00;00;00;00 - 00;00;26;24
Cale
Welcome to Grin + Bare It. A show that uncovers the remarkable stories from one of the most demanding industries in the world — Healthcare. From inventors and trailblazer bosses to frontline workers and scientific experts, we explore the biggest challenges faced in healthcare and how these brilliant people have solved them. On today's episode, I have the absolute privilege of speaking with Professor Alan Trounson.

00;00;26;26 - 00;00;53;19
Cale
Now, if you know Alan by name, you'll certainly know his work and his amazing medical breakthroughs. Alan's career began when he pioneered IVF in Australia, bringing our first IVF baby into the world. His world firsts, including embryo freezing and the drug protocols for egg production, significantly increased the effectiveness of IVF and with it, brought hope to millions of families worldwide.

00;00;53;22 - 00;01;58;23
Cale
As his research evolved, Alan became a global leader in stem cell research, founding the Australian Stem Cell Center before serving as the president of the California Institute for Regenerative Medicine. Today, he continues to push the envelope on regenerative medicine and is the founder and CEO of Cartherics. He aims to reaffirm the body's immune system to fight cancer. In this episode, we'll chat about Alan's reflections on a career that has spanned and shaped three critical phases of modern medicine. How Alan dealt with criticism and backlash for his groundbreaking work. What it's like getting offered a job from Arnold Schwarzenegger and the future of regenerative medicine, and why Alan believes his biggest breakthrough is yet to come. I hope you enjoy this wide ranging conversation with one of the most influential figures in the history of biomedical science, Professor Alan Trounson. Enjoy the show. Alan, thank you so much for joining. Welcome to the show.

00;01;58;26 - 00;02;00;09
Alan
Glad to be here, Cale.

00;02;00;12 - 00;02;18;17
Cale
Hey, I've asked this question before to other guests who are working in and around this topic. I'd love to hear your response. Given your background, do you believe cancer will be curable in future, and if so, how far away are we from it?

00;02;18;19 - 00;02;42;22
Alan
Well, cancer has a lot of conditions, so, you know, it's hard to have any sort of precision in you, in your sort of guesswork there. So, I believe cancer will begin to be managed. And so maybe

cure is not the right word for it, but if we're able to manage it as a disease that, you know, that, that doesn't cause so much damage as it does to people that currently.

00;02;42;25 - 00;03;36;24
Alan
So I think it will be managed. Some of it may get cured. And there are, I guess, lighthouses on the way that suggest that that might happen. But there's a lot of cancer. And if you, if you treated it all as a single entity, you'd be wrong. And so it's just kind of difficult to predict. I think it's taken a long time for us to really get to this stage in, in cancer and in some treatments we do get really tremendous responses from patients. And, and I think it'll be another ten, 20 years before we feel like this is under some sort of management. And it's probably 30 years before we are comfortable about that management. And it may even be 50 years before it's secondary to what other things that we do. Currently, it's, it's one of the number one problems in medicine.

00;03;36;26 - 00;03;49;12
Cale
You mentioned it takes a long time. Or it has taken a long time to date. Why is that and why do you think it's going to take 30 years? That might be very short in the scheme of things, but why has, why is that been?

00;03;49;15 - 00;04;14;06
Alan
Well, I think it's the nature of the, the disease. It's, it's a disease of the cell, so what's gone wrong is that your cells are mutated and the primarily long oncogenes. And there are a lot of oncogenes in the genome. The immune system in humans was created, you know, millions of years ago. And it's very effective at really looking after us.

00;04;14;09 - 00;04;57;01
Alan
I mean, when it gets to cancer, there's some aspects of cancer that, that really haven't been removed by evolution because they're not they're not under selection pressure. And as you get older, of course you get more cancers. And so that's not on the selection pressure. It’s one of those things which, you know, takes takes a lot of smart science to sort of figure it out. And if you, if you start to use, you know, our immune system to help you, then, you know, I think you're on the right side of it. And it's only just in this last 20, 30 years that we've really started to use the immune system in the way it can be managed to do that. So that's, that's really why I think it's in this current state.

00;04;57;03 - 00;05;39;13
Cale
Super interesting. I've got a million questions on the back of that. Before we jump into, yes, your, your work currently. I just want to take a step back about your career, and, you know, I think your career is incredibly impressive. One is all the awards and accolades. There's been many and really well deserved when I was reading about it. The other part is just the breadth of work from

initially sort of thinking you'd be interested in veterinary moving to wool industry, then moving to IVF. We had a really storied career, stem cell research, and now you're in your current company. I'd love for, the listeners, for you to just give us some insight into the journey of how you got to where you are.

