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

0:0:6.320 --> 0:0:17.320  
Angela Angle  
OK, great. The recording has been started, so if it would be helpful to just to start off the call, if you can give us a brief background of your description or experience and type of companies that you worked at that be great.

0:0:17.770 --> 0:0:18.10  
Peter Novak  
Yes.

0:0:19.690 --> 0:0:32.590  
Peter Novak  
Yes. So I think uh, total 10 plus years of experience working in bioforms industry, various performance intrical industry predominantly working in the space of CMC and early discovery is you know.

0:0:32.670 --> 0:0:57.80  
Peter Novak  
Umm, uh, uh, Discovery Reset support teams there have been involved in, you know, developing the many mass spectrometry based or otherwise, biomarker discovery based analytical essays as well as you know total CMC development of the biomolecules. So these biomolecules includes.

0:0:57.700 --> 0:1:2.710  
Peter Novak  
Uh Tamarine based vaccine therapeutics monoclonal antibody based.

0:1:3.240 --> 0:1:5.490  
Peter Novak  
Umm, but therapeutic.

0:1:8.130 --> 0:1:8.380  
Angela Angle  
Umm.

0:1:5.690 --> 0:1:17.110  
Peter Novak  
Wow. OK. You know, that's so these are the areas which I have quite an elaborate experience working in these areas of development of biotherapeutics.

0:1:19.0 --> 0:1:21.590  
Angela Angle  
And I guess when you, yeah, go ahead.

0:1:19.400 --> 0:1:33.590  
Peter Novak  
And I've been using the various analytical methodologies. Yeah, I've been using various analytical methodologies, you know, for discovering development of the critics.

0:1:36.610 --> 0:1:37.960  
Angela Angle  
And for umm when you?

0:1:37.120 --> 0:1:40.500  
Peter Novak  
So that's the following and about myself.

0:1:43.30 --> 0:1:43.330  
Peter Novak  
Sorry.

0:1:41.700 --> 0:1:55.650  
Angela Angle  
Yeah. When you mentioned CMC work and also biomarker discovery, are you also does that mean you're also involved in manufacturing testing of either in production testing or batch release testing as well?

0:1:54.350 --> 0:1:56.60  
Peter Novak  
Development development of.

0:1:56.720 --> 0:1:57.140  
Peter Novak  
Yes.

0:1:58.100 --> 0:2:3.50  
Peter Novak  
Yes, quality testing. So during development of quality control testing.

0:2:4.630 --> 0:2:14.90  
Angela Angle  
OK, so developing quality control tests and then as well as biomarker discovery that's is this also biomarkers that are used in clinical tests as well.

0:2:16.600 --> 0:2:17.70  
Peter Novak  
Yes.

0:2:18.80 --> 0:2:18.390  
Angela Angle  
OK.

0:2:17.870 --> 0:2:23.770  
Peter Novak  
Every discovery station as well as the CMC stage of the development of therapeutics.

0:2:24.630 --> 0:2:34.940  
Peter Novak  
So therapeutic development can be, you know, divided in this space where we discovery as well as the CMC and then post CMC. So I'm I was involved in both these areas.

0:2:37.250 --> 0:2:37.500  
Angela Angle  
OK.

0:2:40.220 --> 0:2:40.430  
Peter Novak  
Yeah.

0:2:39.330 --> 0:2:55.0  
Angela Angle  
I guess I'd like to just give a little bit of an overview of how we're thinking about the the biomarker testing space and see if that resonates with how you're thinking about it and will then want to go kind of segment by segment to ask about biomarker testing needs there.

0:2:55.840 --> 0:3:16.560  
Angela Angle  
I'm. I guess the go over our key segments. We're thinking about one segment being proteomics and this could be mass spec based essays or you know assays that are used to look for a very specific molecules. Then the second segment would be genomics and this includes PCR testing as well as eggs.

0:3:17.110 --> 0:3:33.390  
Angela Angle  
Umm, immune monitoring tests and this could be more on the the cell Physiology and flow cytometry based assays and then we have the last category is histopathology which is more of the IHC ISH slide based kind of analysis.

0:3:33.850 --> 0:3:34.70  
Peter Novak  
Yep.

0:3:36.380 --> 0:3:38.620  
Peter Novak  
But but it is nothing but imaging.

0:3:34.950 --> 0:3:40.720  
Angela Angle  
Does do these segments? Uh. Make make sense to you? In imaging you would add.

0:3:41.240 --> 0:3:45.370  
Peter Novak  
Yeah. Yeah, I would, yes, yes, I would add microarrays and imaging.

