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Dear Council Members,

I would like to thank the ESC and the ESC Council on Basic Cardiovascular Science for helping me broaden my horizons in Cardiovascular research and explore further research opportunities in Cardiology.

I visited the lab of Prof Sebastian Kozerke, ETH Zürich and Kings College London. The goals of this group include developing and fostering the application of new Magnetic Resonance imaging methodology for assessing anatomical, functional and metabolic parameters of the cardiovascular system. Research strengths include:

- Reduced data acquisition methods
- Motion encoding and analysis
- Spectroscopy and metabolic imaging
- Dynamic nuclear polarization

I am a research fellow in Cardiac MRI at the German Heart Institute, Berlin.
Our centre has a long history and large expertise in cardiac MRI. My

particular topic of research focuses on the imaging of myocardial ischemia using a small animal model.

I was able to attend meetings with Prof Kozerke's doctoral students and post-docs in relation to their on-going projects. We were able to discuss how our research topics could be complimented and furthered. It was interesting to discuss the projects with those who have different scientific backgrounds. The interaction between the biomedical sciences, engineering and clinical disciplines was extremely useful.

During my own studies, we have developed a small animal model of ischemia-reperfusion that allows us to use MRI techniques to study the development of myocardial infarction and the effects of various treatments. The strengths of Prof Kozerke's group in the development of pulse sequences and spectroscopy, particularly in hyperpolarized ^{13}C spectroscopy, are particularly complementary to the aims of my research project.

I was able to participate in some of the ^{13}C spectroscopy experiments and learn further about the practicalities of these techniques and the techniques of the post-processing of the data. I learned about the process of dynamic nuclear polarization, and the biochemistry of the molecules used in the study of the cardiac metabolism. This technique is also used in the study of the metabolism of cancer cells, and it was thought provoking to discuss the changes found by those researchers whose focus is on oncology. I was able to share some of the small animal techniques that our group has developed in Berlin.

The group in London also has the capacity of multi-modality imaging, including FDG-PET. I was able to be introduced to this technology and consider how it may complement our ongoing projects.

The group is also involved in the application of their findings to patients, and it was useful to see how the basic science and applied science fields interacted in a large study group.

In addition, I was able to use the group's knowledge of pulse sequence development to deal with some of the challenges that we have had to deal with in other research projects in Berlin. Their availability to help with these issues, even by email or phone, is extremely useful.

We will continue our research cooperation. I plan to visit Prof Kozerke's lab again later this year to bring the information gathered from our experiments to combine them with the spectroscopic model that has been developed there. I completed courses on laboratory animal welfare and handling which will provide me with the necessary licensing to carry research in the UK. The combination of both combining the functional data from imaging with the metabolic data from spectroscopy will be extremely interesting and strengthen the data obtained from each technique.

I would like to thank Prof. Kozerke and his group for their assistance and kindness.

Yours faithfully,

Darach O h-Ici