NEWSLETTER REPORT

10th December 2015

WFP - founded in Warsaw, Poland, 1960

From the President's Desk

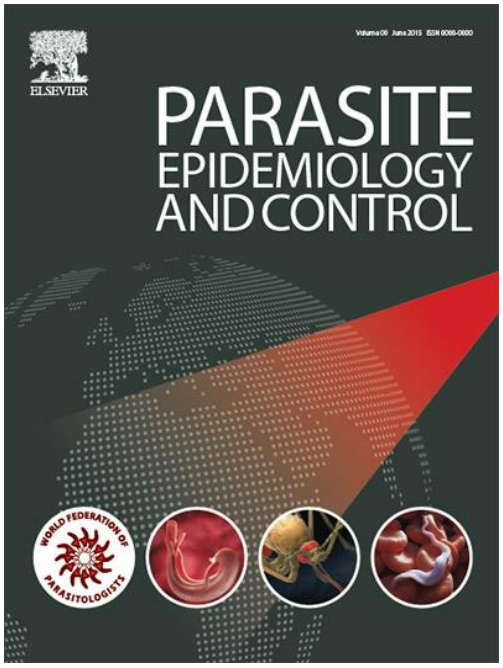
Today is a special day for parasitologists all over the world, when the Nobel Prize in physiology or medicine is presented to Satoshi Ōmura, William Campbell, and Tu Youyou. The Nobel Committee has chosen to acknowledge some of the most important breakthroughs in the fight against parasites. These are the diseases that WFP members around the world are dedicated to fight and it feels as if we are all getting a small share in the joy that Professors Tu, Campbell and Ōmura must be feeling right now. We have dedicated part of this newsletter to a presentation of the three Nobel Laureates.

2015 was also the year when WFP launched our journal, Parasite Epidemiology and Control published by Elsevier. Apart from its scientific value we also hope the journal will improve communication within WFP. Thus, the newsletter you are reading at present will be hosted on our journal website and linked to the WFP website. In addition, the newsletter will continue to be circulated to members via the member societies. Let us get used to this means of communication, which will shorten the distance between parasitologists. You will find more details about the journal later in the newsletter.

The newsletter also includes an important announcement from the Korean LOC about change of dates for the next ICOPA in 2018. Please take careful note of this.

As we are approaching the end of an exciting and challenging year I would like to send you the season's greetings and wish you a happy and prosperous New Year.

Jørgen Kurtzhals



Parasite Epidemiology and Control

We are extremely happy to announce the launch of the new journal of WFP, Parasite Epidemiology and Control, published by Elsevier with Professor Marcel Tanner as editor-in-chief and managed by executive publisher Dale Seaton.

"By launching our new journal WFP is providing a new platform to enable parasitologists to communicate their work on parasitic infections of humans and animals, including disease etiology and surveillance, drug resistance and geographical spread.

According to Editor-in-Chief Dr. Marcel Tanner, Professor of Epidemiology and Parasitology at the Swiss Tropical & Public Health Institute (Swiss TPH), parasites are still very important to human and animal health and have a variety of impacts.

Parasites have complex and biologically fascinating life cycles, making it tricky to target the diseases using drugs and vaccines. Addressing parasitic diseases globally requires a view of the whole knowledge value chain, from understanding basic biological processes to applying intervention methods.

"This new journal aims to bring all the elements of this value chain together, not only looking at basic elements but also control in health and social systems," said Dr. Tanner. "It's not just another journal; this is really filling the niche as a platform to approach parasite epidemiology and control differently.""

Please read more about the journal through the link: https://www.elsevier.com/connect/publishing-about-parasites-to-support-disease-prevention.

Editor-in-chief Marcel Tanner obtained a PhD in medical biology from the University of Basel and a MPH from the University of London. He was Director of the Swiss Tropical and Public Health Institute from 1997 to 2015 and continues as Professor and Chair of Epidemiology and Medical Parasitology at the University of Basel and at the Federal Institute of Technology. He will also be president of the Swiss Academy of Sciences from 2016 onwards.

