FUTURUM
PODCAST

Professor James Lupski

Professor James Lupski is a pioneer of clinical genomics, having been involved since the field began. He has a genetic disorder called Charcot-Marie-Tooth disease and his clinical genomics research has been instrumental in discovering its genetic basis. In this podcast, James shares his motivations for helping others living with genetic conditions and discusses the importance of gaining practical experience when learning science.

Break the podcast down:

01:03 What was it like when you first were involved with personal genomics and it was a brand new field of science? What did it feel like to be part of such cutting-edge research?

It was very exciting indeed because so much different science and technology had to come together. And I was very interested in helping the patients and families, having myself been a patient and also having studied medicine and wanting to see it [clinical genomics] get better through the practitioners of medicine.

01:52 Was the thought of helping patients and other people a big motivation for you in your work?

That was the duty of what was always driving me. We're not talking just about [helping] Texans or Americans or people from Europe. We are talking about [helping] humanity and the world, and how can we help better understand our place on this Earth, and how we optimise both us and our environment. Because so much of disease is due to environmental exposure that if we just understood more on people's susceptibilities to potentially having a cancer, etc., then maybe we could try to better appreciate that we have to preserve our environment and our biology and what we put in and out: what we eat, what we do, why we shouldn't smoke, why we shouldn't do anything in excess (like alcohol, etc.). Moderation and biology in balance. And I think that disease is biology out of balance.

03:18 Everything in moderation is really good advice in terms of science, but also in general life. Is that something that you live your personal life by?

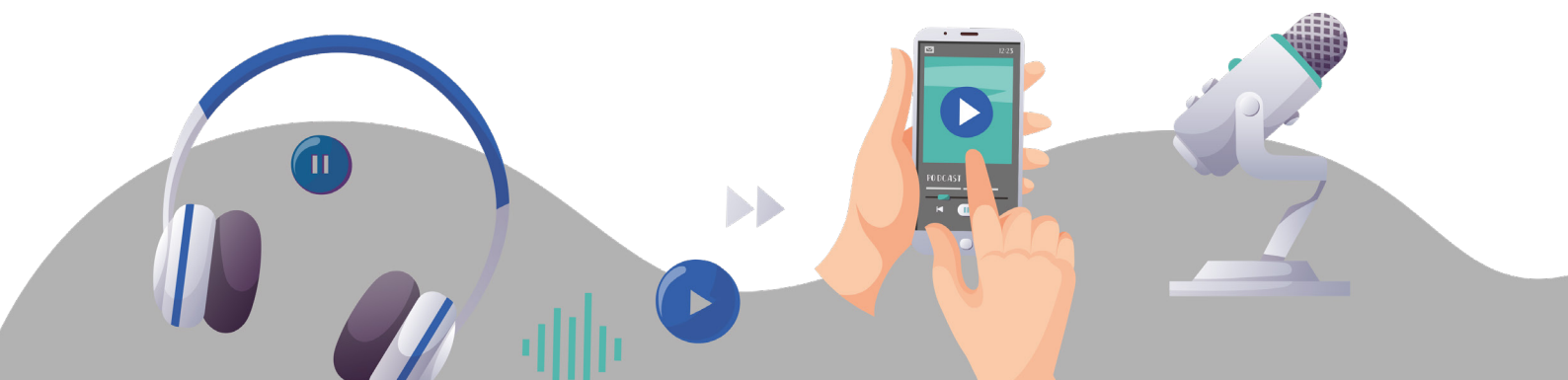
I would say so. I started to travel a lot for work but my family also loves vacations that involved travelling. For my 50th birthday they treated me to a vacation on the Galapagos Islands. I just loved that. And really, rather than just reading about Darwin, and frankly, Darwin's book Origin of the Species is so boring I could never get through it! So, it was more exciting to go to the Galapagos and visit ten islands and actually see the biology.

04:20 Is that important, when someone is considering a career in science or learning about science? Getting hands-on practical experience, visiting places, getting in the lab rather than just reading stuff in a textbook or listening?

That's what I feel the lab is all about and why I like the lab. It's practical and you only learn science by doing science. So, getting those lab skills and then reading your own data, that is the way to keep moving science forward and moving the technology forward, etc.

05:15 What other tips would you give for students who are looking to start a career in clinical genomics?

Don't fear the unknown. Embrace the unknown. And don't be afraid to screw up and don't be afraid to fail. Learn from that failure and always try to improve and learn new things. Because you never know what is going to spark that connection in your brain. More important than the factoids in your brain, is to learn how to learn. And for everybody, they have their own unique way of doing that.



06:15 I'm interested in how you learnt how to learn. You were home-schooled because of the genetic disease that you suffer from, Charcot-Marie-Tooth disease. How did you find home-schooling?
I survived obviously, but you also had to learn your own way to discipline yourself, to follow through on things and your questions and your curiosity. I was only home-schooled for two hours a day, so there was a lot more free time to do my own reading or watching educational programmes and teaching myself a lot of stuff rather than become a passive learner, which we can tend to be. It's just human nature, sometimes you're a little bit lazy when you're a passive learner.

07:22 Because you were only schooled for two hours a day, you had a lot of spare time to learn yourself. You built and rode small motorbikes and you also made your own fireworks. Could you tell me what that was all about?
It's not that I would propose that's the way you have to do things. I don't want people trying to do something that's dangerous. Also, fixing my motorbikes and building them was not dangerous but testing them out sometimes was! But it was good to learn and see some of your science and technology actually work and do some things that gave you that thrill. I find the same thing with experiments in the lab.

08:43 You don't have to tell your two-year-old child or push them out in front of a car and have them get hit by a car to learn that it's a dangerous step. So, do experiment but always also remember safety.

09:16 You've lived with your disease and then your lab discovered the genetic cause of it. How did that feel? That must have felt like quite a full-circle moment.
It was and it was very exciting. And it drove me to try to do more. But I'm still excited 30 years later as we try to implement molecular therapies that might be good for this disease plus many other diseases. So, what I'm saying is: enjoy your successes but don't become too comfortable with how wonderful you are! Because life and biology will always humble you.

10:20 Would you be excited if you were a new scientist entering the field of clinical genomics at the moment?
Absolutely, because there's so much more discovery in the near term and there are so many more people and families that you could potentially help, including your very own. We all have family members who either have cancer or Alzheimer's or other health issues. And just coming into this field helps you better understand how important health is to our society.

11:10 Are there any final tips you'd like to leave with our listeners to help them find their way into a career in clinical genomics?
Listen to criticism but don't become paralysed by it, okay? And don't forget when pursuing your career and your life to always have fun.

11:49 What's your favorite holiday destination?
New York, London and Hong Kong are up at the top. But I also have to say there was no better vacation for me, then this last holiday I had where my three adult children were all here. The weather was freezing outside, which is unusual for Texas, and we just hung out, talked and enjoyed each other.

12:32 What's your favorite sandwich filling?
Pastrami with Swiss cheese and sauerkraut on rye bread.

12:43 If you could be an animal, what animal would you want to be and why?
An eagle. I'd like to be able to soar, explore all of the beautiful scenery and biology.