0:3:47.440 --> 0:3:52.940  
Angela Angle  
And for microarrays is this oligo arrays or protein microarrays?

0:3:54.160 --> 0:3:56.970  
Peter Novak  
Did you know Genomics genomics gene expression?

0:3:57.890 --> 0:3:58.230  
Angela Angle  
OK.

0:3:59.470 --> 0:4:0.80  
Angela Angle  
That's helpful.

0:4:0.900 --> 0:4:1.90  
Peter Novak  
Yeah.

0:4:0.930 --> 0:4:1.400  
Angela Angle  
I'm.

0:4:2.290 --> 0:4:8.140  
Angela Angle  
Great. And so I guess I'd like to go through each category at a time and just kind of ask about.

0:4:24.460 --> 0:4:24.790  
Peter Novak  
Yes.

0:4:9.120 --> 0:4:33.60  
Angela Angle  
The the the vendor CRO needs for each type of testing it and when you would decide to go to CRO versus perform testing inside. So I guess starting with proteomics, it sounds like you have a lot of experience there, but just like to hear your thoughts on what kind of capabilities you typically look for in a CRO partner and when we you would decide to engage them in the development process?

0:4:36.400 --> 0:4:46.270  
Peter Novak  
Yeah. Typically in the proteomics part, the early discovery would like to know the biomarker. So for the biomarkers, there will be.

0:4:46.550 --> 0:4:46.930  
Peter Novak  
Well.

0:4:48.150 --> 0:5:1.570  
Peter Novak  
The clean proteomic tools, which are required, which includes mass spectrometry based proteomics in this mass spectrometer version, there are advancements in this technologies within mass spectrometry. So we would usually no.

0:5:2.870 --> 0:5:18.540  
Peter Novak  
Usually in the perform in mystery, this includes, you know, a HRMS high resolution mass spectrometry based proteomics which is usually highly skilled based methodologies as well as you know.

0:5:19.800 --> 0:5:47.120  
Peter Novak  
Involves the data analytics, so you you usually be the outsourced. To get the proteome information. Whether it is getting upregulated for example in a cancer tissue and the non cancer tissue, this usual workflows will be taken place. So we will usually outsource such activities to then vendor who has extended to you know short term proteomics as well as discovery proteomics expertise within their services.

0:5:49.560 --> 0:6:0.940  
Angela Angle  
And for the the analytics is there sort of custom workflows that providers are offering here, I guess which I'm not sure like when you would do the analytics in house versus at a CRO?

0:6:5.30 --> 0:6:16.970  
Peter Novak  
Yes, there were specific customized workflows in in. It depends on the type of tissues what we take, if it's in the Sierra or plasma.

0:6:17.370 --> 0:6:47.380  
Peter Novak  
Uh, different uh aligned workflow will be there basically to extract the type of perfume which we are looking for. For example if it is a nuclear proteome or is it the cytoskeletal proteome? Or if it is something which is on the membrane perfume so depends on the type of perfume which we are looking for. Usually the workflows will be varying for and it can be customized basically to extract the protein of interest.

0:6:47.700 --> 0:7:12.120  
Peter Novak  
And mixture of program of interest. The workflows will be deferred and this can be customized based on the client request. So it it actually from the biopharma perspective if the biopharma is going to target for example a therapeutic vaccine or therapeutic drug is going to be targeted for specific cancer tissue type then it is the tissue.

0:7:12.440 --> 0:7:42.370  
Peter Novak  
Umm, I know. Uh protein, which will be the the targeted workflow which has to be you know focused to get the perfume out and this protein will be further suggested to liquid chromatography and mass spectrometry and from the master chronometry. And it goes to the data analytics part in the data analytics. We are going to take which proteome is getting upgraded or downregulated can be clearly distinguished, which is called quantitative proteomics.

0:7:42.630 --> 0:7:46.200  
Peter Novak  
Which the overall workflow is called quantitative proteomics.

0:7:46.920 --> 0:7:47.220  
Angela Angle  
Umm.

0:7:48.350 --> 0:7:53.560  
Angela Angle  
And I guess how often do you need the proteomics to be quantitative for your discovery work?

0:7:57.120 --> 0:8:2.410  
Peter Novak  
Well, uh, the depends on the number of pipelines of molecules and the type of.

0:8:2.490 --> 0:8:23.170  
Peter Novak  
Wow. You know, Discovery stage, where we were where, where the biopharmaceutical industry will be you at the early stage discovery when we have to confirm a lead on molecule or a lead discovery stage for example. I'm just giving in mRNA based.