Since 1977, his research has ranged from basic research on the cell biology and immunology on malaria, schistosomiasis, trypanosomiasis and filariasis to epidemiological and public health research on risk assessment, vulnerability, health impact and district health planning. His research, teaching and health planning expertise are based on substantial long term experience from working in rural and urban areas in Africa (mainly Tanzania, Chad, Burkina Faso and Côte d'Ivoire) and Asia (China, Thailand, Laos). He was co-investigator and coordinator of the first African malaria vaccine trial in 1992 and participated as co-principal

investigator in several major intervention trials on malaria (iron supplementation, intermittent preventive treatment) and schistosomiasis. Besides research, capacity building was a main interest as reflected in the establishment of the Ifakara Health Institute in Tanzania. He has published extensively in many fields (>600 original papers). He is also a consultant on communicable diseases research and control, health systems strengthening and capacity building in various national and international agencies/bodies and in boards/committees such as e.g. WHO/STAC-TDR, Wellcome Trust, DNDi, NITD, INCLEN-Trust and INEPTH

The WFP thanks and congratulates Professor Tanner on his appointment as EiC of Parasite Epidemiology and Control.

ICOPA 2018 – important change of dates: Daegu Aug 19-23, 2018

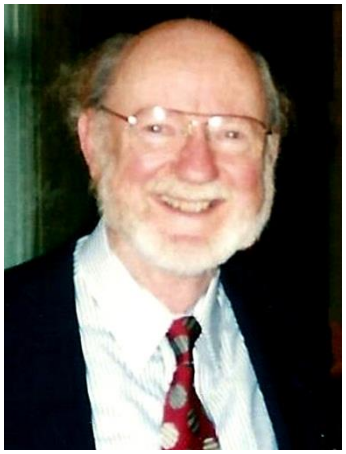
The Korean LOC has decided to hold the ICOPA XIV at the Convention Center in Daegu from Aug 19-23, 2018. The LOC explains the move from the previously announced dates as follows: ICOPA has traditionally been held in August. It is believed to be one of the most convenient times for global participants to attend ICOPA. You may enjoy the academic conference and for those on summer holidays combine the visit with your colleagues and families in South Korea in an exotic Asian cultural atmosphere.

Tai-Soon Yong, Chairman of the Korean LOC

Nobel Prize in physiology or medicine

The Nobel Prize in physiology or medicine 2015 was shared by Professor Tu Youyou (for her discovery of the artemisinins) and Professors William C Campbell and Satoshi Ōmura (for their discovery of ivermectin). The selection of the three laureates was obviously well-deserved given the impact of their discoveries in human and animal health, but also shows a willingness to focus on diseases of the poor and underprivileged. This sends a strong signal to the scientific world about investing resources and intellectual power in the needs of people, who tend to be forgotten in the halls of fame and honour. WFP wishes to mark this event by a presentation of the prize winners (see below). Professor Guadalupe Ortega-Pierres and Professor Kiyoshi Kita have written about their colleagues, William Campbell and Satoshi Ōmura, whom they have known for many years. We thank them for giving us a unique personal insight into their work. I have also written an expose below on Professor Tu Youyou after speaking with close colleague Professor Louis Miller.

Presentation of Professor William C Campbell on the award of the 2015 Nobel Prize in Physiology or Medicine by MG Ortega-Pierres, Department of Genetics and Molecular Biology, Centro de Investigación y de Estudios Avanzados, Mexico.



