

## Tracie M. Gibson

It's a big name, but the University of Texas of the Permian Basin (UTPB) is named for a vast geological feature, the sprawling 300 million-year-old sedimentary formation, rich in oil and natural gas, that undergirds west Texas. Yet UTPB in Odessa is the smallest branch of the University of Texas system, with 4,000 undergraduate and graduate students. Forty-eight percent are Latino, making UTPB officially a "Hispanic-serving institution."

Small, minority-serving, and in Texas, UTPB was exactly what Tracie Gibson was looking for in the fall of 2007. She went to Odessa to teach molecular biology, research retroviral infection mechanisms, and mentor a new generation of minority students. They would be bright, ambitious, and as clueless about the profession of science as Gibson had been 20 years before.

As an African-American woman teaching biology on a campus that is only 5% black, Gibson stands out in Odessa, says Renato Aguilera, who is at the University of Texas, El Paso, a campus five times larger than UTPB. "Tracie is a beacon in the middle of that university because it's so little and because she's a big personality. It's a perfect match."

Aguilera chairs ASCB's Minorities Affairs Committee (MAC), which selected Gibson in 2010 as a Linkage Fellow in this National Science Foundation-funded program to promote undergraduate interest in cell biology. This spring Gibson was also named a MAC Visiting Professor through the Minority Access to Research Careers (MARC) program of the National Institutes of Health/National Institute of General Medical Sciences, which will fund Gibson's summer research collaboration with Steven R. Goodman at the Upstate Medical University, State University of New York in Syracuse.

Last September, Gibson used her Linkage grant to organize UTPB's first-ever "STEM Day," a celebration of the science, technology, engineering, and mathematics (STEM) fields, complete with a keynote address, contingents from nearby community colleges, and a student poster session. Aguilera was the keynote speaker. He came away dazzled by the enthusiasm of Gibson's own students. "It was a blast to meet them," says Aguilera. "They were just so eager, so genuine. As an educator, you live to see that sparkle in students."

### In the Right Place

That's the beauty of a small campus, says Aguilera, especially for minority students with some interest in science. "Having the right person there for them is incredibly important," he says. And Gibson is that person at UTPB, well versed in research, an energetic teacher, and a one-of-a-kind role model, says Aguilera, for minority and nonminority students. "I felt like saying to her, 'I am so glad that you are here for these kids.'"

"I can't tell you enough about Tracie," says Juan E. González, a microbiologist at the University of Texas, Dallas, who knows Gibson through the UT's system-wide Louis Stokes Alliance for Minority Participation (LSAMP) mentoring program for undergraduates. "She's a fantastic human being, a first-class researcher, and someone who is always being nominated for Teacher of the Year awards. She makes me feel bad because I don't do enough."

For minority scientists, mentoring can be both invigorating and a burden, according to González. "I run a research lab but like all minority members, I have additional requirements and responsibilities," he explains. "We were all mentored by other people. We feel it's our obligation to pay back in one way or another. Many of us juggle a full research lab with these other responsibilities. Tracie had told me that she was mentored by people who gave her the opportunity to get in."

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Tracie Gibson is from Detroit, the city itself, she insists, not the suburbs. She grew up in a no-nonsense, two-parent household with two older siblings. Her father, Rudolph Gibson, was a high school dropout from Georgia, and her mother, Betty Gibson, a high school graduate from Houston. They were both big on education and expected results. The Gibson kids, who were not Catholic, went to Catholic schools. Her father worked on the assembly line at Ford. "You know that old movie *Coalminer's Daughter*? Well, I'm the autoworker's daughter," Gibson says.



Tracie M. Gibson

Credit: Rafael Aguilera/UTPB

## A Death in the Family

When she was 15, her father died of leukemia. “I just couldn’t understand why the doctors couldn’t save my father. They had all this knowledge. Why couldn’t they save him?” Gibson vowed to become a doctor and cure cancer. Her father’s death also left the family reeling financially, eventually losing their house and the ability to pay school tuition. But Gibson kept her grades up in public high school, did well on tests, and went off to the University of Michigan, intent on pursuing a pre-med curriculum. Ann Arbor was a shock. The fall she enrolled, a white student read out of a racist joke book over the campus radio station. Angry protests by black students set off a sullen white backlash at their “oversensitivity.” Gibson wanted out. “In my mind, I decided that I would go to the school that was the nicest to me.”

She found it by mistake. Gibson looked up “Cornell,” found two, the large university in upstate New York and the small liberal arts college in Mt. Vernon, IA, wherever that might be. Near Cedar Rapids came the answer, along with a friendly invitation to visit. Small, isolated, and nearly all white, Cornell College was home to Robert Black, a field ecologist who studied zooplankton predation rates. Black taught a laundry list of biology courses as well as serving as the assistant men’s basketball coach. With 1,100 students, Cornell was that kind of place. Black listened quietly to Gibson’s teen dreams of medicine and her equal horror of blood and needles before suggesting that she join his zooplankton lab. “It was not so much the research project itself but the whole mentor–mentee relationship,” says Gibson.

