**ProjectXYZ - Clinical Trials Biomarker Testing - CompanyABC**

0:0:0.0 --> 0:0:8.280  
Anthony Hesser  
Great. So to start off this call, it would be helpful to just get a a brief sense of your background and experience and the the types of companies that you work for that be great.

0:0:10.160 --> 0:0:27.180  
Adam Glover  
So I used to work in academia for about 10 years, was a clinician and a researcher, and I'll hematology oncology and then I transitioned to do clinical development work at a big pharma. I guess I'm not supposed to use the big the company names, right?

0:0:27.970 --> 0:0:30.320  
Adam Glover  
Uh, so I worked at at most.

0:0:31.390 --> 0:0:31.640  
Adam Glover  
OK.

0:0:29.320 --> 0:0:32.270  
Anthony Hesser  
Yeah, just big Pharma is a good enough description for that, yeah.

0:0:32.420 --> 0:0:33.960  
Adam Glover  
Yeah. Yeah. Like, I would get the top five.

0:0:35.290 --> 0:0:41.840  
Adam Glover  
And hematology doing clinical development or the Phase 1/3 a number of clinical trials and?

0:0:43.20 --> 0:0:47.30  
Adam Glover  
Including successful regulatory filing experience.

0:0:47.920 --> 0:0:53.270  
Adam Glover  
And then I transitioned after several years at a big pharma to working out one of the.

0:0:54.150 --> 0:0:55.190  
Adam Glover  
The larger.

0:0:57.200 --> 0:0:59.590  
Adam Glover  
A comprehensive molecular profiling companies.

0:1:0.350 --> 0:1:4.550  
Adam Glover  
And so and what the company does is it does NGS testing.

0:1:5.300 --> 0:1:8.570  
Adam Glover  
Uh in the clinical setting as well as we biopharma.

0:1:9.310 --> 0:1:17.370  
Adam Glover  
Uh, and then, you know, a number of kind of businesses emanate from that core platform. So we do a lot of work with.

0:1:18.180 --> 0:1:20.360  
Adam Glover  
Uh providing insights?

0:1:21.590 --> 0:1:26.180  
Adam Glover  
By to biopharma by interrogating the companies clinical genomic database.

0:1:27.140 --> 0:1:31.130  
Adam Glover  
We do work with CX. We do work with discovery.

0:1:32.120 --> 0:1:44.440  
Adam Glover  
Uh. And so the business is kind of twofold. There is a component that deals with clinicians and doing NGFF thing and then a whole other business working with biopharma.

0:1:45.960 --> 0:1:47.220  
Anthony Hesser  
Umm OK.

0:1:47.80 --> 0:1:49.650  
Adam Glover  
And so yeah, so that's you know it's.

0:1:50.400 --> 0:1:57.690  
Adam Glover  
Some will group the company I work for now into one of these AI based discovery companies. Others call it more of like let's like molecular tech.

0:1:58.410 --> 0:2:1.920  
Adam Glover  
You know, there's a whole number of names or what these companies are called.

0:2:12.190 --> 0:2:12.430  
Adam Glover  
Yep.

0:2:3.740 --> 0:2:34.670  
Anthony Hesser  
OK. Yeah, that's really helpful. And I guess to kind of guide the call where trying to think about the biomarker testing space in a few different ways. And one way we're thinking about it is by the type of technologies that are used and just want to run this by you and see if this makes sense or if there's any other categories or different ways that you think about it. So the first category that we're thinking about is immunology, immune monitoring. So this could be full cytometry, other cell based.

0:2:35.530 --> 0:3:5.590  
Anthony Hesser  
Types of assays. Then we have a proteomics as a second category and this could be mass spec based proteome mixed microarray amino assays. Other technologies to assess proteins, third category would be genomics and then here we're including analysis of DNA and RNA. So transcriptomics may follow here, qPCR and then the 4th category that we're thinking about is Histology. So this was have IHC ISH and some of the more recent digital and AI.

0:3:5.690 --> 0:3:7.830  
Anthony Hesser  
Analysis and the pathology space.

0:3:10.280 --> 0:3:10.970  
Adam Glover  
Yeah.

0:3:9.780 --> 0:3:12.660  
Anthony Hesser  
Do these four categories make sense to you? Is there anything?

0:3:13.510 --> 0:3:20.30  
Anthony Hesser  
Missing in terms of key technologies or other ways that you might be thinking about the the bound marker services out there.

0:3:20.930 --> 0:3:28.870  
Adam Glover  
Yeah, I mean, no, I think that will make sense, the one. So let's see. So there's four. So one is IHC, right? So that's basically standard protein based analysis.

0:3:30.650 --> 0:3:35.160  
Adam Glover  
The second is genomics. So DNA and RNA mentioned transcriptomics.

0:3:36.380 --> 0:3:41.440  
Adam Glover  
The third is proteomics, right? So like mass spec, what was the 4th? The very first one you mentioned?

0:3:57.510 --> 0:3:58.550  
Adam Glover  
Gotcha. Yeah.

0:3:42.410 --> 0:3:59.500  
Anthony Hesser  
I like immune monitoring, immunology, types of tests were, I think, the the major thing that we're talking about here is flow test flow cytometry. But other cell based assays to assess cell phenotypes may fall under here too, but focus on the immunology space.

0:4:0.550 --> 0:4:3.0  
Adam Glover  
Yeah. Yeah, yeah, yeah. Yeah, that that makes sense.

0:4:7.800 --> 0:4:8.100  
Anthony Hesser  
Umm.

0:4:4.600 --> 0:4:15.320  
Adam Glover  
And you know, there's there's some overlap with these. So like the, it'd be no oncology space. I mean, you could do a lot of monitoring with whole exome sequencing and whole transcription sequencing.

0:4:15.690 --> 0:4:22.820  
Adam Glover  
Uh, so there's some overlap, and then I'll probably had a fit bucket. My fifth pillar, which would be digital pathology.

0:4:23.540 --> 0:4:23.830  
Anthony Hesser  
Umm.

0:4:25.90 --> 0:4:30.610  
Adam Glover  
You know, I think you may have mentioned that that is part of the IHC bucket, but I kind of think of it as a whole separate entity.

0:4:31.380 --> 0:4:40.280  
Adam Glover  
Uh, and that is a a rapidly emerging field and there's a ton of interest in biopharma and with these other life sciences companies that are investing a lot into it.

0:4:41.190 --> 0:4:41.470  
Adam Glover  
So.

0:4:42.730 --> 0:4:52.140  
Anthony Hesser  
Yeah, I think that'll be helpful for us to talk about in and get a bit more detail on your thoughts there. And if you're viewing this as a separate pillar like other.

0:4:53.140 --> 0:5:3.530  
Anthony Hesser  
Other biopharma companies out there that are really just interested in the digital and AI aspects of pathology versus engaging in more of the traditional IHC and ISH testing.

0:5:5.590 --> 0:5:13.540  
Adam Glover  
You know the the, I guess the way I think about it is like, what's the end goal of digital pathology. And so if you think about precision medicine.

0:5:15.260 --> 0:5:23.280  
Adam Glover  
So you take, you know, real life example making the stuff, but there is evidence in the public domain and the guy what I'm about to say. So you take a.

0:5:24.50 --> 0:5:28.300  
Adam Glover  
Niche, molecularly defined or biomarker driven?

0:5:30.750 --> 0:5:38.550  
Adam Glover  
New product for lung cancer, right. So take Ross one for example, right. So there are a few, Ross, one directed therapies that are approved.

0:5:39.690 --> 0:5:44.770  
Adam Glover  
Or not cancer characterized by Ross, 1, Fusion, or Ross one rearrangement.

0:5:45.930 --> 0:5:51.370  
Adam Glover  
There are few other stories that are likely to be approved within the next 24 to 36 months.

0:5:52.510 --> 0:6:11.780  
Adam Glover  
But the challenge for capturing market share for the population is 1 is that Ross one as many other targeted therapies and lung cancer are only viable for one to 2% of all non small cell lung cancers.

0:6:13.60 --> 0:6:19.360  
Adam Glover  
So finding these patients is difficult just because the sample because the, the, the, the prevalence is so.

0:6:20.980 --> 0:6:36.170  
Adam Glover  
Ohh and there is at times a significant wait for the turnaround time for NGS testing, right? It could take two to three weeks for a lot of these service providers to actually run an AGS panel and come back with a Ross 1 positive test.

0:6:37.20 --> 0:6:37.750  
Adam Glover  
And three.

