

## • LETTER TO THE EDITOR •

### Cancer Research Training in Puerto Rico: Challenges and Opportunities

The University of Puerto Rico Medical Sciences Campus has established a strong Training Program in Cancer. It has been implemented through a Project funded by the National Cancer Institute (NCI) of the National Institute of Health (NIH), within the scope of an administrative U54 grant. The Training Program known as “Training the Next Generation of Hispanic Cancer Researchers” started to be organized in 2001, when the first cycle of this grant was approved. Through the course of the last nine (9) years a pipeline focused on cancer research has been successfully organized. Also, the extent of the activities within the pipeline have diversified and expanded. The Training Program is grounded on a solid collaborative relation between the University of Puerto Rico (UPR), Medical Sciences Campus (MSC) and the University of Texas (UT) M.D. Anderson Cancer Center (MDACC), at Houston. The Program draws upon the strengths of both institutions and brings benefits to both partners.

The main goal of the Training Program is to increase the number of Hispanic students knowledgeable and committed to careers in cancer research and cancer medicine. The specific objectives are to prepare Hispanic students to pursue careers in cancer research, cancer medicine, and population sciences and to establish a Career Development Program for clinical and basic scientist faculty at the Comprehensive Cancer Center of the University of Puerto Rico (UPRCCC).

The Training Program includes a series of didactic and research experiences, and enrichment activities that include on-campus cancer research at the UPR campuses during the academic year, and summer research and year-round rotations to MDACC. These experiences are complemented and supported by a structured Mentoring Program for students and junior investigators. The mentors are well recognized senior Faculty, mostly from MDACC.

#### Training Opportunities

Various research programs are available in UPR and MDACC, all sponsored by the U54 Training Program. In the UPR there is Research Assistantships Stipends Program for Undergraduate and Graduate Students. Students have the opportunity of working in cancer research projects under the guidance of Faculty in mid to senior stages of their academic careers. Most of these scientists are re-gearing their careers to Cancer Research. The students are also required to attend Seminars and Workshops offered through the academic year, mostly offered by visiting world-renowned scientists.

The opportunities in MDACC include a Summer Research Program for undergraduate and medical trainees. The experience length is ten (10) weeks and takes place at the research laboratories of MDACC faculty; they also attend an enrichment seminar series. At the end of the summer, each student prepares a written report and gives an oral presentation of the research activity to fellow students and research sponsors at MDACC and at UPR. Clinical or biomedical cancer research 2-3 month rotations for senior medical students and residents are also sponsored. During the last two (2) years, research experiences for other health professionals are being integrated within the programs; nursing, pharmacy and dental students. Both the Assistantships and the Summer Programs are competitive programs; a call for applications submissions is advertised through the UPR and MDACC WebPages and e-mail. The Training Program information is available at [www.mdanderson.org/U54TrainingProgram](http://www.mdanderson.org/U54TrainingProgram).

#### M.D./Ph.D. Program

A new aim was defined in 2006 for the creation of a combined M.D./Ph.D. Program curricular sequence, with the main objective of developing a cadre of outstanding Hispanic physician-scientists who will lead the oncology research, prevention and treatment in Puerto Rico and other Hispanic Communities. The students earn the M.D. degree from the UPR-MSC, School of Medicine, and the Ph.D. degree from the UT Graduate School of Biomedical Sciences (GSBS) at Houston. The unique M.D./Ph.D. Program's structure emphasizes on patient-based and translational research. The new Program's curricular sequence was modeled after a pre-existing Program between UT-School of Medicine and UT-GSBS, with the collaboration of Dr. George Stancel, the GSBS Dean. The students apply to the M.D./Ph.D. at the same time that they are applying for medical school. The students complete two (2) research tutorials; during the summer prior to starting and the summer after finishing the first year of Medical School. They move to Houston to formally start the Ph.D. curriculum after having completed the third year of Medical School and approved USMLE parts I and II.

A major advantage for the M.D./Ph.D. trainee under this Program is that he/she acquires a strong basis on clinical medicine prior to starting on his/her Thesis' research project. Our program is particularly innovative, since for most of the M.D./Ph.D. programs through the United States the students start the Ph.D. curriculum with practically no clinical experience;

after completing the second year in Medical School. The clinical basis acquired during the third year in the MD Program, along with the skills gained during the research tutorials, allows the trainee to propose and conduct a translational/patient based research project.

### UPR Campuses Network

In the academic year 2006-2007, a UPR campus wide annual recruitment tour was initiated targeted to undergraduate science students. Faculty liaisons were identified in each one of the following UPR Campuses: Rio Piedras, Mayagüez, Medical Sciences, Humacao, Cayey and Ponce. These liaisons constitute the Training Internal Advisory Committee; lead by Dr. Brad Weiner, the Dean of the Rio Piedras Campus Natural Sciences Faculty. During the academic year 2008-2009, a system wide UPR – MDACC inter-institutional agreement was signed. This new agreement allows students and faculty from any of the eleven (11) campuses of the UPR to have either biomedical research or clinical experiences at MD Anderson Cancer Center. Another innovation potentiated by two (2) new agreements signed early in 2009 is the possibility for faculty and trainees from MDACC to participate in biomedical research and clinical rotations at the UPR. These provide for reciprocal interactions among trainees and faculty from both participating institutions.

### Cancer Biology Course

A core course in Cancer Biology was started on January of 2010. This course's intent is to establish a base line source

of knowledge for our trainees at all levels of the Training Programs' Pipeline. The Course deals with the basic concepts in cancer biology that range from basic cell and cancer biology to translational applications of cancer biology, targeted for 3<sup>rd</sup> year college level and above. The course is registered at UPR-Rio Piedras. Students from other campuses are allowed to take the course by special permit. Nine world renowned scientists visited UPR to offer master lectures in their fields of expertise, among them Dr. Isaiah Fidler. A total of 46 students took the course, including some M.D., M.D./Ph.D. and Ph.D. students from UPR-MS. Also some of the UPRCCC faculty participated as speakers at the course, while others took the course. All of the participants demonstrated a high degree of satisfaction and were very enthusiastic about the content of the lectures and the level of competency demonstrated by the faculty.

In summary, the U54 Training Program has offered the opportunity to the UPR and the Medical Sciences Campus for institutional growth, which is evidenced by the establishment of seven (7) inter-institutional agreements between UPR and UT, new combined programs curricular sequences, summer programs, on-campus sponsored research experiences, faculty development and scientific collaboration among faculty and trainees.

---

### Ilka C. Ríos, DMD, MS

Surgical Sciences Department Professor  
UPR- Dental Medicine School  
UPR/MDACC Training Program Director