

# Marc Tessier-Lavigne

How do you top solving a century-old riddle in developmental neurobiology? By moving to a company with no commercial interest in neuroscience. For someone as ambitious as Marc Tessier-Lavigne, leaving academia for the biotech giant Genentech could be the perfect choice.

The worst thing anyone has to say about Marc Tessier-Lavigne is that he wants everyone in his laboratory to use 20-point Arial Bold font for their presentations. Or that he has a penchant for bad movies—think Jean-Claude Van Damme—and likes to sing “My Way” at karaoke parties. Beyond that, people consistently describe him the same way.

“The stories about Marc that I can come up with are all essentially about Marc being perfect,” says Cori Bargmann, who for 10 years shared graduate students and laboratory space at the University of California in San Francisco with Tessier-Lavigne. “If there were anything bad to be known about him, I would know about it—and I don’t.”

Tessier-Lavigne’s impeccable reputation matches his image as a brilliant and ambitious scientist. Those who know him well say it was obvious early on that he was destined for great things: he didn’t disappoint them. In 1994, he shot to fame with his discovery of netrins—the chemicals that guide axons to their destinations—solving a problem that had stumped neurobiologists for a more than a century.

“Careers had been ruined, tenure had been denied over this problem. No one had succeeded—and somehow he got it done,” says Bargmann. “He has this miraculous ability to get done what needs to be done.”

There was no looking back from that point on. Tessier-Lavigne assembled a fleet of spectacular graduate students and postdoctoral fellows, and carved a place for himself as a pioneer in developmental neurobiology. With good friend and collaborator Corey Goodman, he founded the company Renovis and, two years ago, moved to Stanford University. In September 2003, Tessier-Lavigne once again made a splash in the scientific community when he left Stanford for Genentech.

The biotech giant created a position for Tessier-Lavigne, offering him the chance, as senior vice-president of research drug discovery, to oversee 320 people in oncology, molecular biology, physiology and medicinal chemistry, which comprise two-thirds of the company’s research.

“I thought about [the offer] very seriously. It’s a time when research has been going wonderfully—lab is great, Stanford is great,” says Tessier-Lavigne. “[But] I looked at the opportunity and thought I’d definitely regret it in the future if I didn’t take it. So I decided to take the plunge.”

As part of his agreement with Genentech, Tessier-Lavigne can maintain his own laboratory. Although he says he will continue to solve problems in neurobiology, many scientists expect his contribution will be limited, and question his move to a company with no interest in neuroscience.

To those who have watched Tessier-Lavigne’s career closely, however, the move comes as no surprise. “Marc could lead the country; he’s a natural leader,” says Nobel Laureate Eric Kandel, who has known Tessier-Lavigne since the latter’s days as a postdoctoral fellow at Columbia University. “I knew it was just a matter of time,” Kandel says. “I wouldn’t be surprised if he ended up running the company.”

Tessier-Lavigne had already exhausted the challenges academia offers, adds Martin Raff, emeritus professor of biology at University College, London (UCL). “When a young person does spectacularly well at science, the next challenge is not likely to be all that different,” Raff says. “The best it can be is equally successful.” For someone as ambitious as Tessier-Lavigne, Raff says, going to Genentech is the right decision.

Still, Raff says, Tessier-Lavigne agonized about the move—as he does about every other decision. “For somebody who’s been so successful in every part of his life, Marc is fretting all the time over every step—where to postdoc, who to postdoc with, what problems to tackle,” Raff says. “He tears himself to pieces about every move.”

A closer look at Tessier-Lavigne’s life presents plenty of clues about his constant reach for the next big challenge. Born in Canada, he grew up in London and Brussels and attended French *lycées* there. “By the time I graduated high school, I didn’t know whether I was Canadian, French, English or Belgian,” he says.

After completing a degree in physics at McGill University in Montréal, he won a Rhodes scholarship for a second degree in philosophy and physiology from Oxford University. He then returned to Canada for a year to run Pugwash, the Nobel Prize-winning organization—and then back to the UK for a Ph.D. from UCL.

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Soon after, UCL offered him a tenure-track position, a rare offer for such a young scientist. Tessier-Lavigne declined and went instead to Tom Jessell’s lab at Columbia University, where he began earning a solid reputation as a developmental neurobiologist.

Once Tessier-Lavigne moved to his own lab, however, he published nothing but reviews for more than three years—an enormous risk for a young researcher. His sights set on isolating the elusive chemoattractants, he recruited students, postdocs, family, friends, family of friends and anyone else he could to help him. Between July 1991 and May 1992, he held 25 ‘Bastille days’, as the students dubbed them, where the volunteers would form an assembly line: some cracked eggs, others pulled out the embryos, and still others extracted the brains and froze them. More than 50 large pizzas and 25,000 chick embryos later, he was well on his way to isolating netrins. Between 1994 and 1995, he published six papers in *Cell*.

On par with his accomplishments as a scientist, people say, is the importance Tessier-Lavigne places on family. Former students and postdocs fondly say that, one year, the lab produced more babies than it did papers. By all accounts, he is incredibly devoted to his own family and spends most of his free time with them. He and his wife Mary Hynes, also a neurobiologist, have three precocious children—the eldest taught himself calculus at age 10—a beautiful home, and a dog.

“He’s one of those people for whom things always seemed to go just right,” says Tad Homer-Dixon, who has known Tessier-Lavigne since their days at Pugwash in the late 1970s. “There are some people with whom that would be annoying, but Marc’s just a lovely person,” says Homer-Dixon. “He manages to carry it all off with a real sense of interpersonal ability and charm and humility, even.”

*Apoorva Mandavilli, New Orleans*