December 1st 2014

UMSAEP 2014

Report on my activities at Ellis Fischel Cancer Center Research Facility (currently known as Mizzou North) and the University of Missouri for the period of June 17th 2012 till July 13th 2014

To
The Director of the University of Missouri South Africa Education Program, Professor Rodney Uphoff and
The Deputy Vice Chancellor (Academic) at UWC, Prof Ramesh Bharuthram

Dear Prof Uphoff and Bharuthram

Firstly, I would like to thank you for availing the opportunity to participate in the UMSAEP program in 2014.

This was my second visit to the University of Missouri. In my previous visit in 2012, we set a research plan to investigate genes that plays an important role in lymphangiogenesis in patients with primary (congenital) lymphedema (LE) and are thought to contribute to the aetiology of secondary lymphedema.

In this visit, I tried to get feedback from Prof Armer about the research achieved so far by my research laboratory at the New Life Science Building of UWC. I also finalized the first draft of a manuscript for our pilot study. I had a very stimulating time with my enthusiastic host (Prof Jane Armer) and also had the chance to meet with other experts in the field of LE.
I arrived to Columbia (Missouri) on the 16th of June 2014. On the 17th of June I reported to Miss Brenda Dennis then visited the international office and met with Mr. David Currey, the assistant director of the international center at UM. During the visit, I was introduced to the activities of the center. I then proceeded to Ellis Fischel Cancer Center Research Facility (Mizzou North) where I met with Prof Jane M. Armer and Dr Bob R. Stewart. Following my first collaborating visit in 2012 in which we reviewed our data collection protocols and lymphedema research at MU, I planned and conducted a pilot study with breast cancer survivors and healthy controls, collecting salivary genomic specimens and medical histories through our MU-SA lymphedema network, by a lymphedema-certified nurse therapist (Mrs. Isla Muhl) who was trained in 2008 during the initial LE class at UWC in SA. In addition, I trained a UWC graduate student to carry out the DNA extraction and analysis. The preliminary results were very interesting single-study findings on lymphatic system-associated genetic mutations in these specimens. I brought this analysis to review together with Prof Armer and Dr Bob Stewart and they are helping in the production of the first draft of the joint publication which will report these findings. A time frame was set to generate the final manuscript of the work and we intend to submit this publication by end of December 2014 after a through revision by experts in the field. Furthermore, Prof Armer is selected as a guest editor for a special issue of a journal called *Current Cancer Therapy Reports* and I have accepted the opportunity to prepare this manuscript for publication in this special issue from the joint work we have done, due date January 2015.

A second special issue will be guest edited by Prof Armer in 2015 in *Journal of Personalized Medicine* and will welcome a joint publication
we are developing on the future implications of the genetic work on prevention, risk-reduction, and management of post-breast cancer lymphedema.

In addition, I had notified Prof Armer of a research planning meeting related to laying the foundation for a UWC-UM focus on a cancer niche; I have listed her as a collaborator and we hope this stream of funding may support the research continuing this line of investigation with a larger sample and further screening for genetic mutations related to the lymphatic system and development of lymphedema. A synopsis of our research will be presented in a Nonotechnology-Cancer Symposium to be held on December 4\textsuperscript{th} at UWC.

We also discussed plans for lectures.

We believe that the findings from the two waves of GWAS research at MU can be confirmed in a new study population in South Africa. The mutations identified in Cape Town pilot work can be examined in the archived and new specimens collected in Missouri.

Other activities included attending a presentation on anticancer therapies at Gran Cru restaurant on the evening of June 17\textsuperscript{th}. In addition, we attended a presentation on Medical Ethics at Ellis Fischel Cancer Center, this lecture was organized by Hospice Compassus on June 24\textsuperscript{th}. Furthermore, a social event (UM extension reception) was held on June 26\textsuperscript{th} at the Stother Lounge of the Memorial Union Building. This was a real chance to meet with active participants as well as the leaders of UMSAEP program.
On July 9th I presented my research on breast cancer to a group of breast cancer survivors (Breast Cancer Support group), this meeting was held at the Upper Crust Restaurant in Columbia.

The support of UMSAEP to South Africa in 2015 will help to move our collaboration forward and move us toward a major multisite grant application for further study of genetic associations in secondary lymphedema.

Thank you for your support

Sincerely

[Signature]

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