CDPC
COMBAT DISEASES OF POVERTY CONSORTIUM

CDPC Newsletter

The Combat Diseases of Poverty Consortium

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An Roinn Gnóthaí Eachtracha
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An tÚdarás um Ard-Oideachas

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The **Combat Diseases of Poverty Consortium** brings together scientific, academic, NGO and private sector expertise to build educational and research capacities for combating diseases of poverty. The CDPC aims to network researchers across geographical borders and disciplines, in order to foster a scientific exchange and opportunities for new collaborations. The **CDPC newsletter** serves as a platform for the exchange of information between CDPC partners and other interested parties.

Inside This Issue

Welcome to the sixth edition of the CDPC newsletter! The main features in this edition are the re-designed interdisciplinary CDPC seminar series and reports from two of our trainees, who have spent the summer gaining new life and research experience. The CDPC seminar series has started up again during this term and has already run two very successful seminars (reports on page 2). If you are in the Maynooth/Dublin area, we would be thrilled to see you at the upcoming CDPC seminars in December! If you cannot participate, but would like information about the seminars please feel free to contact me. Please also get in touch if you have an idea for a seminar topic and/or would like to suggest a speaker.

It is always highly interesting to hear about the experiences of our trainees, so don't miss James' report about his summer in Ireland (Page 3) or Nathan's account of his time in Kenya (Page 4). It is also always worth checking out the regular blogs by our current trainees at http://www.cdpc.ie/blog/.

The newsletter aims to enhance and facilitate communication within the CDPC, so if you would like to see your research or recent publications featured, **please send me your contribution for the next newsletter by the 19th of February 2010**! *-Dr. Martina Schröder*

Regarding Disease - CDPC Seminars

The interdisciplinary CDPC seminar series, which was introduced during the last term, continues this term in a slightly re-designed format. In order to further foster the interdisciplinary approach of the CDPC and its seminars, we have decided to introduce a seminar format which provides a shared platform for addressing the social and biological aspects of a particular disease. To this end, each of these seminars features presentations from a social scientist and a biological scientist on a shared topic. After the presentations, plenty of time is dedicated to an open discussion between the speakers and the audience about issues raised during their talks, which should (and has already proven to) inspire a friendly and inquiring conversation between the disciplines. We had an encouraging start to this seminar approach with two extremely engaging and open-minded speakers on the topic of tuberculosis, Prof. Greta Jones and Prof. Joseph Keane (see page 2). Our next seminar in this series will be dealing with scientific and social aspects of HIV transmission and we have managed to win two excellent speakers from the UK for this particular seminar:

Edwin Bernard (Writer and activist):
HIV Forensics: from the lab to the courtroom
Dr. Stéphane Hué (University College London):
Investigating HIV transmission: A molecular approach
8th December, 2-4pm, Hamilton Seminar room, NUIM

In addition to this interdisciplinary seminar, two additional CDPC seminars are scheduled for the same week, making this a very busy week for the CDPC and its friends:

Dr. Elina Oinas (University of Turku)
Postconstructivist/feminist debates on "materiality" and the ethnography of an HIV clinic in Guguletu (Cape Town)
9th December, 6:15 - 8:30 pm, North Campus CS 2, NUIM

Geoff Lane (International Committee of the Red Cross)
Humanitarianism Today
10th December, 2-3 pm, North Campus CS 1, NUIM

Contact: Dr. Martina Schröder (Martina.Schroeder@nuim.ie) or Hayley Coristine (Hayley.Coristine@nuim.ie)

Regarding Tuberculosis: Social/Scientific Perspectives

The 2009/2010 CDPC seminar series 'Regarding Disease: Social/Scientific Perspectives' began with a seminar on Tuberculosis, which took place on the 6th of October. Tuberculosis is still a major health problem in the developing world and increasingly re-emerges in developed nations, where the disease was believed to be largely eradicated. The seminar featured the medical historian Professor Greta Jones from the University of Ulster and Professor Joseph Keane from Trinity College Dublin, whose lab conducts basic biomedical and clinical research on TB. His lab is located in St. James' Hospital, which offers a unique opportunity for developing patient-inspired research questions and for bench-to-bedside translational research. During his talk, Prof. Keane was therefore able to present several interesting case studies illustrating the recent spread of, increasingly drug-resistant, TB in Ireland. It is well known that immunosuppression can lead to the re-activation of latent TB in patients, and Prof. Keane's group is now investigating a potential link between Vitamin D deficiency and the reactivation of TB. Vitamin D deficiency might be a significant issue for people with darker skin tones who have settled in Ireland with its lack of sunshine and excess of dark and wet days…

While Prof. Keane was mostly concerned with TB as a current global health problem, Prof. Jones provided a historical perspective of TB in Ireland: In most of continental Europe and Britain, the TB epidemic peaked around the 1870s and was in decline from the end of the 19th century. In Ireland, however, the epidemic didn't reach its peak until the early 20th century when it began to decline, but stayed comparably higher even in the 1950s, when therapeutics for TB became available. In her talk, Prof Jones discussed various factors that could have contributed to the delayed pattern of the epidemic in Ireland. These included the nutrition and living conditions of the population and public health attitudes. Prof Jones suggested that a link might exist between the delayed onset of industrialisation and urbanisation in Ireland and the delayed pattern of the epidemic. We would like to thank both speakers for making the first interdisciplinary CDPC seminar in this series such a success with their engaging presentations and their openness to embrace the interdisciplinary approach of the seminar. If this summary has sparked an interest in or further questions about the subject, selected publications by both speakers are still available for download on the CDPC's Moodle interface (open to all NUIM users). Please also keep an eye out for the announcements of upcoming seminars in this series!

