



### **Season 3, Episode 1: New Hope in the Fight Against COVID-19**

**Benyamin Cohen:**

This is “Hadassah on Call: New Frontiers in Medicine.” I'm your host, Benyamin Cohen. In each episode of this podcast, we'll get an inside look at what goes on behind the scenes at one of Israel's premier medical centers. We'll travel to Jerusalem to meet up with the doctors and nurses at the Hadassah Medical Organization. From striving for peace through medicine to performing surgeries with robots, they're working on medical breakthroughs that are impacting people around the world. That's what Hadassah is all about: the power to heal our world together. From cornea transplants to developments in pediatric oncology, we'll learn about the latest cutting-edge research coming out of Hadassah Hospital. All that, plus the inspiring stories of patients who have recovered from near-death experiences. Our appointment starts now. This is “Hadassah On Call.”

**Benyamin Cohen:**

Hello everyone, and welcome to the show. With news changing each day about COVID and the Delta variant, we thought it would be a good time to check in with Dr. Dror Mevorach. He's the Chairman of Medicine at the Hadassah-Hebrew University School of Medicine. He's also currently the head of one of the hospital's COVID wards. And as you'll hear in our discussion, he's helped develop a groundbreaking drug that's being used to treat severe COVID patients.

**Benyamin Cohen:**

Did I catch you at home? You had dinner tonight already?

**Dr. Dror Mevorach:**

Yes. On my way to bed.

**Benyamin Cohen:**

Okay. Okay. Well, I appreciate you taking the time to chat with us today. Welcome to the show. How are you?

**Dr. Dror Mevorach:**

Not too bad.

**Benyamin Cohen:**

Good. So I know when we're talking today, we are witnessing a resurgence of COVID in Israel. You know, Israel was once recognized as the vaccination nation. They were first in the world at vaccinating its citizens. And right now we're seeing a rise in cases there. What do you attribute that to?

**Dr. Dror Mevorach:**

Well, it is true that Israel was the state of vaccination, because we all started it very early.

**Benyamin Cohen:**

Mm-hmm (affirmative).

**Dr. Dror Mevorach:**

And actually, we were able to beat, I would say, the Alpha variant with vaccination. And this was first in the world, I think, to show that vaccination can beat the pandemic. However, the Delta variant needs another threshold of what is called herd immunity, and we need more people to be vaccinated. In the background of that, the Delta variant started spreading around, and now we are almost 1000 new cases per million, which is very high. Actually, it's the third in the world.

**Benyamin Cohen:**

Mm-hmm (affirmative).

**Dr. Dror Mevorach:**

And we are facing a new wave. However, it's very different from the previous waves, because many people are vaccinated. And also, and we may speak about it, we also did the booster vaccination, which seems to have a very interesting effect.

**Benyamin Cohen:**

Yeah. Israel, if I believe, was the first country to start using a vaccine booster. Is this because Israelis were the first to get vaccinated -- December, January. And so now that we're already in almost the fall, the efficacy of the vaccine, is it waning? Is that what's happening?

**Dr. Dror Mevorach:**

Well, yes. Maybe nobody would have paid attention to that, but since the Delta variants went into the country, so we were forced to pay attention to that. And to the fact that there is some decline, at least in the level of antibodies in many peoples, which is a known phenomenon, but it correlated to the fact that some vaccinated people were affected by the Delta variant, despite their vaccination. And when we saw that, it was clear that something is wrong there. And when we measured the antibodies, it looked at the antibodies are too low, or maybe are responsible for that. And this was the basis for the decision to give a booster, first to the above 60 years old, and now we open it to other ages as well.

**Benyamin Cohen:**

Do you think we're going to keep needing boosters every six months, every eight months?