0:8:24.190 --> 0:8:37.220  
Peter Novak  
You know, reacting or better critic development, to have the sequence of the lead sequence. We should have the proteome of interest to be discovered. So this has to be done at the early stage.

0:8:37.990 --> 0:8:53.320  
Peter Novak  
Of the development so early stage development for the lead discovery and lead optimization and lead for analyzation, these biomarker discovery at these stages is very important because that is the marker which we are going to target.

0:8:54.500 --> 0:8:54.800  
Angela Angle  
Mm-hmm.

0:8:54.260 --> 0:8:59.170  
Peter Novak  
So that is the input that, that, that that's how the importance of this.

0:8:59.260 --> 0:9:28.980  
Peter Novak  
Uh, from quantitative protein is important, so at this stages it is quite usually be done, but later stages it is not actually required, but later stages all the other platform based. This is like Liz or you know well established platform based analysis will come into picture because we know the protein of interest but in the other scenario in the discovery phase we don't know which protein to target that is how the importance of quantitative protein is come into.

0:9:29.300 --> 0:9:30.290  
Peter Novak  
Early discovery thing.

0:9:31.480 --> 0:9:39.230  
Angela Angle  
Umm. And for these proteomic studies, are you typically doing something like isobaric labeling or or something to?

0:9:40.120 --> 0:9:42.780  
Angela Angle  
Like like techniques involved to do the quantification and.

0:9:41.530 --> 0:9:44.270  
Peter Novak  
Yeah, it is. Both the hell it is.

0:9:45.100 --> 0:10:15.440  
Peter Novak  
Yes, yes. So there are different types of uh, you know, proteomic approaches, which there is the unlabeled quantitative proteomics, is they're labeled proteomics. So when we say I track or silac method. So there are a lot of these other technologies which are labeled I track or pilac you would have heard this technology silac and track. So these approaches are called labeled proteomics nowadays due to the advancement in the technology of LCMS.

0:10:15.690 --> 0:10:20.180  
Peter Novak  
Uh HRMS based methodology. The unlabeled proteomic.

0:10:20.990 --> 0:10:34.690  
Peter Novak  
I is into unlabeled quantitative proteomics is in high demand where there is no need of labeling anything but you get the quantitation data without labeling from the high resolution mark spectrometry data.

0:10:35.410 --> 0:10:50.250  
Peter Novak  
So that is in high demand than the labeled. So label has the chances to have, you know, false positive, false discovery rates more. But whereas unlabeled, you have limited false discovery rate and you get the you know highly.

0:10:50.330 --> 0:10:54.230  
Peter Novak  
No, I'm reproducible as well as the labeled data.

0:10:56.390 --> 0:11:17.590  
Angela Angle  
When you think about the zeros that are offering like actual the mass spec, performance services are. Do you see any differentiation between zeros and like being offered being able to offer labeled versus unlabeled or any other kind of tissue specific aspect services or anything differentiating differentiating on the analytic side?

0:11:20.860 --> 0:11:50.250  
Peter Novak  
Well, yeah. So there are specific requirements post you know post discovery at the process development scale or at the clinical clinical development phases. There is a specific requirement in this development room which is called host self proteomics. So for hostel proteomics, there is a specific requirement what we expect as a pharmaceutical development parity.

0:11:50.650 --> 0:12:20.950  
Peter Novak  
But for the early discovery phases, we usually go for the with the vendor who could provide end to end support along with the data acquisition as well as data quantization and reporting. So who could provide the end to end support. So these reports basically will directly goes to our CCD document. Some of the data from this vendor. So the quality of the data which would be generated is a high priority.

0:12:21.30 --> 0:12:27.720  
Peter Novak  
When we look into the CRO services, who could provide the quantitative proteomics irrespective of labeling?

0:12:28.900 --> 0:12:29.210  
Angela Angle  
Umm.

0:12:28.540 --> 0:12:45.360  
Peter Novak  
So many, many of the vendors could provide the when they could provide the, you know, not unlabeled proteomics. They could provide the labeled proteomics within their workflows. It is just the type of analysis what we do and workflow. Basically, the sample preparation workflow would be little different.

0:12:46.130 --> 0:12:52.800  
Peter Novak  
And umm, so this is the basically differentiation between the services how we choose.