Joe Keane's website:
http://www.tcd.ie/IMM/translational_bioscience_2003_2008/dr_keane.php
Greta Jones' website:
http://www.arts.ulst.ac.uk/schools/history_intern/staff/jones_g.htm

Regarding Disease: Food for Thought

The second seminar in the 'Regarding Disease' 2009-2010 series was given by Dr Steve Collins, who is a medical doctor specialised in nutritional health and a respected academic. He delivered a very informative seminar on different aspects of malnutrition and on effective and sustainable approaches to overcoming it in developing countries. Steve is the co-founder of Valid International which developed the Community-based Therapeutic Care (CTC) model in 1998, in collaboration with Concern. Valid International has been a key player behind the expansion of CTC that uses ready-to-use foods (RUFs) for the treatment of malnutrition. RUFs are highly fortified, nutrient-enriched pastes, with very low moisture content. They can be stored easily in tropical climates without spoiling.Valid International has helped to implement the CTC model in several African countries, including Malawi, Zambia and Ethiopia. The directors of Valid International then founded Valid Nutrition, a recognised charity in Ireland, which is dedicated to the development and production of high-quality RUFs for the scheme. Valid Nutrition produces the RUFs locally in African countries, which reduces the cost, stimulates the local economy and provides training and employment. CTC is now widely accepted as the intervention of choice for malnutrition and has been endorsed by the World Health Organisation. Further Information on the work of Valid International/Valid Nutrition is found on the CDPCs Moodle page (open to NUIM users) and on their websites. We are extremely grateful to Steve for meeting with students from Coláiste Lorcain in Kildare, who are undertaking a Young Scientist project on developing a nutritional bar for HIV infected people in Africa, and also for providing such food for thought in his seminar to CDPC members and associates!

http://www.validinternational.org/demo/ruf/about.php
http://validnutrition.org/index.php

Bioinformatics and Western Blots during an Irish summer

I have a research interest in zoonotic diseases and my postgraduate research project is based on Rickettsioses, a disease very little is known about in Kenya. Most incidences of the disease have been reported in tourists after visiting the Kenya game parks. My interest in the genomic aspects of the organism motivated me to apply for CDPC training to develop my skills in bioinformatics.

-provided by James Wainana
James is postgraduate student in Dr John Waitumbi's laboratory in Nairobi, where he is in the process of finishing his M.Sc. James trained with the CDPC at NUI Maynooth from August to October 2009.

I arrived in Ireland in early August and was first welcomed by Hayley Coristine who, with her warm personality, epitomizes the CDPC in every sense. I then met Dr. Noel Murphy, who set me up with the required software to begin my bioinformatics lessons. After a while I understood that the key to utilizing bioinformatics is to first ask a simple biological question. What is really great about bioinformatics is the affordability of everything. A laptop and internet are the only investments you need, since most of the programmes are freely available. To me this was an eye opener: in bioinformatics we may have a tool that can reduce the cost of carrying out wet experiments, which is an impediment in research in Africa, especially for postgraduate students.

I worked with the rickettsiae genes for 17 kDa protein and rOmpB, which were the main genes I had investigated in my research project. One of the highlights of the training was meeting Thomas Dunne who had been working with Joe Clowry on his project for the Young Scientist competition. Thomas had mined plasmodium gene sequences which were postulated to be plasmodium *falciparum* specific genes. It was fantastic hearing Thomas explain how he had mined his sequences, and to see the small programmes he had designed to facilitate his analysis. It is great that such a young lad has dedicated his talents to the fight against malaria. I also headed to UCD for a conference on '*Challenges in Veterinary and Human medicine'*. It was great seeing bioinformatics skills used in actual research projects. Then, I spent a few weeks in Dr. Martina Schroeder's lab, working on the Hepatitis C core protein, and learnt how to carry out western blot assays and cell cultures. Martina was a wonderful teacher, she is not only great at imparting skills, but she also taught me how to use consumables economically which is really important, since a little can go a long way. For my whole stay I had my desk in her lab reading room and she made me feel part of her lab family. I loved the lab meetings, where I got to learn a lot on what everyone else was doing. The Friday nights at the Roost pub cannot go unmentioned, I really loved it: the warm meals after a long day, when everyone from the lab got around the table and we could relax. Joe Clowry was kind enough to host me at his house before we went to visit some local secondary schools. Joe's house is located in the heart of rural Ireland. In the morning, the mist rises up the hills, and in the distance sheep dot the landscape. It's a place where you can't help but fall in love with Ireland; it remains engrained in my mind. At a school in Co. Wicklow, we met with transition year students as we participated in making an Irish Aid film. It was interesting to see that they were so conscious of global issues such as food security. The debate on the question of HIV/AIDS was also interesting: most of the students agreed they were aware about HIV/AIDS, but they were not well informed about the disease and other poverty-related diseases. On one of my last days, Noel took me on an 'Irish safari' to Howth. The day had typical Irish weather: the blowing wind, the drizzle and the sea was spitting all the sea water on my face. What more can you ask for?