“In my last year, Dr. Black started challenging me. ‘What are you going to do next? You don’t sound like you want to go to medical school. I’ll cut a deal with you.’” He proposed a series of lunches with friends who had MDs and friends who had PhDs. Over lunch, Gibson could decide which kind of

person she was. “And I’ll pay for lunch,” Black said. Over seven lunches, the PhDs swept the field of dreams, Gibson recalls. “Dr. Black was the ideal professor and the more I talked to his friends, the more I thought a PhD was closer to what I wanted to be. By then I wanted to be like Dr. Black.”

Her mentor was not naïve, Gibson recalls. “He was the first person to introduce me to the concept that there are not a lot of people of color in the sciences. He told me, ‘Going into biology, you may not see a lot of people like you.’ But he was with me, every step of the way.” He prepped her for interviews, pushed her to improve her poster talk, and made sure she had the right courses on her transcript. As Gibson narrowed her list of schools, Black worked the academic grapevine, trying to gauge how programs handled women, minorities, and outgoing personalities like Gibson. “We decided that Purdue was the best school for me,” Gibson recalls.

## Death of a Mentor

Only after becoming a mentor herself did Gibson fully grasp the blend of tact, pressure, and skill that Black had employed in the making of “her” choice. It came to her again last January with the sudden news that

Bob Black had died, aged 61, in Mt. Vernon. “I’m sure he impacted the lives of many other students, but Dr. Black was everything to me,” she adds quietly.

Purdue turned out to be a very good school for her, especially after David Asai took her into his *Tetrahymena*- and *Paramecium*-based lab that studied dynein and microtubules. There she did molecular biology research for the first time, analyzing the heavy chains of ciliary outer arm dynein. “His people in the lab were incredibly helpful,” she remembers. “It was just a great nurturing atmosphere.” But above all else, she found in Asai another quiet mentor who listened but pushed, sometimes at the same time. “Dr. Asai made me believe in me by challenging me,” she recalls. “He believed in me when I did not believe in myself as a graduate student.”

Asai kept careful watch over her postdoc search as she finished up her PhD in 2000. After she interviewed with John A.T. Young at Harvard Medical School (HMS), Gibson recalls, “Dr. Asai actually pulled ‘a Dr. Black’ moment. He spoke with JY on the phone after

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I'd interviewed and then Dr. Asai came into the lab and told me I was doing a postdoc with JY. I have no clue what they discussed. I just know what happened on my end. I knew that JY's lab would be best for me."

The position took her on a cross-country lab odyssey. When she interviewed, Young was at HMS in Boston. By the time Gibson joined the lab, Young had moved to the University of Wisconsin, Madison. By the time she finished her postdoc in 2005, Young was at the Salk Institute in La Jolla. The way retroviruses subvert the host's cytoskeleton fascinated Gibson even if she grew tired of the high-stakes competitiveness surrounding HIV research. In California, she was also thinking more and more about Dr. Black. "It came to me as a revelation. I needed to be him. I needed to be at a smaller institution. I needed to teach. And so I had to tell JY my revelation."

### Avoiding "PowerPoint Coma"

If Gibson was going to teach, she needed classroom practice. An instructor's post opened in her old department at Purdue and Gibson jumped at the chance. "My first year, oh my god, it was crazy. It was the hardest thing I ever did. I was trained to be a research scientist. I was not trained to be a teacher." Smarting from bad reviews, Gibson sought out Purdue's professional development program for faculty. "That's where I learned to be an effective educator. They recorded us teaching and that's how I learned to avoid the 'PowerPoint coma,' how to deliver a message, and how to bring it down to the students' level."

In 2007, Gibson followed up on an ad in the *Chronicle of Higher Education*. She knew and loved Texas through frequent childhood visits to her mother's extended family in the Houston area. But Odessa is not Houston. When Gibson arrived, she was shocked to learn that the local Ector County Independent School District (ECISD) system was under a federal court desegregation order, the result of a lawsuit that had dragged on since 1970. "A desegregation order? In 2008? What was this? I saw a problem and my immediate reaction is always, how can I be part of the solution?" Gibson promptly volunteered and was appointed by the ECISD School Board to serve on the court's advisory Tri-Ethnic Commission. The Ector County desegregation case was finally settled in 2010, but Gibson remains on the advisory board. The high school dropout rate for minority students is still alarmingly high, she says. "That's just not acceptable."

Gibson has made a home for herself and her cat, CJ, in Odessa. Gibson is very active in her local church, especially in organizing women's programs. She has a circle of buddies, who drag her into new things, most recently, to a local movie theater to see grand opera. Gibson says she was knocked out by the HD transmissions from the Metropolitan Opera and sees nothing unusual about moving to Odessa to discover opera in New York.

But her greatest interests and efforts are centered around the UTPB campus, where Gibson is widely known for her colorful classroom style and her retrovirus research lab, plus the high-volume music she plays in both locations to elevate the mood. "Most other labs I'd seen were really quiet," reports Chidinma "Dima" Nwankwo, a senior of Nigerian origin who grew up in Dallas. "It didn't look like they were having fun. Dr. Gibson makes it fun while you learn and while you get your work done."