0:12:54.430 --> 0:13:15.860  
Angela Angle  
So for the end to end service that you look for other than actually performing the experience experiment doing the analytics and the report generation, how much of the earlier steps in terms of conducting the experiment to get the samples from and sample preparation, other kind of pre analysis steps how much of that is included in that and then offering?

0:13:18.680 --> 0:13:21.450  
Peter Novak  
Yeah, yeah, Wednesday and end to end.

0:13:22.630 --> 0:13:35.780  
Peter Novak  
Many of the big companies, like large biotech companies, would have the sample preparation basic sample preparation, you know, strategic workflows within in House developed.

0:13:36.230 --> 0:14:6.420  
Peter Novak  
Uh, you know, play everything in house. Developed uh workflows where for example I'm giving. So I need the proteome to be extracted from there specific cell type or from the Sierra. So there is this workflow which can be done in house in the large biotech that is possible in mid and small scale. So they usually take the end to end to totemic workflow where we request the type of tissue.

0:14:18.620 --> 0:14:18.880  
Angela Angle  
Umm.

0:14:6.770 --> 0:14:31.880  
Peter Novak  
And we request the type of, you know the labeling or the cell which has to be grown, for example Philippe, which has to be grown in the control medium as well as the labeled medium and understand the difference, basically understand the differences between the cancerous as well as long cancerous issues. So these workflows can be directly from scratch without giving any.

0:14:33.260 --> 0:14:35.440  
Peter Novak  
No come consumables.

0:14:36.240 --> 0:15:6.720  
Peter Novak  
Uh, for this preparation we just usually take the work order from end to end with the the type of requirement in terms of the cells as well as the media or the type of labeling. So all this will be outlined in the work order and this work order will be well designed by the pro and then they generate the sample preparation, generate the proteome and provide the LCMS.

0:15:6.790 --> 0:15:9.220  
Peter Novak  
Data in promo reports.

0:15:11.360 --> 0:15:13.180  
Angela Angle  
OK. That makes sense. That's really helpful.

0:15:13.980 --> 0:15:22.900  
Angela Angle  
And and what situations would a the biopharma company not need? The analysis steps? Is that considered a key offering of zeros?

0:15:26.150 --> 0:15:31.210  
Peter Novak  
Yeah. So where specially and and I analysis part there.

0:15:31.670 --> 0:15:35.900  
Peter Novak  
Well, they're required basically in high.

0:15:36.20 --> 0:15:58.910  
Peter Novak  
Uh qualified or expert in Alpha M data, and also because the LM data analysis is one thing which not usually known by you know, all regular analytics people who could handle HPLC or uplc's, they would not definitely know the LCM data analytics. So that is where the actual.

0:15:59.290 --> 0:16:1.680  
Peter Novak  
Uh PR work? Uh, you know.

0:16:5.550 --> 0:16:5.830  
Angela Angle  
Umm.

0:16:2.680 --> 0:16:10.420  
Peter Novak  
Umm requirement is more they have this way. Highly qualified LLC and data analytics people.

0:16:10.940 --> 0:16:19.530  
Peter Novak  
Umm. And they could provide the data which is required as per the need from the biopharma.

0:16:21.380 --> 0:16:42.130  
Peter Novak  
For example, uh, just giving an example quantitative proteomics with an unlabeled version. If I have to provide to what I could give is from a biopharma company, what I should give us some information on the type of proteome which we are looking for. But the information what they could give is the type of.

0:16:42.470 --> 0:17:15.420  
Peter Novak  
Uh, you know, I extraction for these are the type of uh, uh sample preparation. What they have followed and to the end how the quantitation of each protein is giving out how this protein output is reliable to no because in the master basically we have lots of peaks this peaks has to be converted into protein information and this protein information for to further converted into quantitative information. So this quantitation information can only be done through extensive data analytics.

0:17:30.410 --> 0:17:30.690  
Angela Angle  
Mm-hmm.

0:17:15.520 --> 0:17:32.800  
Peter Novak  
Which will be provided and this data analytics is not only the, you know, FT full time employee who could do do this data analytics, it's the other important role is the software which could give this information and these softwares are pretty high expensive.

0:17:33.640 --> 0:17:54.450  
Peter Novak  
And to operate, to acquire, to data and analyze the software, they're still people are required. So these are the two important criteria which we are work will have and which we choose as in prime, in requirement from the biopharma to have to this specific project can be outsourced to.

0:17:54.600 --> 0:17:57.10  
Peter Novak  
That's these are the things we're looking into.

