Thank you to the Awards Committee for selecting me. It is a great honor.

Thank you to my wife for agreeing to be uprooted (again) to come to Connecticut. The life of an academic scientist can be a peripatetic one.

Thank you to my trainees who … ummm… conspired on my behalf. And a special thanks to the lead co-conspirator, who shall remain nameless --- Jenna!

It is truly heartwarming to be held in high regard by one's students. Coincidentally, the same day that I learned of this wonderful honor, I received a phone call from my program officer –my liaison - at NIH (The National Institutes of Health). We biomedical scientists live in hope - and fear - of such phone calls. In this case, it was a bit of good news. Actually, 3.3 million bits of good news. But I am not exaggerating when I say that learning that I was to be recognized as a mentor, was **far more moving and more satisfying.**

It probably goes without saying that students today are not like they were when I was a student. Today, a professor walks into a classroom to be greeted by a phalanx of laptops. Are students even listening to what you say? Are they watching an online lecture of someone more interesting? Are they slicing fruit? In one of the first classes I co-lectured at Yale, a colleague and I were explaining our nascent collaboration. The laptops remained unmoved… so, apparently, were some of the students. The lecture built to its crescendo, we described our daring new hypothesis about alcoholism. Just as we were about to reveal our secret --- how we would use brain imaging to test our hypothesis… a student looked up from his laptop.

"Professor?"

"Yes?"

"I think someone has already done this."

"That's impossible."

"Well, I'm reading a paper on the **Internet** … and it says right here… 'Interaction between family history of alcoholism and the opioid receptor is ..'

What? Our brilliant idea…. All the preliminary work…. The certainty of a grant…. I could feel myself getting light-headed.

"Stop!" my colleague, Suchitra, ordered.

"Read us the abstract of the paper", she instructed, CALMLY --- as I continued to panic.

After a few tense moments, it became clear that this paper had not scooped us.

<<exhale>> "Whew… It's a good thing. Because I was about ready to jump out one of those windows." I told the class….

A hand was raised in the back. "Professor?"

"Yes"

"We're in the basement.

To me, there are three simple keys to successful mentoring. A. Always have great students; B. Treat them like colleagues; C. Demand a lot from them. I have been extremely lucky with 'A'. I have tried my best to adhere to 'B'. They have surpassed all expectations with regard to 'C'.

Where does this philosophy come from? My graduate school advisors at Case Western, Guy Chisolm and Gerry Saidel, and my post-doc advisor at Mass General, Nat Alpert, were all mentors extraordinaire. They were supremely knowledgeable in their fields, they engaged me like a colleague, and they gave me the necessary space to figure out what I was good at. As it turned out, I learned I had three thumbs … not well-suited to … working with radioactivity. So my advisor helped with the experiments. But I also learned that I had a modicum of aptitude for the computer modeling of what we were doing … and my advisors let me run with it – in a directed way.

This point is worth highlighting. In graduate school and as a post-doc, I was fortunate to be supported by (pre- and post-doctoral) training grants from the NIH. I believe those training grants – which covered my tuition and stipends - gave my mentors a bit of extra flexibility to allow me to pursue the aspects of our research that most interested me. So, consider this a plug for government-funded NIH and NSF training grants. Graduate training in the sciences is a sort of apprenticeship. Our students work on projects that we, the advisors, have funding for. The students must produce whatever work-product we promised in our grantproposal. But if students are funded on a training grant, there is greater latitude in what they can pursue and how they can do it. … that, in turn, helps them to discover their talents.

However great they may be, most students come to graduate school without knowing what, specifically, they are great at. To borrow terms from my father (*sitting in the front row*), some students are born to be specialists, while others are generalists. Their mentor –within the confines of his or her own projects – must help the student to identify their strengths – and harness them. My mentors repeatedly told me that I was a teacher. After about 10 years of wandering in the professional desert… I came to see that they were right.

As I mentioned, graduate work in the sciences is an apprenticeship. It is my feeling that the more the student is exposed to the whole gamut of tasks that must be done to keep the scientific enterprise going, the better position they are in to see (a) what they are good at, and (b) if they even want the life of an academic scientist. Frankly, it ain't for everyone (remember… 'peripatetic' … from the opening credits). There's a lot more to science than … well… "science". There's also writing, there's presenting work in public, there's teaching, there's reviewing, there's record keeping, there's dealing with government regulations, there's writing… Did I mention there was writing? This, frankly, comes as a shock to most graduate students in the sciences. Someday, we will all be able to put our I-phones to our

foreheads and beam our thoughts to the funding agencies - and they'll simply give us the money. But as of now, we still have to write clear sentences and clear paragraphs to persuade people that our ideas have merit. For students, …being exposed to the day-to-day pressures.. and even to the absurdities of the job.. **is what makes a valuable apprenticeship.**

A few years ago, my colleagues and I were executing a series of overly complicated brain imaging studies. We wanted to know: How does the brain respond to alcohol… and the cues –the sights and smells - of alcohol? Volunteers would lie in a big PET scanner… wearing mirror goggles that allowed them to look out the back of the scanner. What they saw was a restaurant table set with alcoholic drinks of their choosing. The table -covered in a black table cloth- rotated every few minutes to reveal a new drink and when it did, a matching odor of the new drink was bubbled through a long tube and spritzed onto their nose. All of this – the table movement, the smells - was exquisitely coordinated in time --- and **had to be controlled by computer**.

You guessed it, just as we were getting ready one day, the computer went on the fritz. As the time for the scan approached, we were furiously re-soldering wires and rebooting computers … all to no avail. Let me just explain: these experiments are fabulously expensive… and because they involve short-lived radioactivity, you can't call a "time-out". As the volunteer entered the room, I turned to my graduate student at the time.

"Marc! Under the table!"

For the next hour, I kept my eye on my watch and did my best imitation of a computer, beep… beep … beep… every two minutes.

Every beep signaled Marc, still hiding under the table, to rotate the table-top ...

Lest you think this task may have exploited, or even traumatized my poor graduate student. Fear not. He's now a professor … at Harvard… where no doubt… he is ordering his own graduate students under the table.

Thank you again for this wonderful honor --- and congratulations to all the graduates!