



American Society for Quality (www.asq.org) – Washington D.C. and Maryland Metro, Section 509 (www.asq509.org)

Biomed/Biotech Special Interest Group (SIG) Meeting

“Nanoparticles as Targeted Drug Delivery Vehicles for Molecular Imaging and Chemotherapy Applications – Science, Utility, and Challenges”

Presented by

Paul C. Wang, PhD

Director, Molecular Imaging Laboratory &

Professor, Department of Radiology,

Howard University, Washington, DC

Thursday, June 24, 2010

6:00 – 6:20 PM – Networking; Pizza/drink

6:20 – 8:30 PM – Program (a 10-min break at 7:40 pm)

8:30 – 9:00 PM – Door-prizes drawing; Networking

Open to Public - **Free to ASQ Members** (Become a ASQ Member & Save)

\$5 for non-ASQ members to cover pizza/drink cost

Free to High School Students and FDA summer interns

Location: Kelly's Deli Conference Center, **7519 Standish Place, Rockville, MD 20855**

Registration: For headcount purpose, please register by Thursday noon, June 24, 2010. Registration Website: <http://www.asq509.org/ht/d/DoSurvey/i/35817>

For registration problems or further information contact Dr. George Chang, Chair of Biomed/Biotech SIG, at gchang2008@yahoo.com or call 240-793-8425.

Presentation Summary: **Nanoparticles as Targeted Drug Delivery Vehicles for Molecular Imaging and Chemotherapy Applications – Science, Utility, and Challenges**

Nanotechnology, a multidisciplinary scientific undertaking, involves creation and utilization of materials, devices, or systems on the nanometer scale and is currently undergoing explosive development on many fronts. It is expected to spark innovation and play a critical role in various biomedical applications especially in drug delivery. Advances in nanotechnology that enable drugs to preserve their efficacy while being delivered to precise therapeutic targets are creating a host of opportunities for drug developers. By combining nanotechnology-based target-specific drug therapy with methods for early

diagnosis of pathologies, we are getting closer to creating the ultimate functional drug carrier. In this presentation, Dr. Wang will show two researches conducted in his lab. One study is using liposome labeled with florescent dye and encapsulated MR contrast agent as a dual probe for MRI and optical imaging, and another uses metallofullerene nanoparticles to circumvent tumor resistance to cisplatin by reactivating endocytosis.

Speaker Biography: Paul C. Wang, PhD (pwang@howard.edu)

Dr. Paul Wang is the Director of the Molecular Imaging Laboratory and a Professor in the Department of Radiology at Howard University. He was trained as an applied radiation physicist at MIT. In the 1980's, he started his research career in nuclear magnetic resonance imaging (MRI) at the University of Kentucky and Georgetown University. In 1989, he went to the Howard University as a medical physicist and an Associate Professor. During his tenure at the Howard University, he has established the Biomedical NMR Laboratory, which later became the Molecular Imaging Laboratory, to promote multidisciplinary research using NMR imaging and spectroscopy techniques for biomedical applications. He is responsible for coordinating NMR research projects, providing technical support, and supervising the operation of the lab as a university imaging core facility. His research interests include: *in vitro* and *in vivo* NMR; NMR imaging and spectroscopy studies of diseases including cancers, heart diseases, and neurodegenerative diseases using small animal models; NMR studies of multidrug interaction and body composition; and NMR applications in agriculture. Since 2005, his research interests have also expanded to include optical imaging and molecular imaging of cells and small animals, and the application of nanotechnology in medicine. His research team has developed nanoparticles as drug delivery vehicles for targeted chemotherapy and diagnostic imaging. Targeted drug delivery *via* receptor mediated endocytosis of imaging contrast agents has the potential for improving sensitivity and specificity of cancer detection. In some cases, the drug encapsulated nanoparticles can also be used to overcome drug resistance in chemotherapy *via* reactivating the impaired endocytosis of the therapeutic agents. Under Dr. Wang's leadership the Biomedical NMR laboratory / Molecular Imaging Laboratory has been a synergetic center for promoting multidisciplinary biomedical research for the Howard University and neighboring research institutions. Dr. Wang has successfully obtained external funding for two MRI machines (a 4.7 T and a 9.4 T machines) and an optical imaging instrument for *in vivo* small animal imaging studies. He is currently funded by the NIH and the DoD. Since 2007, Dr. Wang has been a Visiting Professor at the Chinese National Center for Nanoscience and Technology in Beijing, PRC. He has been involved in facilitating research collaborations between the US and China in nanomedicine and published a report on a recent high profile meeting in Beijing on this subject ([Cancer Research 69\(13\):5294-5295, 2009](#)). He was the recipient of the Howard University College of Medicine Outstanding Faculty Researcher Award in 2008. (http://www.howard.edu/medicine/radiology/mil/research_mil.html)

Directions to meeting: From I-270 (North or South bound):

Take Exit 9A and exit from the first right exit.

Turn left (east) onto Shady Grove Drive.

Turn right (south) onto Rockville Pike (**Route 355**).

Turn left (east) onto East Gude Drive.

Turn left (north) immediately onto Crabb's Branch Drive.

Turn left (west) immediately onto Standish Place.

The first building on your right side is 7519 Standish Place; open parking. The conference room is on the first floor with its entrance opposite to the left side of 7519 building main entrance.