0:17:59.260 --> 0:18:14.680  
Angela Angle  
For the zeros that are performing this mass spec work, are they also performing any follow up studies for like validation using amino assays or Q PCR or or some other technique? Or does that typically go back to the biopharma company that take care of?

0:18:17.110 --> 0:18:23.0  
Peter Novak  
No, no. A few of them have these service as well like PPD and there are few companies.

0:18:24.40 --> 0:18:28.710  
Peter Novak  
I couldn't, but I can give that because it is there in the public.

0:18:31.740 --> 0:18:32.30  
Angela Angle  
Umm.

0:18:28.790 --> 0:18:58.300  
Peter Novak  
Uh, I'm not the website so you can. There are few companies who could provide the validation for us once the perfume of interest was quantitated, this could be further validated through immunoblotting studies like Western blotting as well as the, you know, at the gene based southern blotting and some gene based quantitative information. So these are all can be further validated with the proteome data. So this.

0:18:58.790 --> 0:19:8.650  
Peter Novak  
You know correlation between proteome and genome data has to be really well aligned so that the biomarker, you know, confirmation can be finalized.

0:19:9.550 --> 0:19:12.220  
Angela Angle  
Umm does the yeah.

0:19:10.670 --> 0:19:13.260  
Peter Novak  
This correlation is also very important when.

0:19:14.20 --> 0:19:14.340  
Peter Novak  
Yeah.

0:19:33.330 --> 0:19:33.600  
Angela Angle  
Umm.

0:19:15.230 --> 0:19:46.370  
Peter Novak  
Then the protein of interest is said to be biomarker or a molecular marker for a specific disease type. This specific disease type has to be validated through an antibody based study. Why? Because that gives more specificity. This gives identification and quantitation, but the specificity can be further validated only through immunoblotting. How? Because why? Because that specific protein will have an antibody generated and this antibody will have affinity only towards the.

0:19:46.460 --> 0:19:49.940  
Peter Novak  
So team, which was identified and quantitated through LPN.

0:19:50.830 --> 0:19:53.100  
Angela Angle  
Umm yeah, that that makes sense.

0:19:53.780 --> 0:19:55.430  
Angela Angle  
I'm I guess for.

0:19:56.660 --> 0:20:23.30  
Angela Angle  
But the the serial biopharma relationships that you've seen is the CRO that's performing these mass spec studies also performing other types of the analysis that we mentioned earlier such as genomics, which you brought up that could be used for validation or if you want to look at alignment between your proteomics data and your transcriptomics data. I'm just trying to understand how centralized all these different types of assays are.

0:20:25.370 --> 0:20:46.750  
Peter Novak  
Yeah, not all. All the CRO's providing such services and to end basically some are highly focused end quantitative prepare me some work and some have this approaches end to end workflows because they have the clients and wide range of.

0:20:47.10 --> 0:21:5.900  
Peter Novak  
So now organization starting from academic research to large multinational biopharma specular migration. So when they have the clients across this, you know areas and globally. So this year was have distance to provide the end to end services.

0:21:5.980 --> 0:21:18.760  
Peter Novak  
Yeah, specially in this discovery platforms including the as well as you mentioned before, they would have the micro where they would have the immunoblotting as well as the tissue imaging also.

0:21:19.970 --> 0:21:20.300  
Angela Angle  
Umm.

0:21:21.600 --> 0:21:44.60  
Angela Angle  
Great. And I wanted to start getting into some of the the more specific zeros in the space. And four, I guess starting with the zeros that can offer these end end solutions, not necessarily who you worked with those for, but who do you see as the leading providers for these broader services spanning proteomics, genomics, the microarrays and other types of testing?

0:21:46.920 --> 0:21:51.490  
Peter Novak  
Yeah, I definitely say a few of the companies like PPD.

0:21:53.550 --> 0:21:54.960  
Peter Novak  
Uh, almac.

0:21:56.230 --> 0:21:56.880  
Peter Novak  
Uh.

0:21:58.130 --> 0:21:59.150  
Peter Novak  
We have. Uh.

0:22:1.210 --> 0:22:1.870  
Peter Novak  
Lonza.

0:22:4.930 --> 0:22:5.860  
Peter Novak  
Some sort, yeah.

0:22:6.960 --> 0:22:9.180  
Peter Novak  
And I'll Mac PPD.

0:22:11.840 --> 0:22:15.690  
Peter Novak  
Patheon, which is also Thermo Fisher organization.

0:22:16.920 --> 0:22:17.190  
Angela Angle  
Umm.

