



CLL Vaccine Research: An Update

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Andrew Schorr:

Dr. Keating, at the outset, you mentioned, and she heard it, DNA vaccine. Tell us, what is a DNA vaccine? What are you working on? What place could it possibly have?

Dr. Keating:

There's a professor at the Pasteur Institute in Paris whose been working on developing a vaccine against telomerase, which is an enzyme which regulates and restores telomere integrity at the end of chromosomes.

Every chromosome has a telomere at the top and the bottom. Every time a normal cell divides, it uses up a little bit of that telomere. A message goes down to the nucleus, and they activate telomerase. They try and repair the missing piece, and then it goes back to sleep. In cancer cells, it doesn't go back to sleep. This guy has been trying to develop a way to influence telomerase for a long time. There have been telomerase drug inhibitors that haven't worked.

It's because the telomerase is deep in the nucleus of cells. This guy has been working on developing a vaccine. The vaccine is actually a DNA sequence of a fake telomerase. It's similar, but it can't make telomerase. It makes something that looks like telomerase. Once it gets into the immune system, it breaks it down, the telomerase, and you get antibodies and also immune cells against the peptides that come from telomerase. They do go to the surface. Okay. There's a clinical trial that they did in Paris, just in solid cancers. All of them had failed their curative therapy. Breast cancers with mastectomies, radiation, et cetera. A number of salvaged therapies, and they were all growing. Of 20 patients, 10 of them just stopped growing after just three vaccines into the skin.

Andrew Schorr:

Wow.

Dr. Keating:

They measured that they were activating the immune system against the telomerase cells. The vast majority of cancers have telomerase activity in their cells. They're going to do a breast cancer study in Paris. There's a little company called Invectis, which is spun off from Pasteur. That's the only study being done over in Europe, and the only study to be done in the U.S. has been this CLL study. We're going to look at the watch-and-wait patients that are destined to progress, in our opinion, using a nomogram that we've developed. Also, people that have been on ibrutinib (Imbruvica) for more than a year. One, two, three, four years and they still have CLL cells. The question is, can you give them a vaccine and render them minimal residual disease negative? We can't find it in the blood and marrow. Then, we'll see where it goes.

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