0:6:39.360 --> 0:6:42.650  
Adam Glover  
Dispute their being overwhelming evidence for the benefit of.

0:6:44.50 --> 0:6:47.470  
Adam Glover  
NGF testing and the benefit of precision that.

0:6:48.840 --> 0:6:55.880  
Adam Glover  
The overwhelming majority of ecology do not do the, and yet nothing for their pictures, right? So.

0:6:56.470 --> 0:6:57.160  
Adam Glover  
If you look at it.

0:6:58.860 --> 0:7:2.400  
Adam Glover  
Patterns more often than not, patients don't get tested. Yeah.

0:7:10.470 --> 0:7:10.710  
Adam Glover  
OK.

0:7:12.950 --> 0:7:13.340  
Adam Glover  
What is that?

0:7:16.70 --> 0:7:16.280  
Adam Glover  
No.

0:7:4.140 --> 0:7:18.280  
Anthony Hesser  
Yeah. So I just a interrupt there. It did sound like, uh, your connection was going quieter to softer versus like we could hear you normally sometimes, but otherwise there's some interruptions and being really quiet.

0:7:22.400 --> 0:7:22.740  
Adam Glover  
Is that?

0:7:21.990 --> 0:7:24.0  
Anthony Hesser  
I'm slightly.

0:7:27.360 --> 0:7:27.840  
Adam Glover  
This is better.

0:7:29.590 --> 0:7:30.340  
Adam Glover  
You hear me better now?

0:7:31.370 --> 0:7:33.120  
Anthony Hesser  
Yeah, I think that's a little bit better now.

0:7:33.990 --> 0:7:34.910  
Adam Glover  
But then it.

0:7:35.60 --> 0:7:37.270  
Adam Glover  
I haven't checked now. Is it better now?

0:7:41.320 --> 0:7:42.800  
Adam Glover  
That doesn't look like one SEC.

0:7:39.150 --> 0:7:47.700  
Anthony Hesser  
That that's about the same as before. I think with the help of the the transcription, we might be able to pick it up. So I I think we could probably get to you.

0:7:46.580 --> 0:7:51.0  
Adam Glover  
Hey, can you hear can then it's OK. No, I wanna make sure you can hear me. This is better.

0:7:48.550 --> 0:7:52.90  
Anthony Hesser  
That that was a lot better. Yeah, that that was a lot better, yeah.

0:7:52.210 --> 0:8:0.870  
Adam Glover  
Alright, cool. I wanna make sure you guys hear me OK. Anyway. So so. So those are the kind of the three limitations of current precision medicine.

0:8:1.630 --> 0:8:5.550  
Adam Glover  
Practice. What digital pathology permits is.

0:8:8.530 --> 0:8:9.280  
Adam Glover  
Through.

0:8:11.660 --> 0:8:12.710  
Adam Glover  
Machine learning.

0:8:14.310 --> 0:8:15.610  
Adam Glover  
You could look at.

0:8:16.760 --> 0:8:22.480  
Adam Glover  
A an image a scanned image of a pathology.

0:8:23.390 --> 0:8:24.350  
Adam Glover  
Uh, report.

0:8:25.530 --> 0:8:31.100  
Adam Glover  
And have a pretty high level of confidence that based on the way.

0:8:31.860 --> 0:8:33.440  
Adam Glover  
The image.

0:8:34.200 --> 0:8:37.440  
Adam Glover  
Umm is is captured you could.

0:8:38.120 --> 0:8:41.220  
Adam Glover  
Have a pretty high level of confidence whether a patient is Ross on positive or not.

0:8:42.340 --> 0:9:9.740  
Adam Glover  
And so you don't have to. I mean, this is kind of the end goal is you may not have to wait the several weeks for an egg test to come back in order to help select an appropriate targeted therapy. You may not need to rely on eggs testing etcetera, etcetera and the AUC curves that we have been kind of publicly disclosed to date with a lot of these molecular abnormalities in the context of.

0:9:13.190 --> 0:9:18.280  
Adam Glover  
Adequately performed machine learning and digital pathology are actually quite high and quite.

0:9:19.40 --> 0:9:31.110  
Adam Glover  
Suggestive of like high specificity, high sensitivity for EGFR, for Alec, for Roswell and et cetera. So that's really the benefit of digital pathology. So I kind of think of it as a separate bucket, not within IHC pillar, if that makes sense.

0:9:38.230 --> 0:9:38.400  
Adam Glover  
No.

0:9:31.60 --> 0:9:44.380  
Anthony Hesser  
Umm yeah, I guess for that example, the Ross one. Is that an IC test that you're using some sort of digital features and in terms of slide scanning or AI machine learning analysis of it to?

0:9:45.260 --> 0:9:46.770  
Anthony Hesser  
Analyze or how does that work?

0:9:50.760 --> 0:9:51.80  
Anthony Hesser  
OK.

0:9:47.540 --> 0:9:52.790  
Adam Glover  
So you don't, so there's no IHC for Ross one, you can test that test by eggs.

0:9:58.0 --> 0:9:58.300  
Anthony Hesser  
Umm.

0:9:59.340 --> 0:10:9.600  
Adam Glover  
So, but yeah, so it's basically the way that the the kind of the, the the way that the the the digital features of a tumor.

0:10:10.730 --> 0:10:11.160  
Adam Glover  
Can.

0:10:12.630 --> 0:10:13.940  
Adam Glover  
Yeah, you can apply.

0:10:17.180 --> 0:10:19.670  
Adam Glover  
Language learning models to help.

0:10:21.120 --> 0:10:28.360  
Adam Glover  
Characterize the molecular features of a tumor via analysis of the images of kind of the tumor composition and so forth.

0:10:30.30 --> 0:10:34.710  
Anthony Hesser  
So is it just like a an H&E stain or something that you're analyzing? OK.

0:10:33.20 --> 0:10:38.160  
Adam Glover  
Yeah, exactly. That's exactly. Yep. Yeah. Yeah, that's exactly what it is. It's just that you need.

0:10:39.40 --> 0:10:42.160  
Adam Glover  
To feed, you know, thousands and thousands of thousands of images.

0:10:43.850 --> 0:10:45.430  
Adam Glover  
For uh.

0:10:46.930 --> 0:10:55.390  
Adam Glover  
For the machine learning algorithms it it's for you to have high confidence in the machine learning algorithm. But but it's exactly that's just an age and the image that's all you need.

0:10:56.990 --> 0:11:3.280  
Anthony Hesser  
OK. Yeah, that's helpful. That makes sense. I guess when you think about, I I guess yourselves and and other.

0:11:4.830 --> 0:11:15.570  
Anthony Hesser  
Zeros in the market. What are some of the like, the key capabilities that differentiate vendors offering some of these digital or machine learning AI features?

0:11:17.150 --> 0:11:20.260  
Adam Glover  
Just maybe just with respect to this other theology or general.

0:11:21.420 --> 0:11:29.90  
Anthony Hesser  
I just for I I guess for digital pathology for now and then it can then I'll ask more broadly about Histology tests afterwards.

0:11:30.650 --> 0:11:35.720  
Adam Glover  
So for digital pathology, I mean the key difference. So there are a number of differentiators, one is like.

0:11:36.550 --> 0:11:41.140  
Adam Glover  
The access to images right? So you need a massive biorepository.

0:11:42.920 --> 0:11:46.30  
Adam Glover  
Of slides to be able to adequately train.

0:11:48.230 --> 0:11:54.410  
Adam Glover  
Your your algorithm in order to have high confidence in in the results that it's demonstrating, so one is.

0:11:55.350 --> 0:12:1.930  
Adam Glover  
Uh. Access to slides like that there. These are really, really high value.

0:12:2.630 --> 0:12:6.510  
Adam Glover  
Assets and the companies that have more.

0:12:7.650 --> 0:12:11.550  
Adam Glover  
Uh slide access. Have a significant advantage versus those that do not.

0:12:13.870 --> 0:12:16.120  
Adam Glover  
The technologists at the company.

0:12:16.860 --> 0:12:19.460  
Adam Glover  
Make it obviously make a massive difference, given that this is.

0:12:20.400 --> 0:12:23.740  
Adam Glover  
You know, a lot of this is just kind of like high level sophisticated tech work.

0:12:24.410 --> 0:12:24.710  
Anthony Hesser  
Umm.

0:12:24.840 --> 0:12:27.340  
Adam Glover  
This scanners that companies have access to.

0:12:29.100 --> 0:12:50.280  
Adam Glover  
So you need scanners and and I don't know the scanner space very well, but from what I do understand from my colleagues that I some of the digital pathologists that I work with like there are some you know, kind of very expensive fancy scanners that make us significant difference than being able to process the large amount of digital images faster than others.