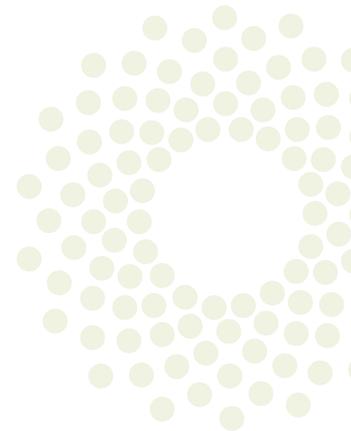
Gibson also made a lab seem safe enough to enter, says Nwankwo. "Growing up, I never pictured myself working in a lab. I knew that it's not the way it looks on TV like in *CSI*, but I was nervous." She was especially fearful about the human retrovirus, HTLV-1, that Gibson uses to probe the role of cytoplasmic dynein in viral transport. "When people aren't informed about what a lab is working on, they assume it's dangerous and fear getting too close."

### Learn As You Lab

"Dr. Gibson has been the biggest single influence in my whole academic life," reports Sara Ontiveroz, a senior from Odessa. "I always thought that you had to have some kind of previous knowledge before you could come into a research lab. But I found out that it's more of a learning process. Along the way, you will eventually gain the background you need to do your work."

Both seniors are applying to grad school in biology. Both are following Gibson's directions on taking the GREs, buffing their transcripts, and compiling research resumes. Thanks to Gibson, both gained experience on poster presentation, starting with the on-campus STEM event in Odessa and the statewide LSAMP student research seminar in Arlington, TX. It all culminated at what Nwankwo calls "the big adult science fair," the 2011 ASCB Annual Meeting. Without their small meeting experience, they would have been hopelessly intimidated in Denver, says Ontiveroz.

As it was, Gibson warned them that national experts on dynein would be scrutinizing their



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posters at ASCB. They had to know their stuff cold. “There was this one man in particular who Dr. Gibson warned me might come by,” Ontiveroz remembers. “He wasn’t as intimidating as Dr. Gibson said before, but I guess it was better to be prepared. He was just real interested in what I did, thank goodness.”

Cell biology opened other vistas for Ontiveroz. Denver was her first trip from west Texas into snow country. “We hardly ever get any snow in this area. But whenever we went out, it was snowing. Just to see snow, it was awesome.”

A successful poster presentation, a first time snowstorm in a new city, a complex lab procedure, these are milestones of a successful mentoring process. “Tracie’s always been so positively influenced by a few mentors in her life,” says Asai, her Purdue thesis advisor who is now director of precollege and undergraduate education for the Howard Hughes Medical

Institute. “I think that would be something she’d always aspired to—to be a good mentor to students.”

But Asai also serves on ASCB’s MAC, which has struggled for years to increase diversity in the scientific workforce through programs like the MAC Linkage Fellows, the MAC Visiting Professorships, and the undergrad MAC travel awards for the Annual Meeting. “It’s a long road,” says Asai, “as we work on developing all the talent that we have in our country.”

The MAC programs are good for individuals, both scientists and would-be scientists, but also vital for American science, Asai believes. “Good for her. Good for us, I say. It’s a long road because we don’t have a million Linkage Fellows, just a handful.” But one of them is Tracie Gibson, adds Asai. “That’s something the Society should be proud of.” ■

—John Fleischman

## New Media and Old, PIC Needs Outreach Help

ASCB’s Public Information Committee (PIC) needs volunteers for a working group of Associates to screen abstracts for its annual press book and to “CellTweet” about breaking discoveries. “PIC’s original mandate was to spread the word about our science through the traditional news media,” says PIC Chair Simon Atkinson. “We still do that with our press book for journalists at the Annual Meeting. But PIC is expanding into social media like Twitter to take cell biology directly to the public. That’s why we need more PIC Associates.”

The press book features PIC’s “Novel & Newsworthy” stories based on abstracts selected from among the hundreds submitted for the Annual Meeting, Atkinson explains. To plow through the abstracts and winnow them down to those important or intriguing enough to appeal to journalists requires panels of screeners. “We couldn’t do it so thoroughly without our PIC Associates,” says Atkinson.

PIC has also started “CellTweets,” a Twitter feed linked to an ASCB website page that features stories about recently published data and discoveries. PIC Associates frequently tweet about stories from ASCB’s journal *Molecular Biology of the Cell*. “It’s sort of journal club on Twitter,” says Atkinson, “with ASCB members using their background to translate intriguing papers into ordinary language for those outside cell biology. Twitter is giving biologists a radically different way to reach ordinary people.” Writing a CellTweet is also great for sharpening communication skills, says Atkinson. “Making ASCB members better science communicators is another part of the PIC mandate.”

Members interested in becoming PIC Associates should contact Atkinson or John Fleischman, ASCB’s Science Writer, at [jfleischman@ascb.org](mailto:jfleischman@ascb.org). ■

—John Fleischman