**Dr. Dror Mevorach:**

Not necessarily. Actually, the immune response is complicated. It's not only antibodies. You have also a T-cell response, you have a B-cell response, you have what is called a long-lived plasma cells. And the fact that antibodies decline is a natural thing, and it doesn't show that your immune response is not that good. So now after the third or after the booster, it might be that we will be in a status that will enable us to stay without another booster, a fourth one, for a longer time. However, we don't know. We'll have to follow, and we have to document. And hopefully within a three to six months, we'll know better

**Benjamin Cohen:**

And what lessons you learn from the first few waves that you apply now?

**Dr. Dror Mevorach:**

Well, we learned, as the world learned, how to treat, diagnose, and treat the disease. The drugs that we used in the first wave were different from the second, and a little bit in the third. But I think, in the midst of the second wave, we understood the best way to treat these patients with conventional treatment, of course, and how to use respirators, ventilators, and how to try and avoid the deterioration of this disease. I think this was a lesson that all the world understood. But along with this lesson, we had a pressure of getting to the burden of what a hospital can accommodate in patients, and in staff, in treatment. And I have many friends in New York, because I was trained there many years ago. And they told me that they had a lot of difficulties because of burden of disease and some epochs that they could not respond very well, unfortunately.

**Benjamin Cohen:**

How is Hadassah unique in this way?

**Dr. Dror Mevorach:**

I don't know about other places, and I'm sure in every hospital in the world, there is an effort. There was an effort. But in Hadassah, I think there was a special spirit of coming together, of dedicating ourselves to the mission, of trying the best we can, of caring, volunteering many times, despite the high pressure. I was amazed by the spirit of the team -- nurses, doctors -- and also support team that came to open departments, to fix problems in the departments. I think there was a spirit of... like you see sometimes in war, like you see sometimes in a big problem, everybody comes together. And I must say, this is an effect that we all don't always give attention. But corona gave us this opportunity to work together, to appreciate of being people that can help each other, and help the public, and serve the public. And I think there was a lot of that in these three waves.

**Benjamin Cohen:**

Right. Hadassah is also very well known for the research that they've been doing around COVID, I know, which is something you've been a part of. I was reading an article, I think in New York Magazine, about some research you were doing about the second dose of the COVID-19 vaccine, and how you noticed that, in some patients, it was causing myocarditis. Is that how you pronounce it?

**Dr. Dror Mevorach:**

Absolutely, yes. This is inflammation of the heart. And actually, I noticed that in a patient, but this was due to the vaccination. So I was noticing that in January 10th, last January, and I reported it immediately

to the Minister of Health, and also W.H.O. And the Ministry of Health responded very quickly and appointed me as a chairman of the committee that should follow up these observations. And I must tell you that Israel and Hadassah had the largest series of follow up of these patients. And actually, we are now soon it will be published in a very distinguished journal. Our observation that will, I think, will teach most of the world about how it happens and when it happens. And I think this was a remarkable effort made by Minister of Health, Hadassah, and other doctors that were recruited.

**Benyamin Cohen:**

Can you give our listeners a sneak peek? I heard that the myocarditis was impacting younger men.

**Dr. Dror Mevorach:**

Right.

**Benyamin Cohen:**

And that maybe some people were worried that this could impact children in an adverse way.

**Dr. Dror Mevorach:**

It's true. And I can tell you that I am a great believer in transparency in medicine. And I think each parent should and know what are the risks for their children, and each young person should know what is the risk that it takes. And I can tell you that the risk for myocarditis for young males is around 1 to 6,000, and it is not for women, mainly for males. And although it is rare, it is quite a number. However, you have to understand that, if you get COVID-19-

**Benyamin Cohen:**

Right.

**Dr. Dror Mevorach:**

... you will have myocarditis more frequently than the vaccinations. So, I still recommend vaccination. And believe me, I know very well, almost everything about this myocarditis following vaccination.

**Benyamin Cohen:**

Yeah.

**Dr. Dror Mevorach:**

But I think still, if we put it together, of course we have to be careful and to monitor young males. However, I am convinced that the recommendation for vaccination is still standing.