0:12:54.160 --> 0:12:57.310  
Adam Glover  
And then how these companies partner with biopharma?

0:12:58.410 --> 0:13:22.90  
Adam Glover  
Is a significant differentiator, so there are some life sciences companies that are very dogmatic with how they partner. So like company, biopharma needs to provide X amount of images, X amount of comma minimum for the company to even work with the biopharma in better characterizing whatever it is they're seeking to do. Whereas other companies are much more flexible.

0:13:23.500 --> 0:13:30.850  
Adam Glover  
Other companies that own other life sciences companies are much more flexible with how they operate. It actually makes a really big difference because.

0:13:34.460 --> 0:13:39.120  
Adam Glover  
Because you know the the end goal is for biopharma.

0:13:39.910 --> 0:13:41.460  
Adam Glover  
To to adopt.

0:13:42.320 --> 0:13:43.650  
Adam Glover  
Digital pathology.

0:13:43.750 --> 0:13:44.50  
Adam Glover  
Yeah.

0:13:46.790 --> 0:13:50.460  
Adam Glover  
Based work within their work stream, right? That's really what the big money comes in.

0:13:51.740 --> 0:13:58.340  
Adam Glover  
And getting in the door with a big pharma is very, very, very difficult. I mean, I worked in business development of Big Pharma and.

0:13:58.990 --> 0:14:5.960  
Adam Glover  
Like it is a really high bar. It's not easy to get in the door and so all of these aspects that I mentioned matter.

0:14:7.900 --> 0:14:9.270  
Adam Glover  
Anyway, so those are just some of the.

0:14:10.210 --> 0:14:12.830  
Adam Glover  
Different shaders that I can think of. I guess on top of my head.

0:14:14.220 --> 0:14:20.660  
Anthony Hesser  
Yeah. At what stage in development would about pharma company usually want to partner with someone for digital pathology?

0:14:21.700 --> 0:14:23.890  
Adam Glover  
So it's, I mean the whole field is very early.

0:14:24.870 --> 0:14:25.530  
Adam Glover  
So.

0:14:26.290 --> 0:14:38.960  
Adam Glover  
It's it's probably hard to have a definitive thought on that right now. What by pharma is doing for my own anecdotal experience and kind of from what I understand from colleagues in the field, biopharma is starting to sample.

0:14:42.180 --> 0:14:49.440  
Adam Glover  
But they're starting to like work with these digital pathology companies as well as doing some digital pathology work themselves.

0:14:51.350 --> 0:14:52.180  
Adam Glover  
At at a.

0:14:53.300 --> 0:14:55.390  
Adam Glover  
Almost like on a pilot based level.

0:14:57.360 --> 0:14:58.970  
Adam Glover  
Just to better understand the relevant.

0:15:5.30 --> 0:15:7.700  
Adam Glover  
And so forth. So I think it's really.

0:15:8.770 --> 0:15:9.280  
Adam Glover  
Exactly.

0:15:12.90 --> 0:15:12.470  
Adam Glover  
Training.

0:15:17.10 --> 0:15:17.300  
Adam Glover  
Like.

0:15:11.230 --> 0:15:17.680  
Anthony Hesser  
Sorry to interrupt that. I heard a pilot based level and then I it got quiet and I couldn't hear.

0:15:17.420 --> 0:15:18.70  
Adam Glover  
Quite like.

0:15:23.380 --> 0:15:24.670  
Adam Glover  
They're all doing like every.

0:15:27.760 --> 0:15:32.0  
Adam Glover  
Every big pharma that doing it themselves or partnering with companies in the states.

0:15:38.780 --> 0:15:39.180  
Anthony Hesser  
OK.

0:15:39.340 --> 0:15:39.830  
Anthony Hesser  
I'm.

0:15:42.140 --> 0:15:43.50  
Anthony Hesser  
I guess for.

0:15:43.790 --> 0:15:54.520  
Anthony Hesser  
The digital pathology space. Who do you kind of see as major vendors in the space that are offering differentiated products and kind of stand out from others?

0:15:57.720 --> 0:15:58.10  
Anthony Hesser  
Umm.

0:15:55.940 --> 0:15:58.830  
Adam Glover  
The passage I is probably the leader right now.

0:16:1.10 --> 0:16:2.300  
Adam Glover  
And I think that.

0:16:5.490 --> 0:16:10.360  
Adam Glover  
You know, I think I think most would agree with that. At least that's the sentiment in the biopharma.

0:16:11.70 --> 0:16:18.410  
Adam Glover  
Uh community? Is that Pathai has probably the most advanced technology, the most advanced data sets, and so forth.

0:16:20.150 --> 0:16:35.370  
Adam Glover  
But there are a number of other companies that are looming. You know, a company called Caris Life Sciences is doing digital pathology work. Myriad genetics are doing digital pathology work. I mean, Microsoft is doing digital pathology work.

0:16:35.450 --> 0:16:43.100  
Adam Glover  
Your okin OWKIN is getting a lot of digital pathology work, and it's hard to know. It's kind of who.

0:16:44.60 --> 0:16:46.920  
Adam Glover  
You know who's really in the lead just because it's still very early space?

0:16:49.220 --> 0:17:2.970  
Anthony Hesser  
So yeah, someone like path AI, are they offering testing services or is it mostly just on the analytic services where they're looking at the slides like like I wanna understand their the scope of service a little bit more.

0:17:6.290 --> 0:17:9.810  
Adam Glover  
My senses. They're doing both, so they have a diagnostics fruit.

0:17:10.620 --> 0:17:14.240  
Adam Glover  
It's called Cathay. I diagnostics. I think they bought a.

0:17:15.240 --> 0:17:17.500  
Adam Glover  
A company called Popular Healthcare in the past.

0:17:20.750 --> 0:17:23.940  
Adam Glover  
So which which is a lab based out of Tennessee.

0:17:24.850 --> 0:17:29.720  
Adam Glover  
It's so they're doing diagnostics work and then they're doing analytics as well. So they're doing both.

0:17:32.120 --> 0:17:41.180  
Anthony Hesser  
OK. And then there's two other companies I was interested in in the the digital pathology space, one was revealed Biosciences.

0:17:42.380 --> 0:17:44.770  
Anthony Hesser  
Is this someone that you've you're familiar with or?

0:17:45.810 --> 0:17:46.680  
Anthony Hesser  
Have looked up before.

0:17:47.930 --> 0:17:49.130  
Adam Glover  
Reveal Biosciences.

0:17:49.920 --> 0:17:50.350  
Anthony Hesser  
Yes.

0:17:51.80 --> 0:17:55.270  
Adam Glover  
No, I I have not. I just I can Google them real quick.

0:17:59.30 --> 0:17:59.550  
Adam Glover  
Let's see.

0:18:1.190 --> 0:18:2.280  
Adam Glover  
They said San Diego.

0:18:4.340 --> 0:18:4.870  
Anthony Hesser  
I think so.

0:18:3.620 --> 0:18:4.910  
Adam Glover  
So I've never heard of them.

0:18:6.970 --> 0:18:8.140  
Adam Glover  
Is. Yeah, never.

0:18:6.470 --> 0:18:10.0  
Anthony Hesser  
OK. Then I think another one was page.

0:18:12.260 --> 0:18:12.910  
Adam Glover  
What was the other?

0:18:14.160 --> 0:18:14.870  
Anthony Hesser  
Page.

0:18:16.140 --> 0:18:16.480  
Anthony Hesser  
It's like.

0:18:16.130 --> 0:18:18.720  
Adam Glover  
OK, yeah. Yes it is. I have heard a page, Pedro I.

0:18:19.410 --> 0:18:19.900  
Anthony Hesser  
Yes.

0:18:20.470 --> 0:18:30.160  
Adam Glover  
Yep, I have heard a page. I don't have much insight on them. I just heard that they're an emerging company doing trying to do something very similar to path AI. From what I understand.

0:18:33.520 --> 0:18:37.530  
Adam Glover  
But I I don't know. I don't have a sense of on whether they actually differentiate.

0:18:39.520 --> 0:18:51.890  
Anthony Hesser  
OK. And for some of the companies that you mentioned, like Karras or Myriad, just wanted to get a sense of like what either compared to path AI or or on their own, what kind of?

0:18:53.790 --> 0:19:6.570  
Anthony Hesser  
I guess specializations to the offer are. There's certain there's certain therapeutic areas or tissue types that they're looking at that may make about from a company want to partner with them over path AI or any other competitor in this space.