00;05;39;16 - 00;06;00;11
Alan
Oh, look, I think that's got a lot to do with luck and where you are at, at the time when there's opportunity. I'm a scientist who looks to see the developments that you make or the discoveries you might turn into something that you can actually use. When I was in agricultural, as I was a farmer. And so, you know, that's what I was interested in.

00;06;00;13 - 00;06;52;03
Alan
And so those sort of developments really were orientated to help breeding and animals and so on. So, and that's it. And I use what I had developed in animals to solve those. It was a genuinely a translation process of what on you and animals to the human, because I thought we're not that different, you know, in the, in the sort of biological census, you know, a lot of the biological systems are very common in, in mammals. And so, you know, you can actually sort of take information and with some changes and modifications, correct, that, you know, make it applicable to a species or a different species, like animals to, to humans. You know, we were working with embryo. So I've got interest in embryonic stem cells because it was so interesting in the mouse and they're doing functional genomics.

00;06;52;03 - 00;07;17;15
Alan
But I thought, hey, these cells turn into any cell of the body. They must have a power, that regenerative medicine. And so, so I decided to sort of do that quite independently. And we got it pretty quickly. Basically in Singapore, the Singapore, Singapore government's Ethics Committee approved us to look at developing human embryonic stem cells. And, and it worked.

00;07;17;18 - 00;07;41;03
Alan
And so you then start to say, well, what can you do with those cells? You know, for all of the, the terrible diseases that we're sort of placing where you lose tissue function, can you repair it? We're using these cells and there's still not a clear answer to that. But then it took me John Howard invested and hundred million in, in, in those ideas.

00;07;41;03 - 00;09;08;12
Alan
And I was, I remember sitting in his office showing him some pictures I had of Terry Thomas that you make from embryonic stem cells, and they looked like lung tissue, like, heart tissue, like wool. And they said, can you do that? And I said, you know, we can. Then when Bob Klein and Schwarzenegger contacted me to come from the California Institute of Regenerative Medicine,

because I got $3 billion, you know, in funding to sort of get that up, basically because, President Bush wasn't he wasn't very supportive in stem cells, I seem to be the person that I really wanted to lead, that it was helpful to them to have someone outside the American research system to come in. But there was a sort of time when I had to come back to Australia or, or face losing the family because, you know, that come back and, I had the option, you know. What? Do you continue or not? And so I came back after that. So I got back into academia and maybe I'm too old to wait around in that sort of slow process in academia, but maybe if we took what I thought was one of the best things in California, that we were funding them, and that was a chimeric antigen or CAR technology because the people with blood cancers were, you know, kilograms of cancer were disappearing in these patients and they were free, it's astonishing.

00;09;08;12 - 00;09;51;09
Alan
You answered. And there wasn't much going on here, very little. And so I thought, there's an opportunity. Maybe we start a company because I don't have 20 years to sort of get this guy. I need to get faster than that. And so I decided to sort of go into a company and, and fortunately, some people believe that, you know, that there's a, there's something there. And that started off the, the interested in using stem cells and chimeric antigen receptors or cars and you know, if you make if you're able to make progress, people will they'll say nice things about you most of the time that,

00;09;51;11 - 00;09;53;05
Cale
Most of the time, most of the time for sure.

00;09;53;12 - 00;10;14;25
Alan
No, no, there's certainly something that's not are not suited. But they already had an agenda mostly so, it was, it was just logical and and it was opportunistic, I must admit. But if Arnold Schwarzenegger calls you up, you're gonna say no?

00;10;14;27 - 00;10;22;29
Cale
So we're, we're confirming priorities. It was nothing about the research. It was actually just about Arnie just asking you to come over and work with him, work with the Terminator.

00;10;23;01 - 00;10;34;20
Alan
Well, I had massive family right then, but he's asking, you know, so I didn't. Is it really? It sounds like.

00;10;34;22 - 00;10;53;02
Cale

Classic. It's a, like, you raised a really interesting point there, which was if you did have more time, so you had an extra 20 years up your sleeve. Would you have gone back into academia? Was it actually a timing thing, or was it something else that drove you into, you know, building a company around it?

00;10;53;05 - 00;12;12;03
Alan
I think, I think it was basically I'd done academia, and I—the problem, the great thing about academia when I was there was that sort of what I consider probably now rogue elements that do really innovative stuff in areas where maybe they're, people who have strong beliefs, such as the early embryo. You know, I know this takes a huge effort and takes concentrated effort. And if you're going to build that, maybe it's easier if you build it through a company. And while I hadn't had direct experience in the company, I've been in California working with companies and academics, and I could see that I could see the benefits of both. If you could actually work companies together with academics in some stages of development, work really well, really well. And that's what I did when I was there. You know, I got them to work together, made them work together, and I really did great things. And I thought, well, if I got a company, I can always use my contacts in academia to, to really help where we need. And so maybe we can build something like we had there in California, even though we didn't have the, the kind of funding that was available. Yeah.