0:22:17.920 --> 0:22:23.0  
Peter Novak  
You know, these are all part of the bigger organization and SGS.

0:22:27.290 --> 0:22:29.0  
Angela Angle  
So what was that last one, LGS?

0:22:28.660 --> 0:22:30.60  
Peter Novak  
OK, I love this.

0:22:31.120 --> 0:22:33.580  
Peter Novak  
Yeah, FGFS GS.

0:22:34.240 --> 0:22:35.180  
Angela Angle  
Ohh FGS.

0:22:37.460 --> 0:22:38.420  
Peter Novak  
Yes, yes, now.

0:22:39.610 --> 0:22:40.490  
Peter Novak  
Cellcarta.

0:22:41.730 --> 0:22:41.990  
Angela Angle  
Mm-hmm.

0:22:42.90 --> 0:22:49.490  
Peter Novak  
This is paid in your questionnaire. Also Cellcarta is 1 which could provide the services.

0:22:50.170 --> 0:22:51.820  
Peter Novak  
I will bio agilytix.

0:22:56.530 --> 0:23:1.340  
Peter Novak  
But uh, they have less of mass spec, more of in, you know, technology.

0:23:3.590 --> 0:23:9.20  
Peter Novak  
So that's a few few. These are the few organizations I could.

0:23:9.660 --> 0:23:14.160  
Peter Novak  
Umm. Then my number now and there are many actually.

0:23:15.520 --> 0:23:16.370  
Peter Novak  
Who could?

0:23:17.260 --> 0:23:19.60  
Peter Novak  
Uh provide end to end services.

0:23:21.900 --> 0:23:23.770  
Peter Novak  
SGS on my.

0:23:21.410 --> 0:23:27.740  
Angela Angle  
And for end to end, do you offer to proteomics or end to end clinical development services?

0:23:31.220 --> 0:23:35.890  
Peter Novak  
Both proteomics as well as genomics end to end includes where which we discussed before.

0:23:36.540 --> 0:23:43.490  
Peter Novak  
Uh. The proteomics and its validation. So there basically the biomarker discovery.

0:23:47.130 --> 0:23:50.120  
Peter Novak  
So clinical services includes their like that's an.

0:23:50.570 --> 0:23:54.110  
Peter Novak  
That's usually separate topic I think.

0:23:53.840 --> 0:23:54.780  
Angela Angle  
OK. Yeah.

0:23:55.700 --> 0:23:57.760  
Angela Angle  
Yeah, just just want to clarify what you meant, but.

0:23:55.640 --> 0:24:0.220  
Peter Novak  
Because clinical services are wide range of services needed, yes, yes.

0:24:1.660 --> 0:24:4.380  
Angela Angle  
OK. So I guess for some of these.

0:24:3.370 --> 0:24:6.70  
Peter Novak  
Yeah, because we are focusing now on biomarker discovery.

0:24:7.480 --> 0:24:19.880  
Angela Angle  
Yeah, for yeah. So specifically for below market discovery for some of these zeros that you mentioned as providing a lot of these end and services across the different testing areas, I guess which?

0:24:20.660 --> 0:24:33.520  
Angela Angle  
What do you see as differentiating features between the zeros? If if you had to choose between all these, what are the the kind of criteria or expertise that you look at that makes one of them rise above the rest?

0:24:36.780 --> 0:24:40.180  
Peter Novak  
Umm, I would. I would definitely say the.

0:24:40.940 --> 0:24:43.210  
Peter Novak  
For quality of data output.

0:24:44.220 --> 0:24:47.470  
Peter Novak  
Is the one he criteria.

0:24:48.400 --> 0:24:49.290  
Peter Novak  
Which? Uh.

0:24:50.970 --> 0:25:5.640  
Peter Novak  
Which is very important in selecting this this year. Among this year was which I mentioned. There are many others also quality of data output and should should match with the expectation from the from ceutical.

0:25:5.760 --> 0:25:16.300  
Peter Novak  
Uh, our mediation and their workflows because at the end of the day this data is going to be connected with the CD document.

0:25:17.600 --> 0:25:17.890  
Angela Angle  
Umm.

0:25:17.380 --> 0:25:26.760  
Peter Novak  
So when we connect this data with the security document and this, the CD document is going to be further communicated with the regulatory agencies.

0:25:28.960 --> 0:25:34.340  
Peter Novak  
So to have very, very well aligned with the this.

0:25:34.420 --> 0:25:51.580  
Peter Novak  
The document the output of the discovery of biomarker specific to cell lines, all Sierra should be very well aligned with the report format or with the analytics.