0:19:7.920 --> 0:19:17.520  
Adam Glover  
Yeah. I mean, there's a number of different potential reasons why companies would prefer to partner with one or the other. So you know, a company like Harris.

0:19:18.630 --> 0:19:23.940  
Adam Glover  
So Karras is 100% focused on solid tumors.

0:19:24.940 --> 0:19:25.260  
Anthony Hesser  
Umm.

0:19:25.670 --> 0:19:30.710  
Adam Glover  
And and they have a buy repository of over 9,000,000 tissue slides.

0:19:31.830 --> 0:19:52.560  
Adam Glover  
That presumably all could be said, or most could be fed into. You know, the digital pathology work stream. And if you think of the potential impact of that amount of tissue all for solid tumor purposes like that is pretty extraordinary. I my guess is that's the largest biobank in the world for solid tumors.

0:19:54.200 --> 0:19:58.780  
Adam Glover  
So just the level of confidence and the and and the amount of data that can be generated.

0:20:0.50 --> 0:20:0.530  
Adam Glover  
Is.

0:20:1.440 --> 0:20:6.460  
Adam Glover  
Yeah, probably overwhelmingly in the carousel favor, at least in the oncology space.

0:20:7.40 --> 0:20:13.810  
Adam Glover  
But terrorists do any work in hematology or any other diseases, so you know company on the path they I my understanding is that they are.

0:20:14.640 --> 0:20:15.950  
Adam Glover  
They have a more diverse.

0:20:16.730 --> 0:20:19.720  
Adam Glover  
Uh have captured within across therapeutic areas.

0:20:20.620 --> 0:20:22.940  
Adam Glover  
And so that's a differentiator.

0:20:24.680 --> 0:20:29.450  
Adam Glover  
I I don't have much insight into Myriad genetics, but I would kind of think of.

0:20:30.110 --> 0:20:32.810  
Adam Glover  
You know again, like how much tissue do they have?

0:20:34.570 --> 0:20:40.970  
Adam Glover  
How much tissue did they have in solid tumor oncology versus the malignant hematology versus other therapeutic areas?

0:20:42.350 --> 0:20:51.870  
Adam Glover  
How much data have they generated, like how much data has each company generated to to show proof of concept in terms of their capabilities and then?

0:20:52.660 --> 0:21:5.930  
Adam Glover  
You know what, what most biopharma are seeking are not single offering transactional partnerships with these life sciences companies. What they're seeking is broad strategic partners that can help.

0:21:7.400 --> 0:21:26.580  
Adam Glover  
The where, where a partnership with with multiple elements, not just like digital pathology. So for example, you know a company like Karras which does molecular profiling has a large clinical genomic database that could be interrogated for variety of use cases. It does clinical trial matching services and does digital pathology so.

0:21:27.360 --> 0:21:27.750  
Anthony Hesser  
Umm.

0:21:27.420 --> 0:21:35.840  
Adam Glover  
A partnership with being like Harris offers a number of elements that can help drive the drug development process across multiple phases.

0:21:36.750 --> 0:21:44.310  
Adam Glover  
From very early discovery all the way through commercialization and everything in between, and that's important, that's a differentiator.

0:21:44.600 --> 0:21:46.900  
Adam Glover  
And you know pathei.

0:21:48.40 --> 0:21:53.570  
Adam Glover  
Anyway, so like things like that. Like, that's what, in my opinion, separates companies for one another.

0:21:55.190 --> 0:22:15.750  
Anthony Hesser  
And I guess when biopharma companies engaged these sorts of zeros, are they looking for that full development cycle offering or is there typically more focused and like discovery phase and maybe that after they identify some sort of biomarker of interest or have some sort of?

0:22:17.180 --> 0:22:26.190  
Anthony Hesser  
AI protocol. Is there any way for them to either move that work internally or move it to a different zero? Or is it really like that long term partnership that's established?

0:22:27.860 --> 0:22:40.90  
Adam Glover  
So there's, I mean, there's, there's a lot of heterogeneity with respect to how different companies pursue these types of offerings. But I in my experience at least, there's been a preference for.

0:22:40.920 --> 0:22:48.0  
Adam Glover  
Finding a comprehensive life sciences company for biopharma, finding a single comprehensive life sciences company.

0:22:48.820 --> 0:22:50.810  
Adam Glover  
Forming a relationship with them and then.

0:22:51.700 --> 0:22:59.830  
Adam Glover  
You know, expanding that relationship and so the goal is to have one kind of service provider, if it's possible for multiple use cases.

0:23:2.470 --> 0:23:9.630  
Adam Glover  
And there are several reasons for that, but one of which is kind of practical, like it's super hard for a big pharma company.

0:23:13.780 --> 0:23:14.110  
Anthony Hesser  
Umm.

0:23:10.540 --> 0:23:29.240  
Adam Glover  
So operationalize a partnership with the vendor like it, it makes it seem like it from the outside, but on the inside it takes a ton of approvals, a ton of governances, a ton of cross functional alignment. And so once like a single partnership has been formed, it is much easier for people in the big pharma.

0:23:30.300 --> 0:23:38.410  
Adam Glover  
To expand the scope of partnering with a vendor already that there's a contract with versus finding a new vendor that makes sense.

0:23:39.480 --> 0:24:4.720  
Anthony Hesser  
Yeah, yeah, that makes sense. And I guess in the digital pathology space, how much interest is there in turning these analyses into companion diagnostics? I guess if a biopharma company is looking for a partner, are they going to require that that partner has experienced in companion diagnostics or are they OK with working with someone who doesn't because they're not necessarily concerned with hurting that analysis into a companion diagnostic?

0:24:5.850 --> 0:24:15.620  
Adam Glover  
I mean it's it's it's it's something that Big Pharma thinks that out for sure, but it's not a like a gating mechanism more often than not if there's a CX that becomes.

0:24:16.530 --> 0:24:27.440  
Adam Glover  
Important for the development of an asset, the one you typically don't know that until later on in development, like at least until phase one usually not until phase two and then at that point.

0:24:30.30 --> 0:24:56.110  
Adam Glover  
That, you know, Big Pharma can partner with a company like Foundation or templates or carrots or what have you like it's not so trivial to form a CDX partnership. So I don't think that. So if you're thinking about an asset that's earlier in the development process, either in the discovery phase or preclinical phase or maybe even early phase one, the need the potential need for CDX is often not at the top of the priority.

0:24:57.140 --> 0:25:0.800  
Adam Glover  
You know, in terms of thought process for Big Pharma when they're seeking these types of partnerships?

0:25:2.330 --> 0:25:17.80  
Anthony Hesser  
Yeah, that's helpful. Umm, you mentioned the the biorepository as being a really important source of slides for developing these methods and I'm curious where are these slides purchased from third party vendors or are they from?

0:25:17.740 --> 0:25:22.560  
Anthony Hesser  
Collaborations with biopharma or clinical trials that the companies have been involved in.

0:25:23.860 --> 0:25:25.770  
Adam Glover  
Yeah, that's it's a really good question, so.

0:25:27.200 --> 0:25:33.650  
Adam Glover  
Different companies approaches differently. So company, like Caris for example, owns all of its tissue.

0:25:34.810 --> 0:25:40.710  
Adam Glover  
It doesn't outsource. It doesn't aggregate from third party. Everything is owned by the company.

0:25:42.430 --> 0:25:47.130  
Adam Glover  
And and they source it through its molecular profiling business in the clinic.

0:25:49.410 --> 0:25:52.760  
Adam Glover  
Whereas other companies leverage third party.

0:25:53.500 --> 0:26:4.790  
Adam Glover  
Aggregators and buy, you know, basically like buy tissues and tissue and so forth. So there's there's heterogeneity in that.

0:26:5.950 --> 0:26:8.840  
Adam Glover  
As well, but that is an important differentiator.

0:26:10.310 --> 0:26:22.570  
Adam Glover  
Look at it significant significant differentiator because what what Big Pharma wants is they don't wanna go to three different vendors and then come to find later that they're actually buying slides from the same individual.

0:26:23.230 --> 0:26:24.690  
Adam Glover  
You know from the files on the same patient.

0:26:26.120 --> 0:26:26.540  
Anthony Hesser  
Yeah.

0:26:26.110 --> 0:26:32.220  
Adam Glover  
So when you work with the carrots, for example like, you know that's actually a unique case that no one else has access to.