00;12;12;06 - 00;12;36;21
Cale
Yeah. It's kind of like the you're craving the urgency of, the small private company with the infrastructure of, you know, the public sort of research system. I'm really interested. You actually mentioned as well the move back to Australia was you, yeah, you said, you know, the potential to lose the family. And I just want a segue a little bit into you.

00;12;36;23 - 00;12;58;16
Cale
You, the only person that I know, certainly, that, your children, specifically your daughter, created a production about your work and and the experience of that. I would love to hear, what your experience was like in sort of watching that, knowing that that was happening. It would have been a really interesting time. I'd imagine.

00;12;58;19 - 00;13;21;05
Alan
There was, it was while I was in California, pretty much, you know, I mean, I came back and saw the course was in production and we went through a whole season. There's a bit of an out-of-body experience, really, and I'm sort of looking at, is this really me? Is it? But she—I didn't really interfere with that process because it was her memories that were being sort of used in a way to create that.

00;13;21;08 - 00;14;10;27

Alan
And the only thing I corrected was, you know, that she had come was, is a very awkward Australian, that it was and it was very much a ladies man, a very gentle, a very sort of persuasive sort of person that, generally very likeable, but not an awkward in any way. So that's the only thing. I changed the rest of it. I enjoyed it, but I, I enjoyed it more because it was Kylie's creation of what she'd been through and what had impressed her most. And maybe I think some of the critics were that, you know, not enough as some of the other people that were involved, you know, got and mention and but, but that was her,her story and it wasn't a story that I had concocted. It's one that she, she'd created from her memories.

00;14;10;27 - 00;15;17;02
Cale
Yeah. We definitely get to touch on that sort of almost learning from you and how to deal with criticism and staying true to sort of you, your passion and what you want to be doing. Before we do, I'd almost cut up some of these questions in different sort of stages, I guess, of the career that you've had, the first being obvious and, you know, your work in stem cells and, and finally, the current company. IVF, I know it's some time ago now and it's not, you know, it's now an area of expertise for you currently, but the early work that you did was incredibly groundbreaking. I did have a couple of questions that sort of linger for me. And, you know, I'm familiar with the IVF process through, you know, a lot of people close to me. One thing that really surprised me about IVF in today's medicine is there are still things that are, not well understood. Well, they're still sort of the conception part, which can't be, manufactured per se. It's left to chance. Do you have any understanding as to why that is in, in today's medicine, while there's still parts that are not really well understood?

00;15;17;04 - 00;15;55;09
Alan
I think it's mainly because it's very difficult to interrogate the, the embryonic system in the, in the way that you can interrogate an animal embryo, you can make many embryos in animals and interrogate them, you know, in various ways. I think the process is a reasonably well understood in the human, but there are still areas where where we, it's a bit of a black box, but some of the scientists have sort of pushed on a bit beyond the stages that I worked on, and they're starting to see into those and to understand them.

00;15;55;09 - 00;16;43;19
Alan
And I think it's, it's really important for our understanding whether it will end up as something useful for IVF itself. I'm a little doubtful about. I think we probably know most of the, the advances because the, the technique is, is, it's pretty good. There's a, in terms of its efficiency, the outcome. And even after some IVF, those patients will start reproducing normally themselves. So did it take IVF to get it started or not? I don't know, but, it's possible that, some of that will in the future be understood and won't have to go through IVF because it would be corrected by something that's possibly a lot simpler.

00;16;43;22 - 00;17;06;21
Cale
Yeah. Sort of leads into that, the, the second question, which is and you kind of have already answered it, but this concept that there is another breakthrough or something that's quite substantial or within IVF that may happen that would, yeah, dramatically improve success rates. It sounds like you know, I subscribe to that. You think it'll be very incremental from this point.

00;17;06;23 - 00;17;31;01
Alan
I think, generally speaking, that the success of IVF is now pretty good. And, you have the ability to freeze embryos and, you know, you can actually use those as well if there's a few complications when you freeze embryos, if you don't dispose of them like in America, gathering, and then freeze or not disposal, then that's a bit of a problem.

00;17;31;03 - 00;17;58;00
Alan
But if you get all the management, the social issues associated with that, it sort of worked. I think there will be sort of some challenges, but we've been sort of myself and my, my partner Karen that been working with people at low cost. You can actually do it for most of the people quite efficiently and cost effectively. It's where you get to be more complicated and, and becomes complicated.