William C. Campbell was awarded and shares half of the Nobel Prize 2015 in Physiology or Medicine with Satoshi Ōmura, for their work, in discovering avermectins, the macrocyclic lactones produced by *Streptomyces avermitilis* – later named *S. avermectinius* – which are an effective therapy against infections caused by roundworm parasites. For a long time, there was limited progress in developing well-functioning therapies for parasitic diseases such as river blindness (caused by *Onchocerca volvulus*) and lymphatic filariasis (caused by *Wuchereria bancrofti*, *Brugia malayi*, and *B. timori*) and these were neither completely safe nor effective. This situation was radically changed by the discoveries of avermectins made by Ōmura´s group and then tested in animals and humans by Campbell´s research group. Under the agreement with the Kitasato Institute in Japan, Professor Campbell acquired bacterial broths from Ōmura's cultures and explored and chemically characterized the effective components of the preparation, in particular Avermectin B1. Professor Campbell subsequently identified the antiparasitic activity of these agents and demonstrated activity against a variety of parasitic worms in domestic and farm animals. His principal contribution was to play a major role in the development of ivermectin, a new and giant step in the control of parasites that cause infections in humans. The discovery and development of ivermectin through the efforts of Professor Campbell´s group at Merck & Co. and scientists at the Kitasato Institute has been hailed as one of the greatest medical achievements of the twentieth century. Merk & Co., Inc., through the creation of a special operational program, the Mectizan Donation Program, has been providing this drug free of charge for the treatment of river blindness and will continue to do so for "as long as it is needed", a pledge that has been honored by this company. In this context, the Onchocerciasis Elimination Program of the Americas (OEPA) began in 1992. Now Colombia, Ecuador and Mexico have been declared free or river blindness by the World Health Organization in 2013, 2014 and 2015 respectively. Professor Campbell has also made important contributions in the field of *Trichinella* research in the areas of immunology, experimental infections and efficacy of different drugs against this parasite. The book "Trichinella and trichinosis" published in 1983 and edited by Professor Campbell has been one of the reference books for scientists working with this interesting parasite. William Campbell is still a very active man, and besides his scientific work, he plays ping-pong, he likes paddling a kayak in the morning when "it's serene and quiet on the lake" and also likes painting. In a recent interview he pointed out that, "the greatest challenge for science is to think globally, think simply and act accordingly. It would be disastrous to neglect the diseases of the developing world. One part of the world affects another part. We have a moral obligation to look after each other, but we're also naturally obligated to look after our own needs. It has to be both." This shows Professor Campbell´s great humane attitude and many of us are fortunate to have met him and to have had the opportunity to share with him his scientific experiences and kindness.

References:

Campbell, WC. 2005. ILAR. 46, 352-356.
Campbell, WC. 2012. Current Pharmaceutical Biotechnology. 13, 853-865.
Meet Ireland´s new Nobel Laureate. William C Campbell. 2015. The Irish Times. D. Ahlstrom Ed.
Ōmura,S. and Crump,A. 2004. Nature Reviews. Doi:10.1038/nrmicro1048.
Onchocerciasis. World Health Organization. Fact sheet No 374. Updated March 2015

"The 2015 Nobel Prize in Physiology or Medicine - Press Release". Nobelprize.org. Nobel Media.AB.2014.Web.14Oct2015.
http://www.nobelprize.org/nobel_prizes/medicine/laureates/2015/press.html
Trichinella and trichinosis. Ed. William C. Campbell. Plenum Press New York and London
Doi:10.1007/978-1-4613-3578-8
World Health Organization. Neglected Tropical Diseases. October 2015.

Presentation of Professor Satoshi Ōmura on the award of the 2015 Nobel Prize in Physiology or Medicine by Kiyoshi Kita, Graduate School of Medicine, University of Tokyo, School of Tropical Medicine and Global Health, Nagasaki University, Japan.

Satoshi Ōmura, The Kitasato Institute, has long been one of the world's leading exponents of discovering useful compounds produced by naturally occurring microorganisms. Specializing in bioprospecting in soil samples from Japan, Prof Ōmura pioneered an innovative joint research project with the Merck, Sharp & Dome Research Laboratories (MSDRL) in 1972. He extended his ongoing work to cultivate thousands of microbes, isolated under various conditions using novel techniques, and selected the bacteria with the most unusual shape and color. In addition, he studied the antimicrobial activity of the substances produced by the selected microbes and sent the microbes along with the data for their antimicrobial activity to MSDRL. Through this collaboration, *Streptomyces avermectinius* (*S. avermitilis*) was discovered from a soil sample obtained near the golf course at Kawana. This bacterium produces a compound with potent anthelmintic activity, the novel compound "avermectin". The dihydro derivative "ivermectin", has freed hundreds of millions of people throughout the tropics from the ravages of onchocerciasis and lymphatic filariasis and other diseases including scabies. It should be noted that other than *S. avermectinius*, no species producing a compound superior to ivermectin has been found, and it is the only microbe that produces avermectin. To collect soil samples, Professor Ōmura always carries plastic bags and a spoon with him. In addition to avermectin, he and his group have discovered more than 360 novel compounds from microorganisms including herbimycin A, cerulenin and atpenin A5. Some of them have been developed for clinical use such as rokitamycin. Considering his great accomplishment, it is no surprise that Professor Ōmura was awarded the Nobel Prize. He encourages us by saying; "Discovery is one of those that come only to the prepared mind. Don't give up halfway". Finally, I would like to remind you that current studies suggests that ivermectin may contribute to malaria elimination by reducing the survival of mosquitoes that feed on a person treated with ivermectin.