0:26:34.200 --> 0:26:52.220  
Anthony Hesser  
So some of the other companies in this space like like Myriad Genetics and Path AI and page AI, do they have biorepositories and their own. And if there's two companies with Biorepositories, are there ways to tell if one is gonna be more helpful than the other?

0:26:53.710 --> 0:27:0.800  
Adam Glover  
So you don't typically know until you connect with the company like it's it's hard to know based on what's described on the website for example.

0:27:1.770 --> 0:27:5.510  
Adam Glover  
Uh, you kind of have that. You have to have that dialogue with the company to better.

0:27:6.270 --> 0:27:8.340  
Adam Glover  
Understand where they get their data from.

0:27:9.250 --> 0:27:10.210  
Adam Glover  
And their tissue from.

0:27:11.970 --> 0:27:12.540  
Anthony Hesser  
Yeah.

0:27:13.890 --> 0:27:22.60  
Anthony Hesser  
Umm. And I guess companies with by repositories like Caris. Is this a service? I guess Lin back up a second so one.

0:27:23.90 --> 0:27:37.560  
Anthony Hesser  
Topic that one get into a little bit more at the end of the call is kind of adjacent service offerings that's zeros in, in the biomarker space can provide and curious if some sort of biobanking biorepository service is something that.

0:27:38.430 --> 0:27:44.790  
Anthony Hesser  
Companies in this space think about that. They can offer these samples to other companies. Or does that defeat the?

0:27:46.200 --> 0:27:49.710  
Anthony Hesser  
The advantage that they have in offering that internally.

0:27:51.30 --> 0:27:52.400  
Adam Glover  
I I think it's it's the latter.

0:27:53.800 --> 0:27:54.360  
Adam Glover  
It's.

0:27:55.460 --> 0:28:4.560  
Adam Glover  
It it it it will. It could defeat the advantage and that's a huge advantage that have your own tissue. It's worth a ton of money in it and the value is only increasing because.

0:28:5.440 --> 0:28:14.130  
Adam Glover  
As as technology evolves into being able to better interrogate since to leverage technology to better interrogate that, the potential of tissue.

0:28:14.830 --> 0:28:18.670  
Adam Glover  
For a variety of use cases like the value of the tissue.

0:28:19.920 --> 0:28:21.170  
Adam Glover  
Only becomes more and more.

0:28:22.20 --> 0:28:27.600  
Adam Glover  
That makes sense right now. So like if so, if you, if you anticipate digital pathology to become more and more prominent.

0:28:29.70 --> 0:28:31.300  
Adam Glover  
In the biopharma work stream.

0:28:32.900 --> 0:28:38.690  
Adam Glover  
Digital pathology is only as good as you know the the the potential of digital pathology is only as good as the.

0:28:39.590 --> 0:28:42.950  
Adam Glover  
The data you have to train your algorithms and that data is tissue.

0:28:44.260 --> 0:28:55.320  
Adam Glover  
And so, and there's a finite number of tissue, right? I mean, all the tissue that, that, that, that these companies get are from patients. So ultimately there's a finite number of tissue and so.

0:28:56.220 --> 0:28:57.940  
Adam Glover  
The companies that have a more data.

0:28:59.640 --> 0:29:4.230  
Adam Glover  
Are likely to have better AI algorithms to drive their digital pathology capabilities.

0:29:5.860 --> 0:29:17.730  
Anthony Hesser  
Yeah. OK. That makes sense. I did want to follow up a little bit on the partnership aspects and curious how many for a given biopharma company do they typically have one?

0:29:18.390 --> 0:29:19.390  
Anthony Hesser  
Main kind of.

0:29:20.330 --> 0:29:28.710  
Anthony Hesser  
Pathology Histology, sero partner for all of their programs? Or is it really a program by program basis where they may choose the best vendor there?

0:29:29.840 --> 0:29:34.540  
Adam Glover  
Yeah. I mean it's I think the goal is to have one, but it it really becomes like program by program.

0:29:37.300 --> 0:29:45.910  
Anthony Hesser  
And do that so then do the partnerships typically last for just kind of the duration of that programs development and and maybe if it gets in the commercial, there's some involvement.

0:29:46.910 --> 0:29:49.200  
Anthony Hesser  
Where is there any like carryover into other projects?

0:29:50.430 --> 0:29:56.430  
Adam Glover  
You know, I mean there's, there's you. You do. You typically see both scenarios.

0:29:59.660 --> 0:30:7.600  
Adam Glover  
But I guess if if I you know the question was which is more common, I would say it's the former than the latter. And the only reason why it's.

0:30:8.420 --> 0:30:9.850  
Adam Glover  
The former is because.

0:30:11.450 --> 0:30:20.280  
Adam Glover  
The companies that are doing majority of partnering with the service providers of Big pharma companies and there's very little crosstalk between different groups and big pharma.

0:30:20.950 --> 0:30:21.420  
Adam Glover  
So.

0:30:22.390 --> 0:30:28.710  
Adam Glover  
You know, you could have a Melanoma group doing a lot of work with digital technology, with Kathi.

0:30:29.570 --> 0:30:33.430  
Adam Glover  
And then a lung cancer group having zero knowledge of that in the same company.

0:30:34.690 --> 0:30:35.80  
Anthony Hesser  
Yeah.

0:30:35.50 --> 0:30:41.690  
Adam Glover  
And they may be yes. And that's like super duper common, super common and that's really the only reason why, but yeah.

0:30:42.560 --> 0:30:43.450  
Anthony Hesser  
Yeah, that makes sense.

0:30:47.360 --> 0:30:47.800  
Adam Glover  
OK.

0:30:44.270 --> 0:30:49.300  
Anthony Hesser  
Uh, so I guess beyond digital pathology and just the the broader histopathology space?

0:30:50.940 --> 0:31:2.790  
Anthony Hesser  
Curious what you view as differentiating offerings there. UM as supposed digital pathology is probably one of the ways that they could differentiate, but other than that, are there other key factors that you see?

0:31:3.830 --> 0:31:9.560  
Adam Glover  
Yeah, absolutely. I mean, you know, if you think, I mean, I if you think about NGS testing for example.

0:31:10.550 --> 0:31:10.830  
Anthony Hesser  
Umm.

0:31:12.180 --> 0:31:26.110  
Adam Glover  
So some companies offer analysis of the whole exome and whole transcriptome, right? So you get the full RNA and DNA picture molecular blueprint. Other companies aren't as.

0:31:26.800 --> 0:31:36.900  
Adam Glover  
Don't offer the same breadth and depth other companies do DNA only for example or DNA, and you know RNA, but only reflex RNA testing. Other companies do.

0:31:37.770 --> 0:31:40.420  
Adam Glover  
There are limited DNA panel, so there's a lot of variety.

0:31:42.50 --> 0:31:42.620  
Adam Glover  
In.

0:31:43.450 --> 0:31:52.0  
Adam Glover  
What type of eggs offerings exist in the space, and that's important. Like that's a big differentiator and and and some companies prefer.

0:31:52.810 --> 0:31:58.30  
Adam Glover  
More information than less other companies were more targeted information, something that has become.

0:31:59.80 --> 0:32:1.950  
Adam Glover  
More and more relevant is HLA genotyping.

0:32:2.760 --> 0:32:3.100  
Anthony Hesser  
Umm.

0:32:3.160 --> 0:32:13.240  
Adam Glover  
Uh, as there are a number of drugs that are in exploratory phases of development and actually one recently approved where HLA is critical for patients election.

0:32:14.490 --> 0:32:19.340  
Adam Glover  
And in addition to somatic mutation knowledge and so.

0:32:20.390 --> 0:32:29.190  
Adam Glover  
HLA genotyping is becoming very important as a differentiator for some companies, right, and so some of these vendors offer HLH genotyping, others do not.

0:32:29.990 --> 0:32:32.930  
Adam Glover  
And so yeah, these are some of the kind of differences.

0:32:34.650 --> 0:32:47.260  
Anthony Hesser  
And for the should nomics analysis, are they on the sample as a whole or is it are they some of the spatial technologies like those offered by 10X genomics where you're localizing the signals to different parts of this issue?

0:32:54.710 --> 0:32:55.210  
Anthony Hesser  
Yeah.

0:32:49.170 --> 0:32:57.860  
Adam Glover  
So single seeming like single cell RNA or spatial analysis. Yeah. So I mean those are becoming more and more.

0:32:59.470 --> 0:33:4.280  
Adam Glover  
Desirable and that is becoming a differentiator as well. Some companies offer single cell RNA.

0:33:5.740 --> 0:33:6.430  
Adam Glover  
Others do not.

0:33:8.350 --> 0:33:8.830  
Adam Glover  
So.

