

## SUPERSTAR OF THE SLOAN MINORITY PH.D. PROGRAM

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In AY 1994-95 the Alfred P. Sloan Foundation launched a program, later known as the Minority Ph.D. Program, to increase the number of underrepresented minority students earning Ph.D.s in natural sciences, engineering and mathematics (SEM). This program emerged from a recognition that African Americans, Hispanic Americans and American Indians were very underrepresented at all levels and in all aspects of SEM disciplines and that, although undergraduate education had received and continued to receive much attention by universities, private funders and government agencies, there was still relatively little attention being paid to the graduate and especially the Ph.D. level. Because earning the Ph.D. is a necessary milestone along the pathway to a faculty position and the effort to diversify the graduates of SEM disciplines depends, in large part, on diversifying the faculty at American universities, this relative lack of attention to Ph.D. education was, in the opinion of the Sloan Foundation, a significant deficiency of national efforts. As a Program Director at the Sloan Foundation, I initiated this Minority Ph.D. Program and ran it until my retirement in June 2011.

The Sloan Foundation's Minority Ph.D. Program did not just put money into the hands of promising SEM minority students. Rather, acting on the belief that the relationship between student and advisor is all-important at the Ph.D. level, the Sloan Foundation's program began by identifying faculty with a record of success with minority SEM students or faculty in whom the Foundation came for other reasons to have confidence that they could and would successfully recruit, train, mentor and graduate minority students with Ph.D.s. My first task as Director of this Sloan program, therefore, was to identify appropriate faculty at Ph.D.-granting universities and recruit them into the program. In the early years, this was very difficult, in part because there were not many university faculty in SEM disciplines with a record of success with minority students and in part because finding the few faculty qualified for the Sloan program was difficult and time-consuming.

The program was off to a slow start when, two years later, I received a call from Dr. Carlos Castillo-Chavez of the Biometry Program at Cornell University saying that he wanted to bring some of the minority students in his Mathematical and Theoretical Biology Institute (MTBI) to visit me. That visit took place a few days later, following a long and unpleasant drive on a snowy day from Ithaca, NY to New York City. Its impact was huge. Here, clearly, was a dedicated faculty member with an already successful and well-funded undergraduate program, wanting to extend his efforts to the graduate level at Cornell, and a sample of his eager and capable students who were ready for graduate studies.

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Before long the Sloan Foundation approved a Minority Ph.D. Program site at Cornell under Castillo-Chavez's leadership. In AY 1997-98, minority Ph.D. students in several Cornell University departments with which Castillo-Chavez had an affiliation became eligible to become Sloan Scholars and receive Sloan Scholarships to support their Ph.D. studies. With this stimulus, Castillo-Chavez and his colleagues began seriously to recruit his MTBI graduates and other minority students into their Ph.D. programs. A few years later, the Sloan Foundation made its first grant to support the MTBI itself. The Sloan Foundation was pleased to support the MBTI program for eight years, until it decided no longer to include Ph.D.-feeder programs in its Minority Ph.D. Program. The Sloan Foundation supported Dr. Castillo-Chavez's Ph.D. students at Cornell until he left that University. At that point our support of his students followed him to Arizona State University. It is a great testimony to Castillo-Chavez's achievement at Cornell, a university previously without a strong record of success with underrepresented graduate students in SEM disciplines, that the Minority Ph.D. Program there thrived and expanded after his departure.

From the years during which the Sloan Foundation supported the MTBI program, at least 45 of its U.S. underrepresented minority graduates went on into Ph.D. programs in SEM disciplines. This was a remarkable achievement but one that MTBI matched both before Sloan Foundation support and after. During the seven years that Castillo-Chavez led the Sloan Minority Ph.D. Program at Cornell, he brought in 16 new students, of whom fourteen graduated with Ph.D.s and two with MS degrees. In the eight years that Castillo-Chavez has led the Minority Ph.D. Program at ASU, Castillo-Chavez has recruited 32 new minority Ph.D. students of whom nine have graduated with Ph.D.s and 21 are still enrolled in their programs. Overall, this is an extraordinary achievement, matched by only a few others among the remarkable faculty participants in the Sloan Minority Ph.D. program.

As evidenced by his enormous contribution to the Sloan Foundation's Minority Ph.D. Program and many other contributions identified elsewhere in this volume, Carlos Castillo-Chavez has been a giant in the field of SEM education with respect to underrepresented minorities over a period of almost two decades. He has been deservedly recognized with many prestigious awards for these achievements and has simultaneously made highly significant contributions through his own scholarly research. Nonetheless, one thing above all stands out for me about Castillo-Chavez: his extraordinary dedication to the success of his many students. Once a student is enfolded in Carlos's warm embrace, he assumes a responsibility for the success of that student that lasts a lifetime.

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