Q&A with Arnulf Koeppen

How long have you been involved in FA research and what got you interested in FA?
I have been involved in FA research since 1975, beginning with a case of autosomal dominant ataxia. I found the great complexity of FA fascinating and worthy of study.

What led you to become interested in understanding the pathobiology of FA?
FA is not a disease of "linear genetics", meaning that frataxin deficiency does not cause uniform or straightforward abnormalities in tissues that are affected in FA. Frataxin deficiency causes a number of "downstream" protein abnormalities. Tissue samples from the repository that I run are an outstanding resource for the study of multiple FA-affected organs, including brain, spinal cord, eyes, nerves, heart, and pancreas. Insulin is produced by tissue islets in the pancreas. Without the donations from the patient community, none of this research would be possible.

What are the key findings in this paper, and what does it tell us about FA hearts that we did not know previously?
Hearts in FA may become fibrotic (stiff), hindering contraction. Endothelial-to-mesenchymal transition is a potential source of heart fibrosis. It differs from "scarring", which is also present in FA hearts.

Do these results suggest any new ways that FA cardiomyopathy might be treated?
Yes. Selected antihypertensives of the angiotensin-receptor 1 antagonist group may be effective in FA patients based on the pathology seen. The drugs irbesartran, losartan, and newer generation drugs are in this group, and are already on the market. However, several lots of these drugs have been withdrawn from the market due to contamination with cancer causing substances. Some are deemed safe.

Should patients change their cardiac medications based on this data?
Patients should not change their medications until a clinical trial with angiotensin receptor antagonists has been completed and demonstrated that these are effective in FA patients.

What are the next steps in this research?
Diagnose heart fibrosis early in the course of FA, even before heart disease is apparent. The method of choice is cardiac MRI with gadolinium enhancement (not yet widely available. Echocardiography as a routine diagnostic would be valuable in the FA population. Medical centers have begun using gadolinium enhancement in a more routine manner as a method for visualizing heart fibrosis, but patients should inquire with their cardiologists about access to cardiac MRI and payment by insurance companies.