00;17;58;02 - 00;18;53;26
Alan
People always want to sort of have children at the age of 40. Right. Because it's not, it's not so easy for them, because the eggs, you know, this started to, chromosomal errors and things like this, things are starting to go wrong with the eggs and the they're, it'd be a really good idea if you and I think that's the advice that most people will try and get, patients is to see if you're in your 20s and 30s. It's the ideal time for women to have a child, and you should do it if it's possible, they just don't feel comfortable, having found the right partnership. You know, there's all sorts of reasons why you conceive later, try to conceive later. But, you know, that's, that's, that's the reality. The world we live in is a bit, that we have to try harder to help those people who, who need help, who really getting their, the, to the age where they're really not fertile at all.

00;18;54;03 - 00;19;41;18
Cale
Yeah. Hey,I thought of question. It's probably relates to a lot of your career, actually, as, as much as it does, you're in the period of time you're working in IVF. In the early stages, I think it's unfair to say, it was controversial, you know, to the point where, you know, I read somewhere that your daughter was bullied because of your work and, now it's widely accepted. It's probably seen as, in some ways a badge of honour for people because, you know, they're really trying to have a family in this way. And, are there any lessons in that journey? So that 30, 40 year journey here of, at one point it was cutting edge and kind of not accepted to now being widely accepted.

00;19;41;20 - 00;20;05;27
Alan
Well, I think you have to remember back when I began, you know, conception was really basically owned by the church. And no, it wasn't owned by biology. And, and so exposing that to the laboratory in having conception done in the laboratory instead of under the blessing of the church, really was a big change. So, of course, the church got upset.

00;20;05;27 - 00;20;56;09
Alan
I mean, the Roman Catholic Church got upset. Radical feminists got upset because they thought we're manipulating the women's bodies. And so, you know, they were, they were the most, vocal of the, of the critics that even before that, the scientists didn't think it was going to work. But once it started to work, they slowly got on, on the bus if you like. But, there wasn't many believers in the beginning, that's for certain. And, you know, I think the taking so back to those times is sometimes a bit difficult because we were moving fairly quickly and you were getting very strong positives from Melbourne, leading world breakthroughs on the front page of the newspaper. So there's a big hop on one stage and one moment and then a big down.

00;20;56;09 - 00;21;26;13
Alan
That's the critics came in, and sort of deluge you, people wrote nasty things and put, you know, said you were— if you believe the embryo has the value of the embryo has the same value as a, as a born person, you're not going to be supportive of what we're doing. It's just it's just you can't do it. So, you know, I think there was a lot of aggravation, but we always took part.

00;21;26;14 - 00;21;50;25
Alan
I remember Gary Morgan in the early days said, you guys need to have us sort of check the community for whether they're supporting him. And it was a good bit of advice, actually. So we did regular sort of tests through the community, and we were all one as well in front in the majority like us always was, well, like 70% supporting us.

00;21;50;25 - 00;22;18;04
Alan
So we knew that there was a criticism there and that politically it was quite heavy because, you know, can be dominated by some conservatives. But we had the majority of the community behind us. So while the patients were willing to step up in the argument because that was a private thing for themselves, and they didn't really want to be up there making the argument to the community and the value of it.

00;22;18;04 - 00;23;12;15
Alan
So it was left to us, the clinicians and the scientists and and because everyone wondered about embryos and so on. I want to be upfront all the time in the early days, but I guess, so I just felt

that I knew that the community was in, you know, in support of us. And I definitely knew the infertile patients really wanted it. So I was relatively comfortable. I had to sort of figure out more. The problem I had in the beginning was figuring out the ethics of all this, because I hadn't really thought much about it. And I spent a little time in, in Italy and Naples and, and I met with the Vatican philosophers there from the Vatican University. And I kind of sorted myself out, actually. And so the ethics was sort of the, the people in, you know, supporting you get on with it son, you know, that's what.

00;23;12;18 - 00;23;42;14
Cale
Yeah. It's a really, it's actually a really valuable insight. I think when, you know, trying to avoid listening to the, the loudest voice, which is noisy as opposed to, you know, the majority of people objectively what they're looking for. There's something very, very powerful in that. I think it can be easy at times to probably listen to the naysayer or the loudest voice versus ultimately the most important or prominent sort of part of the equation.

00;23;42;16 - 00;24;07;17
Cale
Let's move on. Let's move on to your storied career. Probably, arguably one of the more controversial parts of, of your career as well was, the stem cell research that you did. I think for me, one of the biggest questions that I'm interested in is, are there any parts of Stem cell research and now sort of therapy that are misunderstood, still?