References

Avermectins, New Family of Potent Anthelmintic Agents: Producing Organism and Fermentation. Richard W. Burg, Brinton M. Miller, Edward E. Baker, Jerome Birnbaum, Sara A. Currie, Robert Hartman, Yu-Lin Kong, Richard L. Monaghan, George Olson, Irving Putter, Josefino B. Tunac, Hyman Wallick, Edward O. Stapley, Ruiko Oiwa, and Satoshi Ōmura. Antimicrob. Agents Chemother. 1979, 15:361-367

Ivermectin: panacea for resource-poor communities. Trends in Parasitol. 2014, 30, 445-455
Establishment of the Ivermectin Research for Malaria Elimination Network: updating the research agenda. Carlos J Chaccour, N Regina Rabinovich, Hannah Slater, Sara E Canavati, Teun Bousema, Marcus Lacerda, Feiko ter Kuile, Chris Drakeley, Quique Bassat, Brian D Foy and Kevin Kobylinski. 2015, Malaria J. 14:243 DOI 10.1186/s12936-015-0691-6

Presentation of Professor Tu Youyou on the award of the 2015 Nobel Prize in Physiology or Medicine by Jørgen Kurtzhals based on conversation with Louis Miller.

The work behind and leading to the award of the Nobel Prize to Professor Tu Youyou has been presented in the media as a kind of enchanted fairy tale story; this is far from the case and underscores the rigour and scientific excellence of the work. The discovery of the artemisinins was underpinned by a clear scientific path of discovery starting with identification of a significant health problem and formulation of a number of specific research questions. With that came a literature search, a series of experiments identifying the lead compound, and clinical trials documenting efficacy and safety. With the identification of artemisinins came a key scientific discovery of global significance. Its discovery heralded numerous high profile research projects spanning chemical, clinical and public health areas, and major policy changes influencing the highest political levels which turned the artemisinins into a game changer in malaria control.

This being said, the story is quite unique and fascinating. The problem of growing resistance to chloroquine led the Vietnamese government to contact China's leader, Chairman Mao, in the mid 1960'ies. It was he, who mandated the scientific working group Project 523 (initiated May 23, thus the name) to search for alternative antimalarial drugs in 1967, showing the impact politics had on science in China during the Cultural Revolution. However, within two years, poor progress was made and it was only when Professor Tu Youyou of the Institute of Chinese Materia Medica joined Project 523 that the work began to focus on the well-known Chinese herb, *Artemisia annua*. Professor Tu's literature search was also unique. She studied ancient Chinese literature dating back more than 1500 years and realised that the active 'anti-fever' compound of *A. annua* was temperature sensitive and had to be extracted at low temperature from the leaves of the plant. Correct extraction led to a compound with strong antimalarial effect in experimental malaria in mice and monkeys. In a politically supported project, Professor Tu Youyou subsequently tested the compound, then named Qinghaosu, in a human clinical trial in the Hainan Province of southern China.

Finally, she purified the active ingredient, which was identified showing a unique chemical structure. Artemisinins are peroxides and thus represent a paradigm shift in anti-malarial therapy, which had until then been based mostly on quinolones. Artemisinin was subsequently modified chemically to generate artesunate, artemether, dihydroartemisinin and other derivatives that are now, in combination therapy, the main antimalarial drugs worldwide.

Louis Miller told me how he and Xin-zhuan Su had started in 2007 to search for the scientists responsible for the discovery of artemisinin. At the time of Project 523 China was in the middle of the Cultural Revolution and scientific work and publication had been abandoned. For that reason, Professor Tu Youyou had never published her findings, and it required meticulous search of the protocols and minutes of Project 523 to discover her prominent role. As stated by Lou Miller: 'The award of the Nobel Prize to Tu Youyou is a strong recognition of Chinese, herbal medicine and

recognition of modern non-Western medical science.' Yet, it is sad that the importance of Professor Tu remains controversial in her home country – despite a number of certificates and awards. Lou Miller and Xin-zhuan Su hope with publications in Chinese languages, to convince scientists that she truly deserves to be credited with the discovery of the artemisinins.

