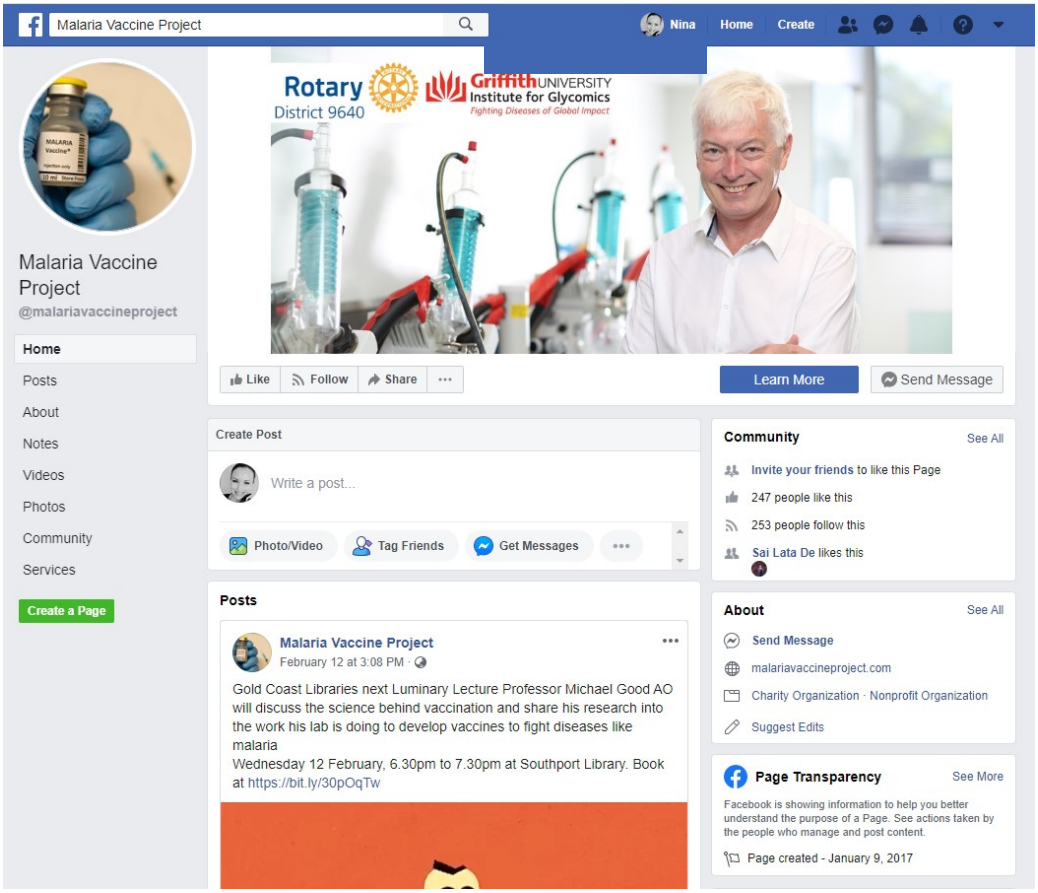
Rotarians Against Malaria

ZARRAFFA'S COFFEE

MBA LAWYERS

WE'RE SOCIAL!

Facebook.com/malariavaccineproject/



NEWS AND EVENTS

SAVE THE DATE: ROTARY CLUB OF HOPE ISLAND BLACK TIE EVENT
SATURDAY 6 JUNE 6:30PM FOR 7:00PM