



**Imaging Biomarkers of Ewing's Sarcoma, Aneurysmal Bone Cysts, and Desmoids**  
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Cancer research dominates medical research journals and is absolutely vital given the amount of cancer cases that are diagnosed each year. Detection of tumors is critical, and radiologists (who interpret images of the interior portion of the human body) play an important role in pointing out areas where there is evidence for a tumor. Radiologists use established visual biomarkers that let them know what separates normal tissue from cancerous tissue. However, there always is a need for new and more definitive biomarkers in order to make detection, and thus diagnosis, more efficient and accurate.

This summer, I had the opportunity to work with Dr. Ronnie Sebro (Department of Radiology, Penn Medicine) on identifying MR (magnetic resonance) imaging biomarkers for Ewing's sarcoma, aneurysmal bone cysts, and desmoid tumors. These tumors are relatively rare in comparison to common tumors (breast cancer, prostate cancer, etc.), and as a result, radiologists still are looking for definitive indicators of these particular tumors.

This research was fascinating because the project itself was interdisciplinary, involving radiology, oncology, and epidemiology. In addition to the project, I learned a great deal regarding the entire process of detecting, diagnosing, and treating cancer, as well as delving into anatomy and physiology. The most exciting part about my PURM experience was that I was able to observe a professional radiologist interpret images in front of me and discuss his findings in front of weekly interdisciplinary panels related to cancer treatment for patients. Listening to medical professionals – radiologists, oncologists, pathologists, orthopedic surgeons, etc. – discuss the best method of treatment for particular tumors was a fantastic experience.

As this project nears completion, certain epidemiological trends and MR imaging biomarkers stand out. This experience has been incredible, as I have learned more than I could have imagined about so many different medical fields and gained critical insight into how medical professionals operate.