

Progress on our First Major Product: the NanoMRX™ II

The Team is in Full Swing

“The overarching mission for February has been to get the 9 Channel System up and running. Based on the data collected in December, the build was charted and the instrument was manufactured at Senior Scientific, and is now in final testing and optimization. We are delighted to be delivering this extraordinary device to our collaborators at MD Anderson.”

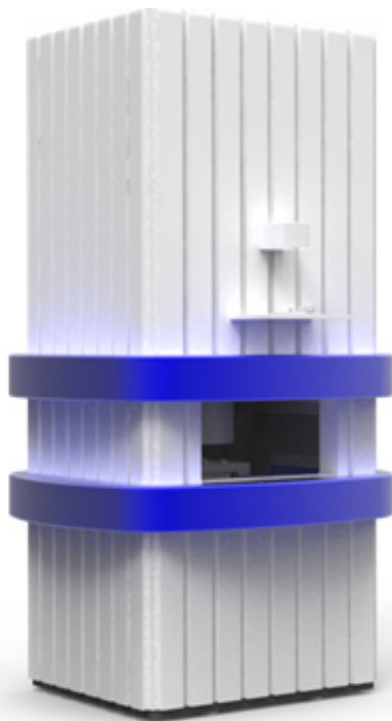
– GERALD GRAFE, PRESIDENT

Industrial Design for Beta Instrument is chosen

Based on function, but with focus on the technology, the concept from Lunar Design was chosen for the beta instruments. Key aspects are the safety, usability and a professional look for the highly regarded research environment of MD Anderson. The new NanoMRX™ II is the first 9-channel instrument that is being brought on line to establish preclinical applications.

Inside the blue sections are the magnetization coils. The panels cover the structural elements, including the liquid helium filled dewar which houses the highly sensitive gradiometers and SQUIDs. The sample stage has been automated for precision sample positioning, faster data collection times and ease of use. In addition, the optical imaging stage has been engineered to be inside the instrument and in the same plane as the sensors, providing a more robust method of creating optical image overlays.

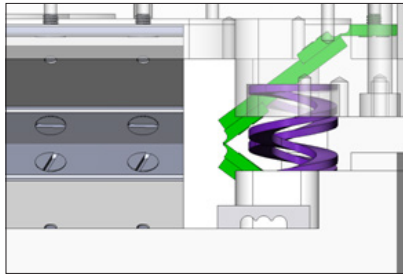
The “skins” are currently being manufactured this month based on Lunar’s elegant design.



NANOMRX™ II

Senior Scientific is dedicated to early detection, mapping and quantification of cancer and other human diseases. Our proprietary technologies and methods employ magnetic nanoparticles targeted towards cells associated with cancer and other diseases and provide the ability to detect these cells through highly sophisticated magnetic sensors.

Computer Controlled Pneumatic Stage on the NanoMRX™ II for MDA



Designing and installing the new computer controlled pneumatic stage is a huge step toward making the new NanoMRX™ II a user friendly, precision instrument. Now a researcher can measure a mouse in 5-7 minutes, reducing **the measurement time** down by a factor of five! In addition to speeding up the measurement cycle time, it is significantly **easier to operate**, and perhaps most importantly, it provides **more precise localization** of the signal.

We believe replacing the manual positioning of a test sample is a significant step forward in the grand scheme of commercial introduction of NanoMRX™. This makes the system more precise in terms of positioning and far less dependent on users for localization accuracy.

Team Profile: Focus on Manufacturing and Electrical Engineering



Christopher Nettles is our top-notch electrical engineering and manufacturing technician. He is putting in place the electronic components that will power the coils, move the stage, capture the signal and process it for analysis.

He served as an Electro-Optical Sensor Specialist with the 81st Tactical Fighter Wing during the first Gulf War.

PROSTATE CANCER TESTING IN VITRO

About 240,000 new cases of prostate cancer were diagnosed and over 30,000 prostate cancer-related deaths were reported in 2013.

Early stage treatments are invasive surgery and radiation, but about 25% of patients relapse due to metastases in bone marrow and end up getting chemotherapy treatment.

We believe pre-chemotherapy is where the opportunity is for drug treatment. Establishing the extent of cancer metastases in bone marrow with improved sensitivity will help define patient populations for drug developers.

One proposed application for NanoMRX™ technology is to help physicians monitor bone marrow biopsies. NanoMRX™ magnetic particles can be used to measure cancer cells in bone marrow biopsies directly with the NanoMRX™ II with improved sensitivity.