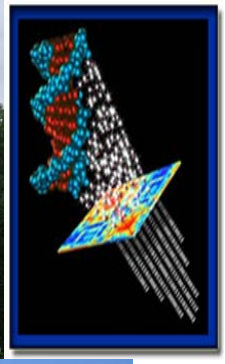
Ogechi Ikediobi….pharmacogenomics investigator

"The NIH-Oxford-Cambridge program provided me with an independently driven, unique and unparalleled biomedical research experience. In a little under 4 years, I was able to complete my Ph.D. project which utilized the strengths of the large-scale sequencing of cancer genomes at the Wellcome Trust Sanger Institute (Prof. Mike Stratton) and the pioneering bioinformatics at the National Cancer Institute (Dr. John Weinstein). My project was large in scope and now enables other scientists to utilize cell lines more effectively in molecularly targeted anti-cancer drug screens."






At an early age, Ogechi Ikediobi was introduced to the world of science by her father. On frequent Saturday morning visits to her father's biochemical laboratory, she gained both an appreciation and fascination for scientific discovery. This early exposure also piqued her interest in pharmacology. She completed her undergraduate work with distinction at Florida A & M University where she went on to earn a Pharm.D. degree with honors. During her clinical rotations in pharmacy school, she realized that drug therapy in the clinic was largely empirical. She also observed that clinicians could not recommend with certainty the right drug, at the right dose, for the right patient. This empirical practice sometimes results in serious adverse drug reactions and/or worsening of disease symptoms. Those events could be due to environmental factors or other drug interactions. However, she was intrigued by the idea that there was a genetic component to these adverse drug reactions. Therefore, she decided to pursue research in the new field of pharmacogenomics, which is the discovery of genetic determinants of drug

responsiveness. Her hope was to find ways to enhance the effectiveness of drug therapy in the clinic.

As a Scholar in the NIH-Oxford-Cambridge program, Ogechi studied the patterns of somatic mutations of cancer genes in a panel of 60 human cancer cell lines used for basic oncology research (the NCI-60 panel). The NCI-60 panel is the primary resource for anti-cancer drug screens. For the first time, knowledge of the mutated pathways at the DNA level in this set of lines was clearly elucidated. She explored the relationship between mutated cancer genes and differential drug sensitivities and identified compounds active against the putative mutated gene products. She has validated the associations in an independent set of cell lines. As the lead investigator in a team of over 40 researchers on this project, she published her findings as a special article highlighting the role of molecular profiling in cancer therapeutics research http://mct.aacrjournals.org/cgi/reprint/5/11/2606.

Dr. John Weinstein, Chief of the at the National Cancer Institute has stated, "The NCI-60 panel already constitutes the most comprehensively profiled set of cells in existence by far, and much more molecular profile information is coming on them. The data have already yielded considerable biological and biomedical insight, but thus far, we have only scratched the surface. The real value will be realized when biomedical scientists with particular domain expertise are able to integrate and use the information fluently for hypothesis generation, hypothesis-testing, and what I would term ‘‘hypothesis enrichment.’’ Given the large drug activity database, the NCI-60 cell line panel provides a unique opportunity for the enrichment of pharmacologic hypotheses and for advances toward the oft-cited goal of personalized medicine."

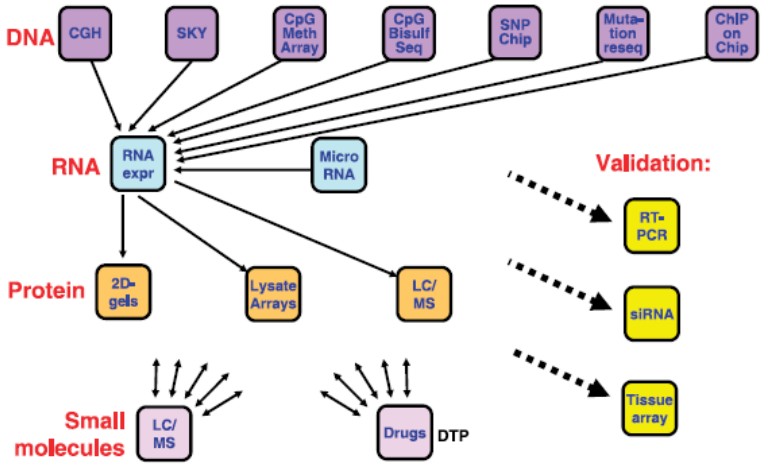


Figure 2. Conceptual schema for molecular profiling of the NCI-60 (or other cancer cells). Some of the profiling studies have already been completed, some are in progress, and some are being piloted currently. Also shown are three levels of validation explained in the text. CGH, comparative genomic hybridization (for DNA copy number); SKY, spectral karyotyping (for chromosomal aberrations); Meth, methylation; Bisulf Seq, bisulfite sequencing; reseq, resequencing; ChIP, chromatin immunoprecipitation; LC/MS, liquid chromatography/mass spectrometry.

Ogechi obtained her Ph.D. from Cambridge University In 2007 and was immediately appointed as an Assistant Professor of Clinical Pharmacy at University California, San Francisco where she is continuing her studies of clinical and applied pharmacogenomics

(Ogechi's faculty website: http://clinicalpharmacy.ucsf.edu/faculty/bio.asp?bioid=%7B37118E68-E8D2-4598-B49F-04D5ED93134D%7D)