**Benyamin Cohen:**

You know, we thought the vaccines were supposed to solve everything, but more and more, it seems like it's a multi-pronged approach to fighting this pandemic.

**Dr. Dror Mevorach:**

You see, Benyamin, it is very interesting, because corona taught us to be modest. We understood that we don't understand everything in the disease, in the diagnosis, in treatment. And we don't understand

a huge effect of the disease on society, on education, on habits that we have. And you see such views that arouse can change all our lives. And I think we evaluate things a little bit different today.

**Benyamin Cohen:**

Mm-hmm (affirmative).

**Dr. Dror Mevorach:**

And in that regard, although it was a disaster, this disease, it also brought some new understandings to many people, I think. And we should appreciate that as well.

**Benyamin Cohen:**

When we return, Dr. Mevorach talks about the drug he developed which helps severe COVID patients so they don't have to be put on a ventilator.

**Dr. Dror Mevorach:**

And it was amazing that 19 out of 21 of them, following one infusion of this cellular therapy, ameliorated tremendously, and actually were able to leave the hospital in a couple of days, of course, without a ventilator.

**Benyamin Cohen:**

Wow.

**Benyamin Cohen:**

All that, and much more, after a quick break.

**Benyamin Cohen:**

If you're anything like me, you have trouble going to sleep at night. I've tried almost everything -- from sleep aids, to sleep therapy. And if you don't sleep well, it could lead to all sorts of health issues. So you can imagine how excited I was when I got a chance to talk with Dr. Joel Reiter on a recent episode of the "Hadassah On Call" podcast. We talked about his latest research, plus the various aspects of our lives that contribute to poor sleep, like living through the stress of a pandemic.

**Dr. Joel Reiter:**

Because you take something like insecurity. Insecurity about your workplace, about your parents, about your health, and add to that, the quarantines, staying at home for entire days and nights, and not getting out of bed, and you get an increase in sleep problems.

**Benyamin Cohen:**

You can listen to that episode right now at [hadassah.org/cantsleep](https://hadassah.org/cantsleep). That's [hadassah.org/cantsleep](https://hadassah.org/cantsleep).

**Benyamin Cohen:**

And now back to our conversation with Dr. Dror Mevorach.

**Benyamin Cohen:**

So I want to pivot now and talk about this new drug that you've been researching and working on. I want to make sure I pronounce it right. Is it called Allocetra?

**Dr. Dror Mevorach:**

Right, that's the name.

**Benyamin Cohen:**

How do you come up with a drug name? I've always wondered.

**Dr. Dror Mevorach:**

Well actually, the drug name that I gave was called Apocell. Apocell came from the word "apoptosis," which is a process of death of cells.

**Benyamin Cohen:**

Mm-hmm (affirmative).

**Dr. Dror Mevorach:**

And then somebody in the company thought that Allocetra might be better. And I was not refusing, because I was mainly interested in the effect, and not in the name of the drug.

**Benyamin Cohen:**

Right.

**Dr. Dror Mevorach:**

So that's how we came with that.

**Benyamin Cohen:**

So let's talk about what this drug can do. You created it in conjunction with a pharmaceutical company called Enlivex?

**Dr. Dror Mevorach:**

Right. Actually, we developed it at Hadassah without any companies, just from my lab at Hadassah.

**Benyamin Cohen:**

Mm-hmm (affirmative).

**Dr. Dror Mevorach:**

30 years ago, sorry, 20 something years ago, I was in the states for three, four years, and I was doing research on how cells are dying in the body. And when I did this research, I noticed that dying cells affect, very interestingly, cells of the immune system, and they calm them down. Because there are so many cells that die in the body, the immune system is not interested to be triggered all the time, so it

accepts dying cells in a very calm way. So I thought to use this property, and I produced many dying cells outside the body. And then I injected them to the body ... first, of course, in mice, et cetera, but then when I saw the amazing effects of it, I went into human, and I gave it to few diseases like graft-versus-host disease in bone marrow transplantation.

