

3.36: Sustainable Ex-Vivo Seafood with Dr. Arye Elfenbein

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 - Wildtype [2:02]
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 - Public perception of lab meat [23:18]
 - The "start" up [30:39]
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Plenary Session 3.36 Show Notes

Overview

Conversation with Dr. Arye Elfenbein [1:24]

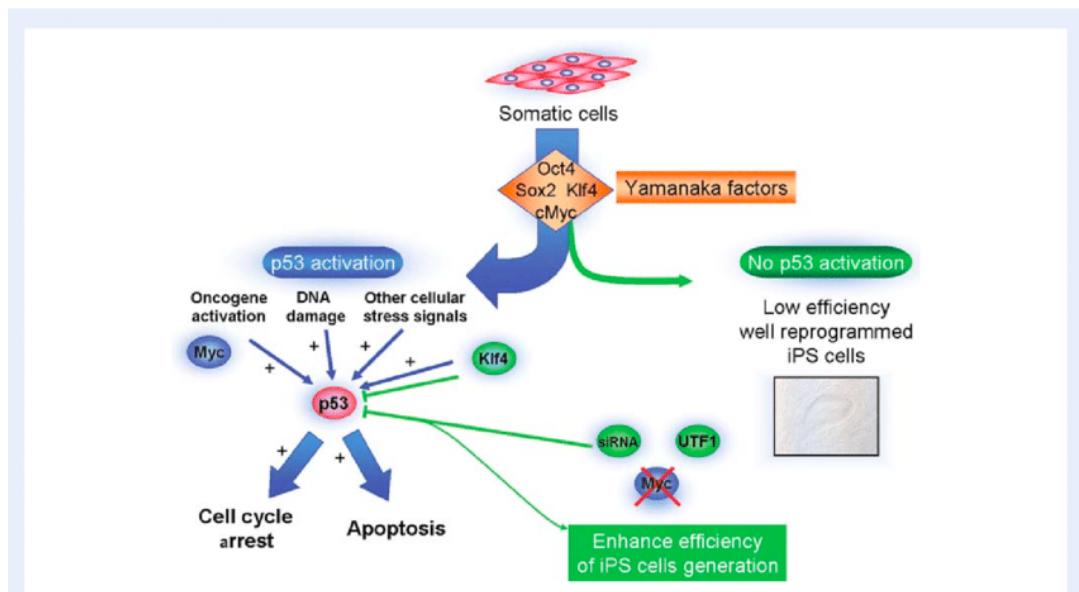
- **Introduction**
 - Dr. Elfenbein earned his MD and PhD from Dartmouth
 - He completed his internal medicine residency and cardiology fellowship at Yale
 - He is the co-founder of Wildtype
 - Dr. Elfenbein now works with Dr. Deepak Srivastava at the Gladstone Institutes

- **Wildtype [2:02]**



"By growing seafood directly from cells, we now have the ability to cultivate genuine salmon and other seafood without relying on wild or farmed fish. What's more, we have the opportunity to keep what we all love about seafood on our plates – the delicious protein and nutritious fats – without the things we'd rather leave out: mercury, microplastics, pharmaceutical compounds, and other contaminants." - Wildtype

- Dr. Elfenbein's idea for this company started from a trip he made to Australia which sparked his curiosity on the ecological impact of our food system
 - This led him to delving into the research of Yamanaka and wondering if the same principles could be applied for the cultivation of meat
- Shinya Yamanaka is a Japanese stem cell researcher, winner of the Nobel Prize, credited for developments of induced pluripotent stem cells
 - Yamanaka Factors



- It turns out that Dr. Elfenbein was not the first to have this idea
 - Winston Churchill Imagined the Lab-Grown Hamburger



"With a greater knowledge of what are called hormones, i.e. the chemical messengers in our blood, it will be possible to control growth. We shall escape the absurdity of growing a whole chicken in order to eat the breast or wing, by growing these parts separately under a suitable medium."- Churchill

- Dr. Mark Post
 - Engineering the \$325,000 In Vitro Burger
 - **Entrepreneurship [9:41]**
 - Contrary to medicine, which is a risk averse career, entrepreneurship is a very high stakes game
 - How is this venture different for Dr. Elfenbein?
 - He points out that even a career in academic medicine entails some risk because it's success is based on *discovery*
 - **Agriculture [16:12]**
 - There are two issues with sustainability currently
 1. Aquaculture, at its current rate, is not sustainable with the growing population
 2. Farm-raised salmon is actually not good for the environment as valuable ecological niches are used to farm raise the salmon
- "The biggest problem for aquaculture today, is that the overwhelming majority of the food for these fish actually comes from other fish" - Dr. Elfenbein
- **Public perception of lab meat [23:18]**
 - The first thing that comes to mind when thinking about lab grown meat is that fraught term of genetic modification
 - GMOs initially got a bad rap in the days of Monsanto
 - **The "start" up [30:39]**

- Dr. Elfenbein's investors understood the long term vision and were comfortable enough with that amount of risk from such an early stage
 - Wildtype was not a company that could be *flipped*
- 4 years later the company is made up of:
 1. 20 people
 - Team of tissue engineers, cell biologists, media and process development scientists, and food scientists

"Starting a cellular agriculture company is not a good way to get rich quick" - Dr. Elfenbein

- **Clinical side [36:00]**

- Even while Dr. Elfenbein is running a start-up company, he is still a card carrying cardiologist that moonlights for Kaiser Permanente
 - Keeping a foot in the clinical arena is important to Dr. Elfenbein because he views it as a privilege to be a part of patient's lives

- **Advice to young people [43:21]**

- Dr. Elfenbein believes it is important to pursue something that you can persevere with for the longest because inspiration can be fleeting
 - Conviction can help you push through the difficult moments

Plenary Session is a podcast on medicine, oncology, & health policy.

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