0:33:9.510 --> 0:33:11.630  
Adam Glover  
Yeah, I mean, that's another differentiator for sure.

0:33:13.780 --> 0:33:22.410  
Anthony Hesser  
And you mentioned some panels for both DNA and RNA. Is this is like off the shelf panel, something that companies are are really looking for they?

0:33:23.260 --> 0:33:27.760  
Anthony Hesser  
Typically prefer customization to their program of interest.

0:33:30.950 --> 0:33:50.400  
Adam Glover  
You know, there's a there's a lot of heterogeneity like I would say 5050 in my experience, companies want the whole molecular blueprint. Other companies just won, you know, is this patient or Ross 1 fusion positive or not is this patient EGFR exon 20 or not things like that and don't care about others.

0:33:53.220 --> 0:33:58.770  
Anthony Hesser  
How much I guess cross selling or importance is there if between Histology and proteomics.

0:34:1.770 --> 0:34:3.10  
Adam Glover  
It depends on the target.

0:34:4.20 --> 0:34:8.100  
Adam Glover  
So in probably in more cases than not, there is.

0:34:11.270 --> 0:34:16.90  
Adam Glover  
The high correlation, but in some there isn't, and in some cases.

0:34:17.470 --> 0:34:22.480  
Adam Glover  
You know, companies prefer one or the other and and don't have much interest in, you know.

0:34:23.500 --> 0:34:27.510  
Adam Glover  
Transcriptomics for example, like so there's it varies a lot honestly.

0:34:40.920 --> 0:34:41.250  
Adam Glover  
Yeah.

0:34:29.850 --> 0:34:42.340  
Anthony Hesser  
So I guess for a couple of the differentiate and compete in the Histology area is having a strong genomics and a strong proteomics offering important or do you only maybe need one of those?

0:34:45.560 --> 0:34:46.430  
Adam Glover  
So I think.

0:34:47.240 --> 0:35:0.50  
Adam Glover  
Having the option for multiple offerings is always more intriguing. That doesn't mean that that the formula will, for example, like utilize all of the services, but I think having that.

0:35:1.0 --> 0:35:4.40  
Adam Glover  
Having more options is always.

0:35:4.690 --> 0:35:14.700  
Adam Glover  
You know, it just leads to higher likelihood of there being a partnership done basically. But but again, I kind of go back to the fact that there's just a lot of heterogeneity with respect to what companies want and.

0:35:16.240 --> 0:35:22.830  
Adam Glover  
It's it's often asset dependent and that company dependent so.

0:35:24.630 --> 0:35:32.520  
Anthony Hesser  
Yeah. Could you elaborate a little bit more aware that heterogeneity comes from, is it like company size expertise that they have some other factors?

0:35:33.940 --> 0:35:40.760  
Adam Glover  
So company size probably matters less. It's more of the cost is what matters more.

0:35:41.510 --> 0:36:5.840  
Adam Glover  
And you know, I think there is this of a stereotype of Big Pharma has a lot of money where smaller biotechs don't. And so they pharma is likely to spend for more services and biotech. So like we spend for less services, that's probably not true. And there's just a lot of inter company had originality with respect to interest in. So basically the companies that value precision medicine more.

0:36:8.550 --> 0:36:14.830  
Adam Glover  
I'm more likely to delve into these types of offerings than companies that are traditional precision medicine based.

0:36:16.490 --> 0:36:18.360  
Adam Glover  
And that's probably the best way I can describe it.

0:36:19.980 --> 0:36:21.90  
Anthony Hesser  
Yeah, that makes sense.

0:36:22.290 --> 0:36:36.180  
Anthony Hesser  
We we talked a little bit about who you viewed as kind of leaders in the digital pathology space. Just curious on how much overlap or if there's other companies that you see as leaders in the histopathology histopathology space at a broader level?

0:36:37.730 --> 0:36:42.670  
Adam Glover  
Yeah. I mean, Foundation does a lot of work. Karras does a lot of work in this space.

0:36:44.370 --> 0:36:45.60  
Adam Glover  
Tempus.

0:36:45.810 --> 0:36:47.120  
Adam Glover  
There's a lot of work in this space.

0:36:48.140 --> 0:36:53.0  
Adam Glover  
So those are the three that come to mind. Those are the three that I kind of hear about often and my line of work.

0:36:55.100 --> 0:37:0.70  
Anthony Hesser  
And what I guess about those companies, do you view as kind of?

0:37:1.830 --> 0:37:3.760  
Anthony Hesser  
Like what? What's set them apart from the others?

0:37:6.390 --> 0:37:13.680  
Adam Glover  
So one is the type of partnering model that they have with biopharma. So Karras is.

0:37:16.40 --> 0:37:30.460  
Adam Glover  
They they pride themselves on being very flexible with how they partners. They're not dogmatic in terms of like the company needs to pay a certain amount to work with us or company needs to buy, you know, two offerings to work with us like the company. The Caris is pretty flexible to help partners.

0:37:31.570 --> 0:37:33.490  
Adam Glover  
Where is Tempus is very dogmatic.

0:37:35.150 --> 0:37:39.260  
Adam Glover  
And very rigid with respect to their partnering structure in that.

0:37:39.990 --> 0:37:42.130  
Adam Glover  
And I mean, that's hard for Big Pharma to navigate.

0:37:45.190 --> 0:37:49.360  
Adam Glover  
Foundation is a little different because foundation is owned by Roche.

0:37:50.380 --> 0:37:51.720  
Adam Glover  
And so there isn't inherit.

0:37:54.160 --> 0:37:58.180  
Adam Glover  
You know, there's a little bit of reluctance from Big Pharma to partner with foundation.

0:37:59.90 --> 0:38:15.560  
Adam Glover  
Because of their relationship with the Roche right, so Roche is a competing company then it's just inherent potential conflict of interest that being set foundation parties with Big Pharma all the time. So anyway, so that's one differentiator is kind of how they partner. The second is the offering. So when you think about NGS testing.

0:38:16.840 --> 0:38:30.240  
Adam Glover  
Carrots does whole exome sequencing and all transcriptome sequencing for all subjects, not as reflex but for all subjects. So if you do NGS testing with Karras, gonna get the whole day and then RNA molecular profile including HLA genotyping.

0:38:31.900 --> 0:38:33.90  
Adam Glover  
Tempest does.

0:38:34.60 --> 0:38:56.260  
Adam Glover  
Both whole transcriptome and whole Excel. However, they only do reflex testing for RNA, so you have to request RNA testing or I'll say provide just DNA and then foundation does limited DNA only. So those are some of the differences. So the depends on how relevant RNA is, how relevant HLA testing is for your company, for your asset and so forth.

0:38:58.500 --> 0:38:59.870  
Anthony Hesser  
Yes, I guess between.

0:39:10.420 --> 0:39:11.20  
Adam Glover  
Yeah.

0:39:0.590 --> 0:39:19.730  
Anthony Hesser  
Those types of offerings, like if you have the HLA typing included. If you have the RNA profiling included is this kind of this gets a little bit into the the contracting how deals are set up but does does this mean that I guess at a per sample basis it's more expensive or is it typically thought of on a per project basis or however these structured?

0:39:24.520 --> 0:39:27.530  
Adam Glover  
So it's, you know, depends right cause cause the.

0:39:28.530 --> 0:39:34.570  
Adam Glover  
So the the the offerings that these companies have, they do offer an GS, but they also offer other.

0:39:35.430 --> 0:40:0.720  
Adam Glover  
Uh, element. So you know, they do a lot of work with real world data, right? They they interrogate data for on behalf of the biopharma where they licensed data, they do clinical trial matching for patients, they do CDX work. They do digital pathology work. They do discovery work, novel target discovery and validation work. So the pricing often depends on the scope of work.

0:40:1.520 --> 0:40:13.840  
Adam Glover  
And so how that and and so you know it's it's hard to have kind of singular view on this usually depends on how much how many elements of each company's offerings are being put into the contract.

0:40:14.870 --> 0:40:17.550  
Adam Glover  
And so, you know, the more work that's included.

0:40:18.280 --> 0:40:20.380  
Adam Glover  
The broader the the more elements.

0:40:22.640 --> 0:40:24.680  
Adam Glover  
There are the more offerings that are included.

0:40:25.600 --> 0:40:34.680  
Adam Glover  
Typically result in lower sample prices, right? So like if you know these companies typically are OK with offering less.

0:40:35.380 --> 0:40:37.290  
Adam Glover  
On a tissue or a whole blood?