References:

Miller LH, Su X. Artemisinin: discovery from the Chinese herbal garden. Cell 2011; 146: 855-8.

Tu, Y.Y. (1981) Fourth Meeting of the WHO Scientific Working Group on the Chemotherapy of Malaria: TDR/CHEMAL-SWG (4)/(QHS)/81.3 (Beijing, China).

"Youyou Tu - Facts". Nobelprize.org. Nobel Media AB 2014. Web. 22 Nov 2015. <http://www.nobelprize.org/nobel_prizes/medicine/laureates/2015/tu-facts.html>

Prize to WFP facebook administrator Sara Canavati: 2015 Social Media Awards: Malaria Heroes

WFP is on Facebook and recently passed member no. 10,000. The founder of the WFP Facebook group, Christopher Haggarty-Weir, and one of our administrators, Sara Canavati, were shortlisted for the 2015 Malaria Social Media Award (http://www.socmedawards.com/malaria2015/). Sara went all the way winning the Asia-Pacific category. Here, Christopher interviews Sara on the occasion. The full interview can be found on http://mostlyscience.com/2015/11/an-interview-with-dr-sara-canavati/.

Christopher Haggarty-Weir: Congratulations on winning the 2015 Malaria Social Media Award in the Asia-Pacific category. What is the background to your nomination in the first place? (I.e. who nominated you and how do you fit into the Asia-Pacific category?).

Sara Canavati: The nomination is for individuals who use social media to promote and showcase the fight against malaria in Asia. I have actively collaborated with the Asia Pacific Countries in networking for malaria elimination. Sharing lessons learned resources, training, concepts and ideas between and among country partners.

I am quoting APMEN Here: "Sara is a champion promoter of malaria elimination activities in the Asia Pacific region, and particularly her project work in Cambodia […] Sara regularly shares her own and other colleagues photos and tweets that relay the message of 'a malaria-free Asia Pacific by 2030'. She is a great example of when technical expertise combines with advocacy for malaria elimination. Deserving of a follow! #MFAP2030" - APMEN Secretariat 2015-06-12

CHW: So in terms of social media and malaria, what exactly do you do to use social media to spread information pertaining to malaria?

SC: I started social media since 2008 when I did my M.Sc at the University of Oxford. I believe in malaria elimination and have a great passion for it. I co-administer the Facebook page of the World Federation of Parasitologists: https://www.facebook.com/groups/worldfederationofparasitology/

In my ten years working in South East Asia, I have also tried very hard to connect my colleagues to the existing sources on malaria advocacy (especially Facebook and Twitter); rather than "reinventing the wheel". I have personally invited my colleagues to the Facebook pages and Twitter accounts "ISGLOBAL - Barcelona Institute for Global Health", "The Shoklo Malaria Research Unit", "Asia Pacific Leaders Malaria Alliance - APLMA", and the "APMEN". Several hundreds of my colleagues have liked and follow these pages and they say they have greatly benefited from it. I have also added email lists from our Cambodian Research Consortium to the Malaria Elimination Initiative/Global Health Group, University of California, San Francisco updates on innovative tools for malaria elimination. These are only brief examples of what I have done. I strongly believe that malaria advocacy is crucial for malaria elimination.

CHW: How do you see yourself utilizing social media in the future to spread information about malaria?

SC: I would like to get more engaged in social media to introduce the concept of malaria elimination to non-malaria audiences and get their support and buy in.

CHW: Thanks for your time. One final question; how can those passionate about malaria eradication, who might not have formal qualification, help?

SC: In my opinion and through previous experience, by using social media scientists can benefit enormously from it in two ways: by promoting their own work and by staying updated in others work. Scientists can also stay updated on courses, meetings and other relevant events to their fields.

I have learned that social media is a very powerful tool to engage diverse audiences in malaria control and elimination. I have used it in audiences that are not in the malaria sciences and they have become interested in the cause and have also donated time and resources to malaria activities. I have also connected with many scientists though sharing their projects and publications on Twitter and Facebook. It is a very rewarding activity that I think all scientists should think of getting more involved in.

Reminders:

Parasites are forever, 12th European Multicolloquium of Parasitology. 20-24th July 2016 in Turku, Finland.