00;24;07;19 - 00;25;47;03
Alan
I think pretty much misunderstood. So I think really by a lot of people because, it still has a huge potential. And while the potential exists, is relatively few that have come through for, you know, for genuine sort of treatment for patients, that it was, was logical and expected. For example, Parkinson's disease. We always thought that was going to fix Parkinson's disease. And yet it has just led I mean, it's encouraging, but it still has. And that's a long time. The diabetes, it's actually working, macular degeneration in the eye. It's actually working. And for epilepsy, it's working with a lot of the neurological diseases. It hasn't worked yet. So, it's a work in progress, and it's a long, hard track. If it's cell therapies, it's always going to be long and hard. If you use stem cells to find drugs and different ways of doing it, that not involving the use of cells for therapy, that it can be quicker. And there are some drugs that have evolved out of the having stem cells to work on. Then, you know, it's, it's still yet to be, recognized as a sort of, you know, a major milestone in medicine. It's got all the potential still to do it. But I think we'll find that it'll just, continue on and in some places will work probably very well. And in other parts of the it'll be overcome by, alternative treatments.

00;25;47;06 - 00;26;08;13
Cale
You know, when the conversation started arising about it, then maybe this is some of the funding that you receive on the back of it. It did feel like a, somewhat of a cure all, you know?

And maybe that's part of the downfall, which was it had, it was presented with incredible, almost ubiquitous potential as opposed to reality and simple medicine.

00;26;08;13 - 00;26;17;22
Cale
My, my first question around cancer is, it will have specific sort of obvious use cases, and that will be where the early successes come from. Would you say that that's right?

00;26;17;25 - 00;26;53;01
Alan
That's correct. And, you know, I think when I was in California, the initial successes and the, the high value to California all came from cancer. That's not logically, you know, the cancer stem cells, but we were funding it because they're cancer stem cells. But the the advances were all in cancer, the early advances. And, and so you're right, you know, that's where a lot of the, the advances happened. Simply there. And the body that California was, it was quite large, but it was all pretty much derived from cancer developments.

00;26;53;03 - 00;27;25;24
Cale
So you gave somewhat references already. But we'd love to ask you again, you received really, really acute and specific backlash and criticism, of some of your work. And there was a specific incident I won't go into, but, I would love advice for listeners again on being in a moment of extreme criticism and pressure. How did you work through that and how did you kind of stay true to your work through that period?

00;27;25;27 - 00;28;29;20
Alan
Right. So, you know, I, again, I had a belief that the stem cells, because they're immortal. So they grow through there, you can actually direct them into any cell at the body that that's an incredible benefit or opportunity potentially be not. And, I think then it kind of became a political issue because the, Parliament had to sort of decide whether it was going to be supportive of stem cells because suddenly we were, we were made the biotechnology Center of excellence. The first one. And, there's a substantial amount of funding that was going to go there. So it had to be sort of examined. And there was some, demand that had actually had some independent evaluation of me and then the people in the field and so forth. And that evaluation by, by John Howard came out clean. And I remember him, then calling me and saying, you know, it's all positive.

00;28;29;20 - 00;28;57;18
Alan
You know, you're right. We're ready to go. So so I had to get through that. That was a bit stressful, I must admit. But then there's a, you know, there's a very strong vocal, conservative element in parliament, led by some characters who, who leave no prisoners. Those guys, I

really don't. And, and I again, was, you know, asked to carry the argument because, you know, who else was doing, would propose, it was me, and some supporters.

00;28;57;18 - 00;29;36;25
Alan
But, but it's sort of it's primarily made and if you, you know, any misstep was sort of jumped on and, you know, I made a misstep about one paper that, turned out and then it got hung for that. But it's, you know, again, I think, it's a reality. You know, if you can actually show that these things have got a, you know, a use and of course, the people who support you and and again, we knew from what the, the polls were saying this that they were in support of this, but you don't really want to go into politics unless you're prepared to be like a politician.

00;29;36;25 - 00;30;13;20
Alan
I mean, it's a tough area, right? And, so my, my experience there was, some that I wouldn't wish on most people, but but I really met some wonderful people there as well, I think, and some people who were willing to really back the, the argument and back—and, and we won the argument in Parliament, you know, despite everything, and the backers were, were really terrific, but it was a very vocal polarised argument. But stem cells turned out on top. And, you know, we set up the national stem cell centre and life went on.

