FEDERICO FELIPE CUBILLOS

THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER

Department of Cell Biology

FredCubillos@dcccd.edu

CURRENT POSITION

Research Technician (Research Assisant II)

POSITION RESPONSIBILITY

Performing various experiments with Post-docs on Human cancer cell lines to determine potential weak points that can be used as targets for future cancer therapy.

CURRENT RESEARCH PROJECT

Using siRNA/microRNA knockdown experiments to help analyze cancer gene functions.

CURRENT DUTIES (OUTSIDE OF PROJECT)

Maintain CO_2 (for incubators) & Liquid N_2 (for deep freeze cell storage) tanks and lab equipment, order supplies (through PeopleSoft), and develop protocols.

PAST EMPLOYMENT

Post-graduate Researcher at the University of Texas at Dallas

Performed molecular biology research for Dr. Miller's lab and Dr. Pace's Sickle Cell Disease Research Center (SCDRC) at the University of Texas at Dallas

Improved plasmid cloning technique
(Pace and Miller laboratories)

Instructor for General Biology Lab & Lecture
Collin County Community College District (CCCCD)
[Preston Ridge Campus (Frisco, TX)]

Semesters taught: Fall 2007, Spring 2008, Summer 2008, Fall 2008
Courses: BIOL 1406 – lab & lecture, BIOL 1408 – lab & lecture

EDUCATION

Masters of Science degree in Molecular & Cell Biology, December 2006,
The University of Texas at Dallas (Richardson, Texas)

Bachelor of Arts degree in Biology, May 1998,
Austin College (Sherman, Texas)

RESEARCH STATEMENT (ON CURRENT RESEARCH)

"I am interested in better understanding cancer cell intracellular processes through fluorescent labeling in conjunction with various RNAi & compound treatments. I hope to see how cancer cells transition from healthy, tissue dependent, reproductively regulated cells to unhealthy, tissue independent, reproductively deregulated cells. This understanding could yield potential new targets for future cancer therapy."

PAST RESEARCH PUBLICATIONS

The following are two of my publications (my name is displayed as Cubillos FF and highlighted in red and in bold type on each author line), which reflect research I have done with along with my lab partners under the direction of the Principal Investigator, Dr. Steven Goodman (the Director of the Sickle Cell Disease Research Center at the University of Texas at Dallas and the Institute of Biomedical Sciences and Technology for 2004):

(1) Cellular and Molecular Biology (Noisy-le-grand, France). 2004 Mar; 50(2):171-7.

Band 3 is a target protein of spectrin's E2/E3 activity: implication for sickle cell disease and normal red blood cell aging.

Chang TL, Cubillos FF, Kakhniashvili DG, Goodman SR.

We have demonstrated that a 125 kDa red blood cell (RBC) membrane protein, being a target of spectrin's E2/E3 activity, is ubiquitinated band 3. This demonstration was based on copurification of this biotinylated-ubiquitinated protein with band 3, immunoprecipitation with band 3 antibody and analysis of proteins associated with strepavidin sepharose by micro liquid chromatography coupled to tandem mass spectrometry (microLC/MS/MS). Further, we demonstrated the presence of ubiquitinated band 3 in vivo by Western blotting of purified band 3 with a monoclonal antibody (FK2) against ubiquitin. The implications of these results for sickle cell disease and RBC aging are discussed.

---

(2) Cellular and Molecular Biology (Noisy-le-grand, France). 2004 Feb; 50(1):59-66.

Ankyrin is a target of spectrin's E2/E3 ubiquitin-conjugating/ligating activity.

Chang TL, Cubillos FF, Kakhniashvili DG, Goodman SR.

Ubiquitin is a small protein of 8.6 kDa molecular weight. When polyubiquitin is attached to target proteins, they are tagged for destruction by cytoplasmic organelles called proteasomes. We now know that ubiquitination of target proteins also regulates functions as diverse as the sorting of proteins to different intracellular destinations, cell signaling, cell division, gene transcription, and protein-protein interactions. The ubiquitination of target proteins requires a cascade of enzymes: E1 ubiquitin activating enzyme, E2 ubiquitin conjugating enzyme and E3 ubiquitin ligating enzyme. Recently we have demonstrated that the red blood cell (RBC) membrane skeletal protein, spectrin, has E2/E3 enzymatic activities in its alpha-subunit, that can transfer ubiquitin to itself. We have now created a cell free assay using biotinylated ubiquitin that allows detection of target proteins by streptavidin peroxidase. This approach coupled with immunoprecipitation, purification and micro liquid chromatography coupled to tandem mass spectrometry has identified ankyrin as a target of spectrin's E2/E3 activity. Western blotting, with ubiquitin antibody, of purified ankyrin and its well characterized functional domains, has demonstrated that both the spectrin and band 3 binding domains are ubiquitinated in vivo.

Note: These citations and abstracts are listed in the order shown on PubMed when my name, Cubillos FF, is entered into the PubMed search engine.

PubMed website:
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?DB=pubmed