**Dr. Dror Mevorach:**

I gave it to sepsis, which is a systemic infection, severe systemic. And then I took it also for severe and critical patients with COVID. And the reason was actually to calm down their inflammation, what is called a cytokine storm, if you heard this name, and this is actually exaggerated immune response that occurred in the lung and in other places. And when we gave it, so we gave it to 21 patients, we saw amazing results in most of them. And we were very much encouraged by that. And now, actually, we started a pivotal study, which is a controlled study in 160 patients in Israel and soon in Spain, as well.

**Benyamin Cohen:**

This is at Hadassah?

**Dr. Dror Mevorach:**

Hadassah is the leading hospital, but we had a lot of applications from other hospitals. And we said, of course, we'll share this with other hospitals. And actually, there are about 9 to 10 hospitals that are going to join.

**Benyamin Cohen:**

So this drug, it doesn't target the virus, right? It targets the side effects of the virus -- the organ failure, the lung damage. And so it can prevent a patient from having to be put on a ventilator, right?

**Dr. Dror Mevorach:**

Exactly. We took patients that were on their way to be put on a ventilator, and it was amazing that 19 out of 21 of them, following one infusion of this cellular therapy, ameliorated tremendously, and actually were able to leave the hospital in a couple of days, of course, without a ventilator.

**Benyamin Cohen:**

Wow.

**Dr. Dror Mevorach:**

And that was the main aim. You're right. To avoid putting them on ventilators, because this is really a moment that changes the future of a patient with COVID once he's on a ventilator or before that.

**Benyamin Cohen:**

Right. It's like a crossroads in the life of the disease. Yeah. But so the Allocetra, it doesn't really matter. I know we're dealing with Delta right now, and maybe one day we'll be dealing with Lambda and other variants. It doesn't really matter. This really takes care of the side effects of those variants, right?

**Dr. Dror Mevorach:**

Yes. I would say the consequence of these variants, because some people have some mild disease without progression into this storm, into this triggering of the immune system, and they heal quite

reasonably, not talking about long-COVID effect. So these people are not treated by Allocetra. But those who develop a cytokine storm, which is a triggering of the immune system, they are in danger of getting on a ventilator, respirator. And in that regard, I think we saw an amazing effect in avoiding that.

**Benjamin Cohen:**

Mm-hmm (affirmative). Have you seen any potential side effects?

**Dr. Dror Mevorach:**

The effect of these cells are engulfed. They are eaten, if you want, by other cells that are called macrophages. And since this is a physiological event, we didn't notice any annoying or what is called major side effects with this drug, at least in about 40 patients that we gave them to them.

**Benjamin Cohen:**

So you said you're starting a phase 2B-

**Dr. Dror Mevorach:**

It's called Phase 2B.

**Benjamin Cohen:**

Yeah.

**Dr. Dror Mevorach:**

But actually what is very important, it could be called also a Phase 3. But what is important is that it is a controlled study. And if successful, we might get what is called a conditional approval by the European authority and Israel. We also applied in the US for a similar study in order to approach the FDA. But since we are closer to Europe, we started with the EMA, the European authority.

**Benjamin Cohen:**

What role do you think this drug will play in the overall fight against COVID?

**Dr. Dror Mevorach:**

Well, if COVID is here to stay, which is a big question we don't know-

**Benjamin Cohen:**

Right.

**Dr. Dror Mevorach:**

... we hope that it won't stay here, because we have other indications for Allocetra. But if COVID is here to stay... so apart from vaccination, we'll have to deal with some people, because we know that even vaccinated people are not a 100% protected. So maybe we'll have a decline in the numbers of hospitalized patients, but probably we'll still have a lot of hospitalized patients. And I think for those people, if you want to save them, you have to find additional drugs to fight the disease, and Allocetra is



a very efficient one in regard to critical and severe patients. You know that some drugs are more aimed for what is called a moderate and mild disease, like the Regeneron cocktail that Mr. Trump received, if you remember.

**Benjamin Cohen:**

Yeah.