00;30;13;23 - 00;30;48;05
Cale
Yeah. Good segue from, you know, the work that has been done overseas. You left Australia to work in the US on that big opportunity once Arnie tapped you on the shoulder. Today, how does Australia compare globally in terms of the research they do, the funding for that and the commercialization of some of this research.

00;30;33;07 - 00;31;48;22
Alan
The research is really very good in Australia. There's no doubt about that. The research scientists are very good. I was in California and I tell you what, they're very good there. And I know that in those labs that the lights never go off. And it wouldn't really be the same case in Australia, you know. They are driven in California, it was something, probably, because I think, you know, the opportunities there, a bigger and better facade as they get more funding. They can go out in the industry. There's a, there's a lot, you know, segue to industry scientists that are not that's not here. And, and you can get back in the university if you want. So, you know, those people were working really, really hard. Well, I think successful labs in Australia work really hard to. And if you go there, you'll find them pretty much around the clock doing things or, you know, on the weekends and these sort of things. And this is an indicator that things on the move, you know, the publications help, but you know, it's the energies in the place things will be happening. And generally Australia punches above its weight in terms of numbers. So it's a good research environment. There's not a very good industry. So way to sort of facade. It's getting to industry.

00;31;48;24 - 00;32;27;22
Alan
And, and you know that that sort of discourages people a fair bit. And then there's the sense that, you know, since I've left the university, I think, I think it's a lot harder to do the sort of innovative research that I used to do. There's much more ethics control on, on the human side and on the animal side and, and really committees for the government, pretty much everything.

00;32;27;24 - 00;33;00;05
Alan
And if you've got committees, the decisions get to be the lowest common denominator. So innovation sort of struggles and I think we shouldn't lose that. And those, those institutions that retain you know the support of scientists are willing to have a go and get a bit beyond what is safe to do the better. In my view, that they're the people who like it might make a difference. But that's you know, I think that's where we've gravitated to. The universities have become much more risk averse and than they used to. And there's a lot more committee structures to everything, and there's a lot less chance that you can actually do the kind of things that I was basically allowed to do, I mean with some.

00;33;00;08 - 00;33;29;14
Cale
Definitely, certainly differences there, I like I, I agree that lights on culture as you described it is real in the US, whether that's healthy or you know, there's a whole other set of questions around that, but certainly it drives a lot more opportunity. Speaking of opportunity, I'd love to chat about your current company, where you're the CEO. I'd love to hear, you know, you know, nutshell what you're focused on there.

00;33;29;17 - 00;34;29;24
Alan
Yeah. I mean, I believe that the immune system is, is, is a really good system for maintaining our health. And that's the sort of thing that sort of gets rid of dangerous cells and pathogens and so on. And it does a pretty good job there despite Covid and everything else. It's a pretty good job because we're all sort of you know, most of the time healthy and fit and, and so I wanted to—I was impressed with the way the Americans, really developed the, the, the CARs on the basis that if you put a chimeric antigen receptor into your immune cells and you multiply them up, you could really overcome cancer, at least blood cancer, where it was exposed and you put it into T cells, you know, you sort of evened up the fight. And in fact, you could actually take away kilogrammes of cancer from those patients in that. Well, it was astonishing in a couple of weeks. And I thought, well, there must be a better way. So if we can get into the solid tumours.

00;34;29;26 - 00;34;51;00
Alan
So I decided there was so many people going after blood cancers that we'd go out to solid tumours, and we'd set up a company aimed at solid tumours. I picked up ovarian cancer as the

first one because it's a, it's a dreadful disease. You know, if you get diagnosed, less than 50% of the women survive, it's usually diagnosed late, stage 3 or 4, and only 20% of those people survive.

00;34;51;03 - 00;35;40;14
Alan
So that's not good enough. And we and there's no, there's no real effective treatment there. So we thought well let's get in, in that and let's see if we can target ovarian cancer. So I've got together a group of people and created a company. Richard Boyd is an immunologist because I'm a, I'm a flat-earth immunologist and I'm not a Card Carrying Immunologist, and antibody designer Pete Hudson and a couple of people who who are really good at business and medicine, and put the company together and said, let's do it. Let's have a go at this because there's nothing happening, not much happening here in Australia. And so we're talking ovarian cancer in the beginning with a, with a CAR that identifies, a marker on, on ovarian cancer.

00;35;40;14 - 00;36;08;14
Alan
And, and we, we're at the stage now. We're going to go to clinical trials with the support of the FDA having an eye and bringing that back to Australia and doing the studies here. And we'll do that, middle of next year. The third quarter, might be fourth quarter, let's hope the third quarter of next year, if they want to submit an idea, the FDA has a month to come, and they've already told us what we need to do.

