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Does Freezing Cartilage Affect the Structure of the Extracellular Matrix?

CBR member **Yang Xia**, of the **Department of Physics**, uses a variety of imaging techniques to study the microscopic structure of **articular cartilage**. In many of these experiments, the joint containing cartilage is not examined immediately, but instead is frozen until needed. Does freezing of the tissue affect its properties, and in particular the structure of the **extracellular matrix**? Xia and his team have addressed this question in their recent paper **Damages to the Extracellular Matrix in Articular Cartilage Due to Cryopreservation by Microscopic Magnetic Resonance Imaging and Biochemistry (Magnetic Resonance Imaging**, Volume 27, Pages 648-655, 2009). First author ShaoKuan Zheng is a Research Associate in Xia's laboratory, and coauthors **Farid Bader** and **Ilisar Itamar** are graduate students in the **Biomedical Sciences: Medical Physics** PhD program. They conclude that freezing can affect the concentration of a particular type of extracellular molecule, **glycosaminoglycans**, but that if **dimethyl sulfoxide** is added to the tissue, these undesirable effects are minimized. Xia's research is supported by grants from the **National Institutes of Health**.

SUMMARY

CBR member Yang Xia, of the Department of Physics, uses a variety of imaging techniques to study the microscopic structure of articular cartilage.

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