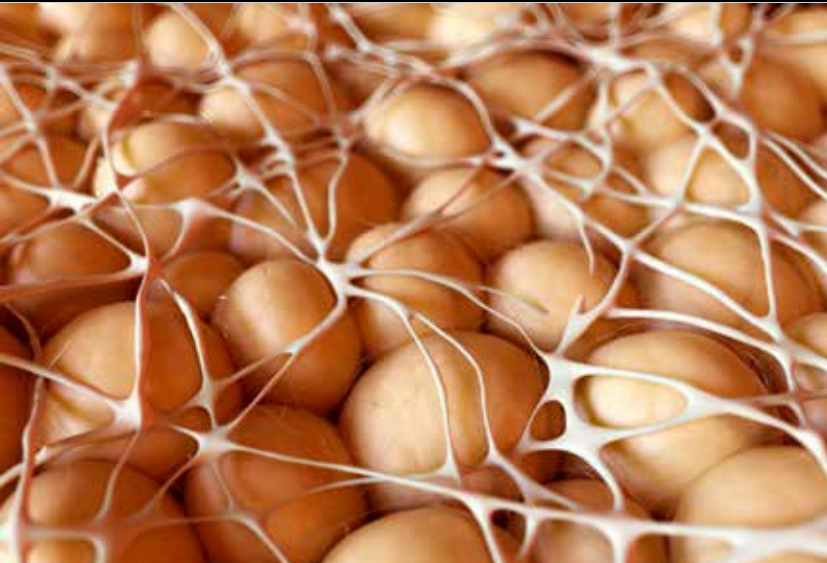




BY GLENDA FAUNTLEROY SHAW

Robert V. Farese, Jr., MD

2018 Endocrine Society Laureate Robert V. Farese, Jr., from the Harvard T.H. Chan School of Public Health talks about why receiving the Roy O. Greep Award for Outstanding Research means so much to him as well as what he thinks are the three most vital requirements for a good lab team.



Medically accurate illustration of fat cells

“ We want to do what we can to elucidate the cellular machinery that is involved in fat synthesis and storage in an organelle called the lipid droplet, and you know we have been working on that for quite some time and want to continue to try to elucidate the molecular pathways that underlie that basic biology.”

Robert V. Farese, Jr., MD, is a professor of Genetics and Complex Diseases at the Harvard T.H. Chan School of Public Health and Professor of Cell Biology at Harvard Medical School. In January, he was selected as one of the Endocrine Society’s 14 leaders in the endocrinology field as winners of its prestigious 2018 Laureate Awards.

Farese was presented with the Roy O. Greep Award for Outstanding Research, which recognizes meritorious contributions to research in endocrinology. He has made seminal contributions to the understanding of cellular lipid metabolism. Farese and his co-workers discovered the enzymatic basis for mammalian triglyceride synthesis, via two unrelated enzymes, DGAT1 and DGAT2. His work has shown how alterations in lipid synthesis and storage contribute to the pathogenesis of human diseases, in particular type 2 diabetes, and has suggested new targets for therapy.

Endocrine News caught up with Farese to learn more about the work that has earned him such praise.

Endocrine News: You’ve been a professor at Harvard for four years and Roy Greep was also a Harvard endocrinologist. He also once served as president of the Endocrine Society. What did being honored with an award in his name mean to you?

Robert V. Farese: Well, at this point in my career, I am a basic scientist mostly, but I was originally trained as an endocrinologist and my father also was originally an endocrinologist and still is a member of the Endocrine Society. As I learned about Dr. Greep and his contributions, which were huge to the Endocrine Society and endocrine research, I felt

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that it was a great honor for me and I knew that my father also knew of Dr. Greep, so that definitely influenced my feelings about it. I was very honored to be recognized in that way.

EN: I saw your recent research paper published in *Cell Metabolism* and read how your contributions are helping scientists understand the biology that kind of underlines the common diseases, such as obesity and diabetes. How did this come to be the pinpoint of your research?

RVF: The big picture overview for me was that when I was training in medicine, I first got interested in cardiovascular diseases and I became interested in cholesterol metabolism because of that, so my initial research career was focused around cholesterol metabolism and heart disease. At that time, we were studying the biology of enzymes involved in making, let's say, LDL lipoproteins, and we serendipitously discovered an enzyme that makes triglycerides.

These were the so-called DGAT enzymes, and that was pivotal because at that point we recognized that would get us into a whole different area of physiology and pathophysiology because it would relate to making oils or fat. So we then switched our interests into obesity, obesity-related metabolic diseases like diabetes and fatty liver disease. Then gradually

“Dr. Farese is an exceptional physician-scientist who has brought rigorous scientific approaches to bear on fundamental questions impacting human metabolic disease and the conception of novel therapeutic strategies. He has also shown exemplary dedication to scholarship, teaching, and to the training of future researchers.” — *Gokhan Hotamisligil, MD, PhD, J.S. Simmons Professor of Genetics and Metabolism; chair, Department of Genetics and Complex Diseases, Harvard T.H. Chan School of Public Health, in his nomination citation which appeared in the January 2018 issue of Endocrine News.*


over many years I've gotten more into the basic science of how fats are synthesized and stored in cells and tissues.

EN: I read an article on the Harvard School of Public Health website about you and your lab partner Tobias Walther. It looks like the two of you have a really good partnership. What advice could you offer to other lab managers on how to build a good team that works well together?

RVF: I think that the two most important decisions you make in leading an academic lab are the choice of the problem you work on, really giving a lot of thought to where you want to spend your efforts, and the second is hiring the right people to carry out your vision, which is a very difficult thing. But you know if you hire people who don't fit for whatever reason, it's a huge opportunity cost for trying to accomplish projects that take several years at a time.

I think the third important decision is establishing both the scientific and collegial culture in your group. That's really important, and that's set by the top. Culture comes from the leadership, generally, in my experience. Tobi and I work very hard on this together.

EN: What's next for you and your team?

RVF: We have two broad-perspective goals. We want to do what we can to elucidate the cellular machinery that is involved in fat synthesis and storage in an organelle called the lipid droplet, and we have been working on that for quite some time and want to continue to try to elucidate the molecular pathways that underlie that basic biology. Secondly, we've developed a new interest in the brain. We're interested in lipid metabolism in the brain and trying to understand the fundamental aspects of that, and then how things break down in neuro-degenerative diseases. 

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