00;36;08;16 - 00;36;40;29
Alan
So, we have cells ready to go. So, within a month, we can start treating patients, and we will. So we'll find out whether this, this works because it's really effective at removing human ovarian cancer out of mice. It's it's just wonderful. It just takes it away and keeps it away. So if any of this works, it'll be fantastic. And I would think if it does work and I reckon it will work, it'll be the best thing that I would have done. Despite everything else.

00;36;40;01 - 00;37;08;11
Cale
How exciting. In my understanding of it, is the key benefit, precision as part of it, or something else that I've missed.

00;37;08;14 - 00;37;48;24
Alan
It's precision. The probably the design of them killer cells. This could probably have a couple of adjustments. We've knocked out some inhibitory genes. It's in solid tumours that inhibit immune cells. I just say we're all right. Go away. We've blocked them fro. So maybe we can do better. We'll just see how we go. But we're going to put these cells into the pelvic cavity where the cancer is, and that's where the end of matrices are, and they're going to go straight for that. So they're not going to be there in the environment where the cancers are. They don't have to go

find them in the, in the, in the blood going to be delivered there. And we got to get fairly high doses. And we're going to see, we'll check out to see where the what happens to that in those cancer patient.

00;37;48;26 - 00;38;16;01
Cale
It's probably a quite a nice link actually into this concept of prove it. Like what would you say is the actual biggest challenge of running, sort of a biotech or, you know, research, commercialization sort of business like yours. Because there is this concept of where you have to do all of the work before you can actually bring any product to market. But I'd love to hear your thoughts on the biggest challenge in building it.

00;38;16;03 - 00;39;05;25
Alan
I think one is money. And to be able to do it, you know that that's clearly the case. We have got government grants and federal and state Democrats. That's been helpful. We have the R&D tax rebate, which is also helpful, but it's really about the science, I think, and, and how well you designed it and how effective you think it might actually end up being. And of course, how safe it is. I think we're addressing that. We probably haven't finished, but we're addressing that and I think we'll see an effect. We might need to improve that effect, but, I think we'll see an effect. And I think it won't stop, you know, a yet another revolution in, in medicine, the sort of immune-cell therapies. Yeah.

00;39;05;27 - 00;39;30;09
Cale
Amazing. Let's hope so. My fingers are firmly crossed. It's important for people who are listening actually to get some application from all of your experience. I'd love you—just a rapid fire, Q&A here for a few different types of people. Like, what would be the best advice you'd give to people who are trying to commercialise research?

00;39;30;11 - 00;39;54;07
Alan
Yeah. It's, you need good science. You need a good idea, you know, some discovery. So you need something. You need to protect it through patents. Clearly. Because otherwise a discovery will go to someone else who got money, and will do it. So, you need that, but you need a network of people who can help you commercialise it.

00;39;54;09 - 00;41;03;24
Alan
You know, having the support of, people who believe in you, who are willing to provide that capital to do it, but also to be joined by really high quality people and if you've got high quality people in the labs, it makes a heck of a difference and you need a lot of optimism. You really got to concentrate. You really got to work hard. You got to, you got to understand the science. You got to understand the processes that are in business and and the commercialization

requirements. And you've got to meet all the regulator's demands. And, you know, there's a lot to do, and you really need good quality people to help you do it. I'm lucky because I have a lot of, you know, a lot of people who are willing to be involved. And, and also they're very smart. They've done a lot of this before in some other fields. So that's, that's kind of helpful. I'm not a really hardcore businessman. I wouldn't say that at all, but I rely on those people to help guide, you know, what we do, and they're very good. And hesitate to start unless you, you feel it, you can get that network around you.

00;41;03;26 - 00;41;27;26
Cale
Yeah. It's actually that you sort of touched on, how difficult it is and how much you need to work for people that are sort of oscillating around biotech, healthtech, research, even medicine. What would you say is the single biggest or one of the biggest opportunities within the field at the moment?

00;41;27;29 - 00;42;33;27
Alan
Well, I think an important discovery that, you know, you can see the way forward to, you know, being an application, you know, it's a lot easier if it's a kind of platform technology like us, because in the platform you just make adjustments and you get there. So if you've got a great discovery, you need to decide whether that's worth taking forward and convince, you know, a group of people that know how to take it forward to join you in doing that. And so I wouldn't try to attempt to do it simply by itself. I think you know, that you have to have the opportunity to sort of do it properly. Do it well, and that the science is good. You have a network of people who, you know, who believe in the and that's a, if it's a good network, they'll have connections with people who want to fund it anyway. You know I think it's very worthwhile. It's a, it's a great, it's a great experience to see something that one of your discoveries or ideas translates into something that helps people or does some.