0:25:51.660 --> 0:25:56.680  
Peter Novak  
The expectation in terms of reproducibility and reliability.

0:25:57.800 --> 0:26:1.330  
Peter Novak  
Which basically you know, directly reciprocates with the quality.

0:26:2.580 --> 0:26:8.20  
Peter Novak  
So that defines the quality output. That is what time I mean. That is the primary.

0:26:8.880 --> 0:26:12.510  
Peter Novak  
The key factor which differentiates the among the.

0:26:13.290 --> 0:26:14.980  
Peter Novak  
Uh, you know the arrows.

0:26:15.780 --> 0:26:16.40  
Angela Angle  
Umm.

0:26:15.630 --> 0:26:46.900  
Peter Novak  
Some would definitely give in very highly rated and highly significant and very well, you know aligned with the workflow basically. So some may have to. So these are all interlinked with the types of software types of data you know. So I can so this algorithms which have to be designed as per the requirement. So this is all.

0:26:46.990 --> 0:26:51.60  
Peter Novak  
Because with the you know services for the Piero's as well.

0:26:51.690 --> 0:27:3.560  
Angela Angle  
Umm, you mentioned that Bioagilytix S is less involved in less specialized in mass spec of the companies that you mentioned are or others who do you view as being really good at mass spec.

0:27:5.930 --> 0:27:7.680  
Angela Angle  
Or broader proteomics.

0:27:7.480 --> 0:27:8.560  
Peter Novak  
Uh, I will.

0:27:10.80 --> 0:27:10.660  
Peter Novak  
Uh.

0:27:12.310 --> 0:27:18.800  
Peter Novak  
PPD is the one which is very good and GS is good cellcarta signal.

0:27:19.910 --> 0:27:25.190  
Peter Novak  
Maybe I missed it before Signus is the one which is very good in your mix.

0:27:27.410 --> 0:27:28.220  
Peter Novak  
Also life.

0:27:29.390 --> 0:27:48.150  
Peter Novak  
Is one more good in proteomics which have speciality in which cities also for cell proteins alpha light. So this is banished based on for HCP so but among these good for proteins, I would definitely go for PPD.

0:27:50.950 --> 0:27:54.600  
Angela Angle  
And what about PPD and I can go ask what?

0:27:53.640 --> 0:27:55.20  
Peter Novak  
That's cellcarta as well.

0:27:58.20 --> 0:27:59.90  
Peter Novak  
Sorry the end.

0:27:56.640 --> 0:28:11.610  
Angela Angle  
Yeah. So for PPD in cellcarta, what, what services do they offer that are there specific capabilities that they have or is it something about the quality of the work or they're reporting or their turn around time? What makes these two kind of stand out amongst the others?

0:28:14.730 --> 0:28:21.680  
Peter Novak  
Yeah, yeah. As I mentioned, uh, the proteomics, uh, the end to end service capability.

0:28:23.340 --> 0:28:37.570  
Peter Novak  
Yeah, from the extensive mass spectrometry data generation to the validation of the specific biomarkers, whether it is from you know irrespective of types of samples.

0:28:38.230 --> 0:29:3.580  
Peter Novak  
Whether we the client is whether the bioform of person is asking the requirement of this biomarker is from the Sierra or from the tissue or embedded formal embedded tissue. Different different types of workflows which they have already in place. No need to develop because these workflows are very well standardized.

0:29:4.440 --> 0:29:4.700  
Angela Angle  
Umm.

0:29:4.300 --> 0:29:8.30  
Peter Novak  
This standardizing workflows within their you know.

0:29:9.880 --> 0:29:27.50  
Peter Novak  
Flow of analytical uh portfolios, what buyers ARMA client required is the major thing. When I say when I say to these specific words, they are very good because of this standardized workflows.

0:29:27.840 --> 0:29:40.530  
Peter Novak  
And the quality. So as when I say standard workflows, these standardized workflows are able to give the required you know format of results in terms of.

0:29:40.890 --> 0:29:46.0  
Peter Novak  
Umm validation or discovery for the biopharma customers?

0:29:47.240 --> 0:29:49.450  
Peter Novak  
So these are all linked with each other.

0:29:52.110 --> 0:29:55.180  
Angela Angle  
And how much is are the capabilities of these?

0:29:54.180 --> 0:29:56.520  
Peter Novak  
Because the quantitation sometimes may right.

0:29:59.100 --> 0:29:59.920  
Angela Angle  
Yeah, yeah, go ahead.