0:40:39.400 --> 0:40:48.370  
Adam Glover  
Personable price if you also are willing to license data or are willing to do some digital pathology works or what have you, that makes sense.

0:40:48.80 --> 0:40:48.390  
Anthony Hesser  
Mm-hmm.

0:40:49.810 --> 0:41:2.460  
Anthony Hesser  
Yes, if you expand your the number of services that you're offering then on a per service level there there's a broad like a general discount of applied for the more services that you purchase.

0:41:3.640 --> 0:41:4.590  
Adam Glover  
Yeah, exactly.

0:41:5.970 --> 0:41:14.660  
Anthony Hesser  
And is it usually like if one company's asking you to look at 10 versus 20 samples like is that the main price determination?

0:41:18.870 --> 0:41:19.650  
Adam Glover  
Say that one more time.

0:41:20.640 --> 0:41:33.340  
Anthony Hesser  
If if a company wants you to look at 10 samples or 20 samples, does that double the the cost? Is it per sample based typically or is there startup fees or assay development fees that are flat and may?

0:41:34.320 --> 0:41:36.450  
Anthony Hesser  
Alter that distribution of costs.

0:41:38.560 --> 0:41:44.130  
Adam Glover  
So the more samples, definitely the cheaper person price.

0:41:47.650 --> 0:41:58.570  
Adam Glover  
But I'm not sure there's gonna be a cheaper price if you go from 10 to 20, you go, you get a cheaper price. If you go from 50 to 202 hundred to 505 hundred to 1000.

0:42:0.540 --> 0:42:5.430  
Adam Glover  
So orders of magnitude differences is what often yield to lower pricing for samples.

0:42:6.590 --> 0:42:12.480  
Adam Glover  
If this is just a profiling only agreement, if it's an agreement with multiple elements.

0:42:13.320 --> 0:42:14.10  
Adam Glover  
Then.

0:42:14.720 --> 0:42:21.300  
Adam Glover  
There's a a greater willingness for these companies to offer much lower per sample pricing as long as they can recoup.

0:42:22.730 --> 0:42:25.840  
Adam Glover  
Some of the losses with, you know data licensing, you were happy.

0:42:30.870 --> 0:42:31.90  
Adam Glover  
Yeah.

0:42:26.810 --> 0:42:37.520  
Anthony Hesser  
Umm. And for companion diagnostics, is there any profit sharing or anything with the CRO who's helping to develop that? Or is it just a per service?

0:42:38.440 --> 0:42:38.910  
Anthony Hesser  
Agreement.

0:42:38.770 --> 0:42:41.160  
Adam Glover  
And it's it's usually per service agreement.

0:42:42.80 --> 0:42:42.360  
Anthony Hesser  
OK.

0:42:44.320 --> 0:42:50.170  
Anthony Hesser  
There's a couple other providers that just want to ask about in the histopathology space fear aware of.

0:42:51.630 --> 0:42:56.150  
Anthony Hesser  
The views and them one is precision for medicine.

0:42:58.240 --> 0:42:58.590  
Adam Glover  
Not.

0:42:58.660 --> 0:43:1.870  
Adam Glover  
Familiar do you want me to look them up real quick to see what their offerings are?

0:43:3.540 --> 0:43:13.800  
Anthony Hesser  
No, that's OK. I just wanted to curious if you've heard of companies that's I guess one level of feedback and then the next level would be if you have heard of them, what you view as strained to weaknesses?

0:43:15.480 --> 0:43:15.740  
Anthony Hesser  
OK.

0:43:14.480 --> 0:43:15.810  
Adam Glover  
Got it. Got it. Yeah, I've not heard of.

0:43:16.860 --> 0:43:22.900  
Anthony Hesser  
Another one is cellcarta or I think they also. It's like Histogenics previously.

0:43:24.230 --> 0:43:25.700  
Adam Glover  
No, I haven't heard of that either.

0:43:27.190 --> 0:43:27.660  
Anthony Hesser  
OK.

0:43:29.380 --> 0:43:30.670  
Anthony Hesser  
Server research.

0:43:39.30 --> 0:43:39.450  
Adam Glover  
No.

0:43:36.660 --> 0:43:40.440  
Anthony Hesser  
I'm sorry I missed that. Have you refer with cerba research, OK.

0:43:43.20 --> 0:43:45.710  
Anthony Hesser  
Umm. And then uh, navigate.

0:43:47.200 --> 0:43:47.480  
Adam Glover  
No.

0:43:49.380 --> 0:43:53.800  
Anthony Hesser  
OK. And then last one Neogenomics.

0:43:54.720 --> 0:43:55.200  
Adam Glover  
Yeah.

0:43:56.640 --> 0:43:58.180  
Adam Glover  
I am familiar with Neogenomics.

0:44:0.390 --> 0:44:2.430  
Adam Glover  
So Neogenomics does.

0:44:3.710 --> 0:44:4.650  
Adam Glover  
A lot of.

0:44:5.860 --> 0:44:9.480  
Adam Glover  
Testing for, you know, they act as essential laboratory basically.

0:44:10.250 --> 0:44:10.530  
Anthony Hesser  
Umm.

0:44:10.450 --> 0:44:13.760  
Adam Glover  
For biomarker driven?

0:44:14.530 --> 0:44:15.320  
Adam Glover  
Uh, drugs?

0:44:17.810 --> 0:44:22.370  
Adam Glover  
You know, one of their key differentiators is that they do work in hematology.

0:44:23.280 --> 0:44:28.590  
Adam Glover  
Whereas many companies in the space do not so many of these companies focus on.

0:44:30.390 --> 0:44:33.390  
Adam Glover  
So tumor cology only, whereas Neogenomics that.

0:44:34.810 --> 0:44:49.960  
Adam Glover  
Hematology as well oncology and that's a big difference. So like Eli, Lilly for example was about, you know, just had a blockbuster, seems to be blockbuster leukemia, drug approved and they used Neogenomics for all of their phase one through three work.

0:44:52.860 --> 0:44:53.410  
Adam Glover  
So that.

0:44:54.180 --> 0:44:55.590  
Adam Glover  
That's one differentiator.

0:44:56.860 --> 0:44:57.930  
Adam Glover  
They do.

0:44:58.860 --> 0:44:59.300  
Adam Glover  
Uh.

0:45:0.650 --> 0:45:3.830  
Adam Glover  
Lot of work with anatomic pathology.

0:45:4.720 --> 0:45:4.950  
Anthony Hesser  
Umm.

0:45:5.290 --> 0:45:11.590  
Adam Glover  
That kind of like as I service provider that's different, they do liquid biopsy testing.

0:45:13.500 --> 0:45:21.360  
Adam Glover  
That's different. So sorry, you know it's differentiating. So they so these are some of the differentiators.

0:45:35.430 --> 0:45:35.620  
Adam Glover  
Yeah.

0:45:23.540 --> 0:45:50.500  
Anthony Hesser  
Yeah. And I guess I'm curious how much overlap there is for for some of these different service lines. So I guess go back to the the start of the call where mentioned immune monitoring versus partial mixed genomics histopathology, if you're if about from company is working with a 0 for histopathology services, how much overlap is there or interest is in there for that company to also offer service in some of these other technology types?

0:45:53.750 --> 0:45:57.890  
Adam Glover  
So it it varies based on the form of needs. I mean ultimately.

0:45:59.800 --> 0:46:0.410  
Adam Glover  
So.

0:46:1.860 --> 0:46:2.680  
Adam Glover  
You know, I I think.

0:46:3.760 --> 0:46:7.730  
Adam Glover  
I think kind of when a big pharma approaches these companies when.

0:46:9.340 --> 0:46:10.340  
Adam Glover  
When they.

0:46:11.900 --> 0:46:15.770  
Adam Glover  
Like they typically engage for with a very specific purpose.

0:46:18.260 --> 0:46:20.520  
Adam Glover  
As conversations evolved.

0:46:21.310 --> 0:46:22.670  
Adam Glover  
If a big pharma learns that.

0:46:23.720 --> 0:46:33.130  
Adam Glover  
Yeah, maybe these companies offer additional services that are relevant to the big pharma at that time or maybe we'll be in the near term then perhaps an expanded scope of work will be discussed.

0:46:33.790 --> 0:46:57.850  
Adam Glover  
Uh, so you know, is it all depends on what the big Pharma is looking for it. But but I I definitely don't want to portray that a company that offers the most like the broadest panel of services is the one that's often going to get the deal like that doesn't happen. It really depends on what the specific pharma needs depends on reputation and depends on cost depends on the style of partnering, scope of partnering, things like that.