00;42;33;29 - 00;43;17;19
Cale
I think, sort of jumping on the back of other advice that's been given previously that that idea of, thinking about it as a platform, but starting with a very specific use case is important because starting with a platform and trying to cover old parts of healthcare medicine research becomes overwhelming and you actually achieve very little. We try and boil the ocean, but, you know, and you can also not start with something so specific. It doesn't give you room to move. And you've basically put all your chips in one spot. Hey, final few questions here. You've accomplished so much. You've talked about a lot of it. What gets you up and what gets you excited?

00;43;17;22 - 00;44;21;09
Alan
Often it’s something that I read then, and it's often something that's been sent to me, or I actually find by chance, it's a little different to what I've been thinking about. For example, I, yeah, I read a paper. There's natural killer cells in the brain off of the concrete in the brain.

There's a blood brain barrier. And apparently they can. So, you know, things like that will get me up in the morning, or, you know, it's to meet, a PhD student. It's, you know, meet young person that sort of, you know, gets carried away with what I think they, that's wonderful, and, and I want to encourage them to keep thinking like that and try it out, even if it doesn't work. Have a shot. And so all of those things said, you know, that there's a, there's a mundane capacity in some ways that zoom, zoom, zoom, zoom meetings. And you don't have to accommodate that? But the buzz comes from someone telling you that, hey, hey, I did it. There's this, and I did this, and then did I really do this?

00;44;21;10 - 00;44;45;06
Alan
Yeah. And, you know, you can see it wells up again because it's sort of it's like that, you know, I saw that and I think it works. You know, it's sort of it's such a good feeling. And, there's nothing better than that. And, and, and it's just that what you're working on is actually translated to something that does work is very, very good feeling.

00;44;45;08 - 00;44;50;10
Alan
And I've been lucky that I've got some things that it didn't work very well.

00;44;50;12 - 00;45;06;13
Cale
Yeah. I mean, I think you're far too humble as well. Luck plays a role, I'm sure a lot of a lot of hard work. And putting yourself in the right position played a big role as well. Let's project many years in the future. Now you're writing your eulogy. What are you writing? How do you want to be remembered now?

00;45;06;15 - 00;45;50;16
Alan
I think is somebody who made a difference. I don't think it matters who you are. And it may be that you made a difference to to some person or your children. I mean, I, I want to make a difference to people generally. And, you know, I kind of, I started off just wanting to be a farmer, so I can't imagine that that's the sort of purpose I had at the time. But I just loved animals so much. But I always want to see the research do something. So that's the thing. And so you know an outcome is what I'm looking for. An outcome that contributes. It made a difference—will do.

00;45;50;19 - 00;46;11;23
Cale
Isn't it. It's quite fortunate that. Yeah you've, you've lived that. So that won't be untrue as often people have probably what I want to write on the headstone and what actually their life was about with, with different. But I'll tell you, you're living true to that sentence so that, that will carry on forever. The final question, Alan, and you've been so gracious with your time.

00;46;11;25 - 00;46;36;22
Cale
The, the show is called Grin + Bare It because it's often the piece of advice given to people when they're facing something challenging that might be professionally or personally. It's kind of, hey, you know, just get on with that stiff upper lip approach. And that can work at times. But I would love to hear the single takeaway that you have for a person who's experiencing a particularly challenging time in their life.

00;46;36;24 - 00;46;56;02
Alan
You know, my number one thing. Believe in yourself. Just believe in yourself, but find somebody else who believes in you as well. You know, it makes a heck of a difference. I mean, a lot of people do believe in themselves, but they can't find that person who is right beside them to say that's right. It's all good.

00;46;56;04 - 00;47;19;13
Cale
Words to live by. That's incredible. Alan, thank you so much. You've been really gracious. You've been. You spent a lot of time with us talking to a really storied career. The most exciting thing about all of this, I think, is possibly your best is yet to come with the new business. So wish you all the best on that. Looking forward to seeing the future success. And thanks again for your time.

00;47;19;17 - 00;47;26;23
Alan
Thanks so much, Cale, it’s been a pleasure.

00;47;26;26 - 00;48;06;05
Cale
Thank you so much for listening to this week's episode. Hope you enjoyed it. As always, I would love your feedback, questions or any suggestions that you have to someone that I should be speaking to next as our guest. You can find me on LinkedIn, or you can find the Grin + Bare It podcast on TikTok and Instagram. Now the best way to support this show, if you did like it, is leave your feedback, subscribe wherever you get your podcasts, or simply share it with your friends and colleagues. Thank you so much again. See you next time on Grin + Bare It.