Report
UMSAEP

By Prof. David Fisher

Date of trip: 23 July 2012 to 6 September 2012

This report is structured according to the questionnaire contained in the UMSAEP exchange application document.

1. The objectives of the visit:
   a. The objectives of this visit were multifaceted:
      i. The main objective was to become proficient in the electrophysiological technique "patch clamping". This technique involves the manufacture of custom micropipettes, with tips of less than 0.5 microns. These pipettes are then positioned on the membrane of the TM4 cells with micromanipulators to measure the electrical parameters of selected ionic channels across the cell membrane. As this expertise and infrastructure is not available in South Africa, the establishment of a functional Electrophysiology laboratory at UWC would represent a South African niche area at UWC.
      ii. A second objective was to visit as many of the animal housing facilities in Missouri, recording and observing "best practice". This was crucial to the planning process for the future animal housing facility at the New Life Sciences Building.
      iii. Thirdly, I was to meet with Prof Ron Bienick in Rolla to discuss the implementation of the ‘LEAD’ programme at UWC.

2. Objective successes:
   i. The success of this visit was dependent largely on the support processes which was superbly set in place by Prof Rod Uphoff’s office: my air tickets were purchased by his office, transit between St Louis Airport and Columbia was arranged, as well as my accommodation. A rental car was also procured for the duration of
my visit. All of this provided the basis for a successful visit. (My thanks in this regard must also be extended to Rod Uphoff’s assistant Brenda Dennis).

ii. Secondly, my host, Prof Doug Bowles and his wife Yvette, were excellent hosts, always making me feel welcome. Doug Bowles was an excellent mentor in the art of “patch clamping” and his daily advice and discussion around solving technical problems were crucial to the success of the technical aspects of this visit. By the end of my visit we were routinely collecting data, and it was sad to leave at this point in the study. It is hoped that I would be able to duplicate this technique at UWC. In this regard, Doug Bowles has agreed to provide assistance via teleconference linkups and possibly coming to UWC for a research visit.

iii. The *Typha capensis* F1 methanol extract was tested on the TM4 cells. It was also good to re-establish collaboration with Prof Sesu Ganjam, an international reproductive scientist, who has eagerly agreed to collaborate and carry out further testing on the effect of this extract on endocrine, paracrine and autocrine functions of the Sertoli (TM4) cell. We are still awaiting the results of this series experiments.

iv. During my visit to UM, I was able to obtain extensive information on the various animal facilities Columbia, Rolla and at the St Louis University Life Sciences Center. I will devise a short Power Point presentation for faculty.

v. My visit to Ron Bienick was also very fruitful. I was hosted by Ron and his wife, Val, over the Labour day holiday weekend, and here I must applaud Ron and Val for preparing a wonderful dinner and breakfast and for inviting faculty from both the Maths and the hydroengineering faculties. This provided the opportunity to setup ties for possible future collaborations. Ron also arrange for the viewing of the Experimental animal housing facility at the MU Rolla Campus.

vi. Future Collaborations: In this regard I have also met with the director of Bioinformatics at MU, Prof Chi-Ren Shyu. He also intimated an eagerness to collaborate with SANBI and Computer Science. In this regard I have already contacted Prof Alan Christoffels. Collaborative ties were also established between Prof Robert S Aronstam (Chair of Biological Sciences, Rolla Campus), who has generously offered to provide exclusive developed cloning material on a pro bono basis to UWC Life Sciences researchers.

vii. I also want to thank Prof Jane Armer for inviting me to participate as an international research colleague in the Research project defense.
by her Post Doctoral and Post Grad students. Jane Armer also went out of her way to contribute in making my stay a memorable one.

viii. As an adjunct faculty member of the School of Health professions, I want to thank Dean Rich Oliver for his collegial support and friendship, which has extended over more than 10 years. I thank him for his invitation to participate in their leadership workshop, and other school activities. I am much indebted to his support over the years, and also for his contribution for making this trip such a memorable one.

3. **Aspects that could be improved:**

   i. The only aspect I have trouble with, and this is personal....not generic, is the lengthy airport inter-transit periods (Heathrow: 5 and 8 hours). The older I get, the more difficult it is for me to cope with this aspect. Yet in overview of the entire visit it is a small price to pay, and in retrospect should not be considered.

4. **How could the planning and preparation for your visit have been improved by UWC?**

   i. Leolyn Jackson and his team have done an excellent job. Whenever, I requested advice or assistance they were incredibly helpful.

5. **What is your overall assessment of the value of the UM / UWC Exchange Program?**

   i. The more UM faculty I meet the more I realize how both institutions could benefit by the exchanging of ideas. By and large both of our institutions struggle with the same issues, both at a UG and PG level. We can both learn much from each other. There are areas that UWC could certainly learn from UM, for example, UWC could learn immensely from UM in the realm of institutional branding. However, for this to occur we will need to formulize the interaction, and have these on a regular basis (perhaps biannually).

6. **If you could change any aspect of the exchange program, what would it be?**

   i. I would consider a series of calls starting as early as February. Secondly, UWC’s faculty research committees should prioritize HoD sanctioned applications ....Priority should be given to younger faculty who do not have international experience and collaboration. Hosts at
UM should be identified and clear goals on how the proposed visit could benefit each of the participants should be documented, especially with regards to growing proposed research collaboration. Once a staff member has been identified by the faculty as well as the associated host, a minimum of at least one transatlantic video conference should be mandatory between the host and the visitor. This interaction is more important for first time visitors than those with establish UM affiliations. The rest is process is in place: applications to serve at UM-UWC committee, etc.

7. Did you encounter any notable problems during your visit?
   i. None!

8. Assessment of the programme:
   i. The UM/UWC Exchange Program is invaluable to the development of both young and established scientists at UWC. Both the intellectual stimulation and the exposure to a superb scientific culture will have a positive long term impact on the scientific community at UWC. Another clear benefit of the programme is the opportunity to engage intellectually, culturally and scientifically with scientists of the highest calibre.

9. Next Exchange Visit:
   i. I have enjoyed my experience greatly at the University of Missouri, that as I’m writing this report, I am looking forward to my next visit. In the future, UM/UWC Exchange Program could perhaps investigate the possibility of sending supervisor and a postgraduate/research assistant on short visits to UM. This would be extremely valuable for gaining expertise to new/difficult techniques.

10. What did you like most about the programme?
    i. What is unique about this programme is that it provides the flexibility to plan short, medium and long term visits, which can be scheduled to conveniently dovetail with your other academic activities. It also gives the visitor the rare opportunity to meet up with some of the leading scientists in world as well as observing ‘best practice’ in laboratory, teaching and administrative areas. The transatlantic video facilities also allow for easy communication between the visiting

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A place of quality, a place to grow, from hope to action through knowledge
academic and students at UWC. This is especially advantageous in keeping contact with your post-graduate students while in MU.

11. Continuation of the UWC-UM exchange programme?

UM provides the benchmark all bilateral agreements between UWC and international universities. I wish to reiterate my previous sentiments: The exchange of ideas, both culturally and academically, are central to the ethos of individuals and institutions who want to be on the cutting edge of research, discovery and vision. The exchange program between the two institutions facilitates this process and attempts to prevent a detrimental introverted vision from developing. Each of my visits to UM has made life richer and scientifically more endowed. Once again I would like to echo my previous sentiments: visiting the world class research infrastructure at UM Biomedical Science department could be likened to a research oasis. I have no other option but to strongly endorse this programme.

Yours sincerely,

[Signature]

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