

Abstract No. goug240

**Synchrotron FT-IR Analysis of Collagen Localization in Normal, Cardiomyopathic and Losartan-Treated Hamsters**

K. Gough and I. Dixon (U.of Manitoba, Canada)

Beamline(s): U2B

**ABSTRACT:** We are using infrared (IR) microspectroscopy in the study of dilated cardiomyopathy (DCM). Heart disease is often accompanied by the formation of scar tissue, which is actually the build up of various forms of collagen. The collagen is normally identified by microscopic examination of stained tissue. Alternatively, the collagen may be extracted from the homogenate of the entire heart to yield a total collagen content. However, both the disease and drug treatments can induce changes in molecular composition, cellular structure and organization, best examined in situ, on the cellular scale (i.e. micron scale). With the bright synchrotron source, it is possible to obtain good quality vibrational spectra, and hence detailed information about molecular structure and composition, from a 5 micron x 5 micron pixel area. With IR microspectroscopy of thin tissue slices from the heart, we can obtain a detailed map of the deposition and localization of collagen in model animals: the UM-X7.1 strain of Syrian hamsters. In cases where a collagen-reducing drug (losartan) was administered to the animals, we can assess the amount and type of collagen reduction achieved.

The U2B beamline at NSLS was used for two days in 1999 to obtain data for this project. Other data has been acquired at different beamlines, both at NSLS and at other synchrotrons. We are in the process of writing a manuscript to report the results of this research.