I am forever grateful to the 'CDPC family': Noel and Martina for the many skills they imparted in me, Joseph for giving me the opportunity to meet those wonderful and talented students, and Hayley for looking after me like a 'big sister'. I would also like to thank Dr. John Waitumbi, for supporting me to participate in this training opportunity. As I boarded the flight to Kenya, I reflected on all that I had learnt, and I knew then that a seed had been planted in me. It was now my responsibility to invest all that I had learnt, not only in myself but also to the benefit of my peers. May the 'luck of the Irish' always be with the CDPC and the Irish wind blow behind them.

James in Howth on his Irish Safari.

James with students at Colaiste Bhride in Co. Wicklow.

James with his Irish 'lab family': Daniela, Anthony and Ruth.

Read more about James' stay in Maynooth: *http://cdpc.squarespace.com/blog/author/jameswainaina*

Research and Rugby in Kenya

Having returned home from my travels in Kenya a full 10 weeks ago, I have had time to look back and reflect on how I spent my time and the impact the experience has had on my perceptions and hence my understanding of the work carried out by the CDPC in the developing world. I was one of two students in the M.Sc. programme in Immunology and Global Health at NUIM who were chosen to spent three months in East Africa to carry out the research project that is an integral part of this degree, at one of the CDPC's partner universities in the region. Hence during the summer, I worked on my research project in the lab of Prof. Moses Limo at Egerton University in Kenya. During my travels I learnt so much, both inside and outside the laboratory. On the advice of Dr Noel Murphy and also the CDPC administrator Hayley Coristine, I made the choice early on in my trip to try and fully integrate into the local community. To do this I joined the local rugby team, Nakuru RFC, and in doing so quickly found myself absorbed into Kenyan daily life. During this time, my team mates introduced me to many new concepts and opinions, some similar and some not so much, which greatly enhanced my overall experience and knowledge of Kenyan life.

Within the laboratory, the primary aims of my research assignment were to identify and characterise a pathogenic bacterial species believed to cause diarrhoeal episodes in the local community. This choice of research assignment presented both my host laboratory and myself with an opportunity to gain a new insight into the local ecological environment. Using microbiological and biochemical methods we successfully identified *Aeromonas hydrophila*, and confirmed the presence of extra-chromosomal plasmids, which were found to confer resistance against two locally administered antibiotics. In addition to our work in the lab we attempted to discern the social causative factors contributing to the current problem. The reasons are of course many, ranging from poor general sanitation due to a population heavily burdened by urgent stress factors, including immediate food needs, financial stress, and ill health which in combination can lead to apathy in the individual towards their own health needs.

A primary causative factor widely discussed at the time of my departure was the rapid environmental change in the area in the last eight years. A steady decrease in rainfall has lead upland streams vital to the continuing existence of local populations to become more brackish, slower moving, and warmer, allowing for the increased proliferation of previously small numbers of bacterial species. Regarding the causes of decreased rainfall, the foremost reason being put forward is the destruction of the Mau forest in much of the upland Rift area by transient farming communities. On the basis of this commonly held opinion, a law has been passed giving all small farm holding settlers three months to vacate the region. The region is then to be replanted with trees in the hope of reversing the current effects. However, there is no guaranteed compensation, area for resettlement, or long-term planning for the evicted population. As part of our M.Sc. course Dr. Strong, Dr. Murphy and Dr. Mahon sought to extensively highlight the link between mass social upheaval and the rapid spread of disease, a possible example being the creation of 'internal refugees' (like in this particular case) in an already socially depressed region who will be highly susceptible to communicable diseases. The drought related problems have been highlighted in the international media in recent weeks and only confirm the invaluable work carried out by the CDPC in the region.

From my experience, I would say that the training and resources that the CDPC is currently providing are successfully targeting what is most needed: local expertise. I urge its continuation and extension of this work into PhD level. In finishing, I remain most grateful to NUIM and the CDPC for the opportunity to travel, study and work abroad. In particular, I would like to thank Prof. Moses Limo and his wife for their hospitality, Silas Kiruki for supervising my project and all his help and advice, the lab technicians Jessica and Wanoni, and Dr Noel Murphy and Hayley Coristine from the CDPC for organising my stay in Kenya. *–provided by Nathan Lawless*

Nathan taking water samples at the upper Njoro river (middle, pictured with two local drivers)

The Nakuru RFC in action.

Nathan together with an American student and a group of Massai.

Read more about Nathan's stay in Kenya: *http://cdpc.squarespace.com/blog/author/nathanlawless*