0:47:10.920 --> 0:47:11.320  
Adam Glover  
Yeah.

0:46:59.840 --> 0:47:12.430  
Anthony Hesser  
Was it typically one type of service that is the highest priority and and most important to to pick or that specific project and maybe that can lead to other work and the other offerings that the company has?

0:47:13.30 --> 0:47:15.520  
Adam Glover  
Yeah, I think that's a very fair way to describe it, yeah.

0:47:16.840 --> 0:47:17.160  
Anthony Hesser  
OK.

0:47:33.610 --> 0:47:33.990  
Adam Glover  
Yeah.

0:47:20.270 --> 0:47:35.660  
Anthony Hesser  
And just one follow up question for you mentioned you genomics and offering liquid biopsies, are there other companies in this space that are doing a lot of work in offering this type of service and how important is that for different programs?

0:47:36.450 --> 0:47:43.950  
Adam Glover  
Yeah, I mean, Tempus offers the liquid biopsy. They offer 105 gene panel DNA only.

0:47:45.430 --> 0:48:4.910  
Adam Glover  
Foundation offers a DNA only liquid biopsy as well of Karras, offers a liquid biopsy and there there's this relatively new, but there's this whole exome and whole transcriptome sequencing. So that's different that you get the DNA and RNA with liquid which is different. So these are the three.

0:48:5.580 --> 0:48:14.490  
Adam Glover  
You know, gardens has a liquid biopsy, but it and now has the best reputation. It's sensitivity and specificity is in the highest. So there are a number of companies with liquid offerings.

0:48:17.150 --> 0:48:19.670  
Adam Glover  
From perspective, from the perspective of pharma.

0:48:20.980 --> 0:48:24.320  
Adam Glover  
Again, there's a lot of heterogeneity with respect to one.

0:48:25.540 --> 0:48:27.650  
Adam Glover  
The utility of liquid biopsy testing.

0:48:28.720 --> 0:48:30.550  
Adam Glover  
Uh, and then two.

0:48:31.840 --> 0:48:33.370  
Adam Glover  
Willingness to actually.

0:48:34.310 --> 0:48:39.120  
Adam Glover  
They spend money on liquid testing because you know, we're liquid testing helps. So liquid testing doesn't.

0:48:39.760 --> 0:48:41.270  
Adam Glover  
It's not gonna replace tissue.

0:48:42.140 --> 0:48:42.470  
Anthony Hesser  
Umm.

0:48:42.20 --> 0:48:50.30  
Adam Glover  
Testing, but it's complementary in the sense that what liquid biopsies potentially permit and I say potentially just because.

0:48:50.930 --> 0:49:7.560  
Adam Glover  
This is still an early field and we need more data to confirm what I'm about to say, but what liquid biopsies permit is longitudinal testing throughout a patient's journey. Pretreatment on treatment at the time of progression to better understand the molecular landscape.

0:49:11.500 --> 0:49:11.760  
Anthony Hesser  
Umm.

0:49:8.810 --> 0:49:40.250  
Adam Glover  
The the evolution of a molecular landscape throughout the continuum right cause we know that molecular that that the molecular profile changes over time. It's not stagnant and it changes with exposure to treatment progression, other factors. And so that's really the key and that's a noninvasive test. So some companies really value the potential of that. Other companies don't think it's ready for prime time yet. So probably in the next two to three years we'll have a better understanding of how the liquid fits into the.

0:49:40.350 --> 0:49:41.940  
Adam Glover  
Overall testing footprint.

0:49:42.540 --> 0:49:42.790  
Anthony Hesser  
Umm.

0:49:43.660 --> 0:49:44.710  
Anthony Hesser  
Yeah, makes sense.

0:49:46.560 --> 0:50:4.900  
Anthony Hesser  
And then in in terms of kind of adjacent offerings and maybe you already include this in genomics, but how important is kind of the bioinformatics offering? Is that something that companies are looking for as a key differentiator or they kind of view it as an additional service that maybe they could do themselves?

0:50:4.980 --> 0:50:9.320  
Anthony Hesser  
Umm. So it's not necessarily seen as a key value driver.

0:50:17.780 --> 0:50:18.50  
Anthony Hesser  
Umm.

0:50:18.120 --> 0:50:23.770  
Adam Glover  
Want to you know to the framework. I'm in agreement that stem from other use cases.

0:50:25.10 --> 0:50:31.360  
Adam Glover  
But I I have not seen it as kind of the critical go no go determinism.

0:50:32.890 --> 0:50:48.710  
Anthony Hesser  
Is there any differentiation in the different bio informatics services offered by companies performing genomics? Like many proprietary pipelines or some sort of machine learning algorithms to help analyze some of the molecular data?

0:50:51.90 --> 0:50:53.320  
Adam Glover  
Not not that I'm familiar with.

0:50:55.60 --> 0:50:55.470  
Anthony Hesser  
OK.

0:50:57.80 --> 0:51:20.190  
Anthony Hesser  
And then they went in the last few minutes. Want to ask a little bit about pricing and recognize that this could be hard to estimate given a lot of variance between projects, but we're just trying to get a range of expected prices and I guess either like a per project or per sample for some of the Histology and digital pathology services.

0:51:23.920 --> 0:51:28.280  
Adam Glover  
I would say as low as low single digit.

0:51:28.960 --> 0:51:29.990  
Adam Glover  
No, I would say.

0:51:31.910 --> 0:51:37.390  
Adam Glover  
You know, as a low as, yeah, let's say this as low as low single digit millions.

0:51:39.620 --> 0:51:39.880  
Anthony Hesser  
Umm.

0:51:39.160 --> 0:51:44.460  
Adam Glover  
To you know, I don't know key figures. 9 figures.

0:51:46.210 --> 0:51:55.220  
Anthony Hesser  
And I guess is this for all testing from discovery through clinical development or or or what does this include?

0:51:55.900 --> 0:51:57.480  
Adam Glover  
Yeah, I mean it, it includes.

0:51:58.250 --> 0:52:7.870  
Adam Glover  
Kind of mixing matching services that includes. Yeah. Efforts through very early discovery, nonclinical, all the way through preclinical and clinical development I think.

0:52:9.260 --> 0:52:17.130  
Adam Glover  
It's it's hard to get these life sciences companies to get excited about partnerships less than $1,000,000 for example, just because.

0:52:19.420 --> 0:52:23.340  
Adam Glover  
You know the these companies have large staff and a lot of.

0:52:24.540 --> 0:52:25.10  
Adam Glover  
Umm.

0:52:26.180 --> 0:52:29.560  
Adam Glover  
You know, like, you know, resources are finite, and so they're not.

0:52:30.930 --> 0:52:32.490  
Adam Glover  
I think they try to.

0:52:40.780 --> 0:52:41.60  
Anthony Hesser  
Umm.

0:52:35.290 --> 0:52:50.180  
Adam Glover  
Try to rather than signing single kind of 1 off transactions for $300,000, which aren't very lucrative companies that have invested millions and millions of dollars of infrastructure to be able to like develop. Whether it is that they're actually offering, they are seeking broader.

0:52:51.650 --> 0:52:54.760  
Adam Glover  
More, more scope, more money.

0:52:55.630 --> 0:52:57.760  
Adam Glover  
More downstream benefits type of deal?

0:52:58.630 --> 0:53:6.500  
Anthony Hesser  
Umm. And how was the the cost distributed across from like Discovery, preclinical work to the different clinical work?

0:53:10.870 --> 0:53:13.280  
Adam Glover  
I'm not sure that I would say it's pretty equal.

0:53:16.30 --> 0:53:32.280  
Anthony Hesser  
OK, so a lot of the that means a lot of the money and discovery would be going to the actual development of the analysis and the assay and validation. And then when you get to clinical phases, it's kind of like per sample that's kind of driving that cost.

0:53:32.730 --> 0:53:34.530  
Adam Glover  
Exactly. Exactly. Yeah.

0:53:35.870 --> 0:53:36.140  
Adam Glover  
Yep.

0:53:35.680 --> 0:53:45.280  
Anthony Hesser  
OK. And is that how you would think about it in the clinical stage that it's per sample that you test has a value like if someone has 100 person trial versus 1000 person trial?

0:53:46.720 --> 0:53:47.660  
Adam Glover  
Yeah, definitely.

0:53:48.510 --> 0:53:49.620  
Anthony Hesser  
OK. That makes sense.

0:53:51.200 --> 0:53:55.810  
Anthony Hesser  
Great. Well, it's super bug up on our time. I'll stop the recording.