**Dr. Dror Mevorach:**

But the Regeneron cocktail is aimed for a milder disease. However, Allocetra is aimed to be given to critical patients.

**Benjamin Cohen:**

How does it feel? You talked about a minute ago having these patients who were almost about to go on a ventilator, and you were able to prevent that, and then they walked out of the hospital a few days later. How does that make you feel to have been a part of developing this life-saving drug?

**Dr. Dror Mevorach:**

Well, amazing. And I must say, this is a great satisfaction also for a researcher that started at the lab and felt that this potentially can be a great drug. But from the moment you feel the potential, to the moment you realize it, it takes a lot of efforts. And to see these patients getting up and leaving the hospital, almost healthy, is an amazing feeling. But I think this is always the case in medicine.

**Benjamin Cohen:**

When we return, Dr. Mevorach tells us about other projects he's working on, and discusses the importance of persistence when it comes to medical research.

**Dr. Dror Mevorach:**

You will get results. Maybe not today, maybe in 10 years, maybe 20 years, maybe after your death, but you'll get results.

**Benjamin Cohen:**

All that, and much more, after a quick break.

**Benjamin Cohen:**

As one of our podcast listeners, you've been hearing all about how Hadassah is here, healing the world. Every day, innovations from Hadassah's hospitals save lives in Israel, the US, and around the world. Being a member of Hadassah means you're a part of it, and that's something to be proud of. Hadassah is here for you, here for each other, and here for the world. Learn more about the many advantages of membership at [hadassah.org/hadassahishere](https://hadassah.org/hadassahishere). Membership starts as low as \$36 a year. If you're already a member, think about making someone you love a part of our healing work. Membership makes a beautiful gift. That's [hadassah.org/hadassahishere](https://hadassah.org/hadassahishere).

**Benjamin Cohen:**

And now back to our conversation with Dr. Dror Mevorach.

**Benjamin Cohen:**

You talked about the long research for this drug, developing a drug, and I'm curious to know what goes through your mind... it's potentially possible for you to spend decades working on this research, and for it not to come to fruition. How difficult is that for you to work on something that may or may never see the light of day? I mean, in this instance, it has seen the light of day, but you didn't know that when you were working on it.

**Dr. Dror Mevorach:**

Well, believe it or not, I'm not interested in results. I'm working for the sake of research, although I'm very happy when there are results, and I'm very happy when there is a success. But I'm doing research, because I am a what is called a physician scientist. And because I'm a seeker of truth, I want to know the truth about processes in the human body, the way they take place. And I accept that sometimes research won't be that successful, but I know that, once you are persistent, you will get results. Maybe not today, maybe in 10 years, maybe in 20 years, maybe after your death, but you'll get results.

**Benjamin Cohen:**

Do you hope that 50 years from now, 100 years, people, when they hear your name, Dr. Mevorach, that this will be your legacy, helping with a piece of the puzzle of the COVID pandemic?

**Dr. Dror Mevorach:**

Well it sounds like a nice idea, but I don't think I'll be able to enjoy that at that moment.

**Benjamin Cohen:**

Right. Right. I got you. Do you have any other research projects going on at Hadassah that you can tell us about?

**Dr. Dror Mevorach:**

Yes, of course. We have few projects, amazing projects, that we need three additional hours for, but I can just tell you that one of my interests is to find a diagnosis that are unknown and not known in the immune system. And we discovered five or six new diseases, and some of them were with families, and we were able to identify the problem, the molecular events, and also to find the right medication for that, and to save the life of children. And although I'm an internal medicine and a rheumatologist, I became a pediatrician, because I follow about 15 children that I discovered a new disease. And since most of them were in Israel, I became the expert for this disease. So I follow them as a doctor, and it's amazing to discover these diseases and to be helpful to these families.

