

**CHE AZURAHANIM CHE ABDULLAH****Ph.D. (University of Surrey)**

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**EXPERTISE**

BIOPHYSICS/BIOMEDICAL, MATERIALS/NANOMEDICINE

Dr. CACA is currently a senior lecturer at Department of Physics, Faculty of Science UPM. She is the pioneer for a multidisciplinary research between material science with nanotechnology and biology in the Department of Physics. The chance given to her to conduct her research in the Surrey Material Institute and Nanobiotech and Centre for Toxicology in the Faculty of Health and Medical Sciences University of Surrey enhanced her understanding about biomaterials, how can a new material can be manipulated to make it a biomaterial that biocompatible enough to be use either as scaffolds for tissue engineering as well as drug carrier in drug delivery. The most important is to make sure that the material itself is not toxic before it can be utilized. Apart from the material preparation and characterization, she has capability of growing animal cell culture in vitro and handling several microscopies such as Raman Spectroscopy, Confocal Laser Scanning Microscopy, and Scanning Electron Microscopy. Her work on CNT scaffolds won best Poster Award at International NANOCON Conference, in Brno Czech Republic in year 2011. In May 2014, she was invited to serve on the Review Editorial Board of Carbon-Based Materials, which is a specialty of Frontiers in Materials. In March 2015, she was selected as one of the participants to attend Early Career Researcher Young Scientist Awards, fully sponsored by British Council UK-Malaysia. She also appointed to be one of the invited speakers, represent Malaysia for 1st International Symposium for Women Researchers on Advanced Science and Technology conjugated with Seminar for Young Researchers in Fukouka, Japan.

**Current Research Interest**

- **Biomaterial**

Biomaterial research area in Dr CACA's group lies at the interface of materials, tissue engineering and cell bioengineering. The research focuses on synthesis and characterization of new biomaterials, micro and nanopatterning the surfaces, and finally seeks to understand cell-biomaterials interaction using microscopy. Currently, we synthesized biomaterials from marine animals.

- **Tissue Engineering**

The main goals of tissue engineering research lead by Dr CACA including contribute to the methods for replacement and to regenerate natural tissues and create new tissues using cells, biomaterials, biotechnology for disease research. The new scaffolds for tissue engineering are created using both nanomaterials and marine based biomaterials especially for bone tissue engineering, where Dr CACA hope to further combine nanoparticles and biocompatible biomaterials to regulate the regeneration of bone tissues.

- **Drug Delivery**

Dr CACA's taking a truly multidisciplinary approach to research by bringing together researchers from across chemistry, biomaterials, pharmaceuticals and biological sciences. Her recent focus is towards the successful delivery of therapeutic agents such as anticancer drugs in a controlled and targeted manner using carbon nanotubes (CNTs), iron oxide ( $\text{Fe}_2\text{O}_3$ ) nanoparticles, graphene, quantum dots and the development of advanced delivery systems for a diversity of applications. Her group focusing on site specific delivering of anticancer drugs for breast cancer treatment.

- **Gene Delivery**

Dr CACA's current research including gene therapy as a promising treatment for many diseases. Gene silencing using small interfering RNA (siRNA) has shown significant potential in the treatment of cancer. Her group recently working on siRNA delivery strategies using nanomaterials for lung cancer.

LINK TO POSTGRADUATE FIELD OF STUDY: <http://www.nanotedd.com/>

ADDITIONAL INFORMATION: <http://www.nanotedd.com/>