**Dr. Dror Mevorach:**

So we have quite a lot of projects in our lab, and at Hadassah, which we are, of course, doing it in collaboration with other laboratories and doctors in the institute. And this is the amazing, I would say, DNA of Hadassah is care in clinical medicine and deep research in medicine and biology. And I think the combination of that is amazing. And I can tell you that the research also somehow is keeping me to be a doctor who is not tired from patients, is not lose his interest in anything, is always alive and with a lot of enthusiasm. And this is also because of the atmosphere at Hadassah.

**Benyamin Cohen:**

Yeah. I was going to say, is that why you chose to have your career at Hadassah?

**Dr. Dror Mevorach:**

Yes. Actually, when I finished my medical studies, I knew that I want to be in the best place in Israel. And that's why I went to Hadassah, because I wanted to be trained in the best place. And by the way, also, when I came to the states, I looked for a very good place, and I was trained in Cornell at New York. And I think when you are trained in a very good place, your potential is developing much further. And I think afterwards, you could go to other hospitals and other places, but you need this education. You need that spirit of a place.

**Benyamin Cohen:**

Mm-hmm (affirmative). You know, the COVID vaccine brought to many people's attention, I'm sure the medical community was already made aware of it, but to the mainstream audience, we learned about mRNA and these new technologies. What do you think are going to be some of the next breakthroughs in medical research?

**Dr. Dror Mevorach:**

Well, I think two breakthroughs will be in the area of cancer, which in the last 10 years, we see more and more. And I must tell you that I have amazing findings with Allocated in mice, in cancer, and we are going to stop very soon the trial in humans, also in cancer. I think cancer has developed a lot in recent 10 years, and you see more and more possibilities to treat cancer that you did not have before. The other thing is dementia or Alzheimer's.

**Benyamin Cohen:**

Mm-hmm (affirmative).

**Dr. Dror Mevorach:**

I think that this, for a long time, it was a place that you cannot pass. You could not penetrate. And I think now, we are close to a better understanding of what's going on, and hopefully we'll find some new drugs that could ameliorate treatment in this disease, which is quite difficult to the person, and to the family, and to the surroundings, to see a full active man or woman that was so active and so capable going into dementia. This is a very difficult situation. And I think this will be an area of breakthroughs.

**Benyamin Cohen:**

Yeah. I hope so. I hope so. I know it's getting late where you are. I'm going to have to say laylah tov to you soon. Is there anything I did not ask you that I should've asked you?

**Dr. Dror Mevorach:**

Well, yes, but maybe we'll keep it for another talk.

**Benyamin Cohen:**

A second episode, a sequel.

**Dr. Dror Mevorach:**

A sequel. Maybe after we'll see what happens with Allocetra-

**Benyamin Cohen:**

Yeah.

**Dr. Dror Mevorach:**

... and when we get our article published soon in a distinguished journal, and any other circumstances that Hadassah will be brought into attention.

**Benyamin Cohen:**

Yeah.

**Dr. Dror Mevorach:**

And I'm sure there will be many.

**Benyamin Cohen:**

Yeah. Yeah. Well, Dr. Mevorach, on behalf of everyone, I really appreciate the hard work you're doing to help fight this pandemic. Even though you're not concerned about your legacy, everyone is very concerned about the research you're doing at Hadassah, and we thank you for that. So thank you so much for taking the time to chat with our audience today.

**Dr. Dror Mevorach:**

Sure. Thank you, Benyamin. Have a nice day or evening.

**Benyamin Cohen:**

It's afternoon where I am.

**Dr. Dror Mevorach:**

All right. Yes.

**Benyamin Cohen:**

All right. Well, thank you so much and laylah tov.

**Dr. Dror Mevorach:**

Laylah tov.

**Benyamin Cohen:**

“Hadassah on Call: New Frontiers in Medicine” is a production of Hadassah, The Women's Zionist Organization of America. Hadassah enhances the health of people around the world through medical education, care and research innovations at the Hadassah Medical Organization. For more information on the latest advances in medicine, please head on over to [hadassah.org/news](https://www.hadassah.org/news). Extra notes and a

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