0:29:57.980 --> 0:30:19.470  
Peter Novak  
Sorry, one more quick thing is the inner proteomics when I say it's not only the high resolution mark spectrometry, what is required at the end? There might be an MRM based quantitative analytics also so which is called multiple reaction monitoring MRM based so which doesn't require an high resolution mass spectrometry also.

0:30:20.340 --> 0:30:26.300  
Peter Novak  
But this required quantitation at absolute level.

0:30:27.380 --> 0:30:50.150  
Peter Novak  
Which is called absolute quantitation which can be only provided by this equipment called triple quadrupole mass spectrometer. So having all these types of workflows within the same organization and these workflows are not only having, they are very well standardized works. Various issue ties, various biopharma required.

0:30:50.260 --> 0:30:56.860  
Peter Novak  
Uh, uh cell types is the is the important key purchase criteria.

0:31:0.920 --> 0:31:15.190  
Angela Angle  
OK, that that makes sense. And I guess have these leading zeros off added any capabilities recently or do you see any capabilities in on the horizon that would be important for the zeros to offer and mess spec proteomics?

0:31:19.440 --> 0:31:47.500  
Peter Novak  
Yeah. So this basically as I mentioned that this involved extensive data analysis and this data analysis also basically will not only rely on the mass spec vendor based vendor or the third party based software data analysis. This includes statistical data by informatics and statistical based, you know software approaches for this data analysis for the.

0:31:47.850 --> 0:32:5.200  
Peter Novak  
As well as genomics also, this is this is for genomic. So this providing this services for the data analysis is very, very important and many of these vendors where are they mentioned now these have this.

0:32:6.0 --> 0:32:21.400  
Peter Novak  
I thought these are being as well as some of them were established for this informatics and statistical projects was data confirmation. So this tool is also added up with these vendors.

0:32:23.550 --> 0:32:33.690  
Angela Angle  
So they have to kinda keep up with the technology, the software releases and have the the workflows to analyze these different types of data.

0:32:36.200 --> 0:32:58.360  
Peter Novak  
Yes, yes. Upgraded versions and and because as I mentioned before, these having this is not an easy thing is even for the CR was they have to depend on the at the end. It's all the AI and software developers who have quoting this in a huge amount and this quoting.

0:32:58.440 --> 0:33:11.660  
Peter Novak  
Uh, they do you not this quotations. What they receive is basically in a huge amount because of this extra and reliable software generated data analytics which were involved.

0:33:13.770 --> 0:33:14.660  
Angela Angle  
Are there any?

0:33:13.970 --> 0:33:14.920  
Peter Novak  
Ladies provider.

0:33:15.420 --> 0:33:24.170  
Angela Angle  
Yeah, other zeros that are developing their own kind of proprietary workflows or AI analysis or are these all coming from third parties that the zeros have to purchase from?

0:33:27.180 --> 0:33:42.360  
Peter Novak  
Yeah, yeah, it depends. A few of the. As I mentioned, the CRO's or CDM boards, there was some CRO which were quite huge in market revenues. They have their capabilities of recruiting these.

0:33:43.580 --> 0:33:58.50  
Peter Novak  
Hi, highly qualified and you know talented software engineers who could design their own workflows within the organization that is applicable for few not for all.

0:34:1.120 --> 0:34:10.430  
Angela Angle  
OK, so this ability to design these custom workflows maybe integrate AI into the analytics. That is something that zeros are taking upon themselves to build out internally.

0:34:11.980 --> 0:34:41.870  
Peter Novak  
Yes, yes, because the this required the coordination between the. So when and software employee wants to develop in code or to develop this bio statical statistics platform, it clear correlation is required. So a person sitting somewhere in mass spec based quantitative workflow in one pro and could not coordinate this to the software person which is who is an external party.

0:34:42.390 --> 0:35:5.190  
Peter Novak  
Uh sitting somewhere else, but if there's these two platforms are in the same page having working together, this coordination will really help in producing out or generating out in high, high quality for informatic or burst static algorithm or the database or the software which is required for both proteomics as well as genomics.

0:35:7.580 --> 0:35:9.70  
Angela Angle  
OK, that that makes sense.

0:35:11.740 --> 0:35:34.970  
Angela Angle  
Umm so then I guess I also want to ask about the OR something like PPD or cellcarta who sound differentiated in the proteomics field for a given project. Do you just go to one of these two for your proteomics work or are you also going to them for their genomics and other types of assays as well with for the same project?

0:35:39.720 --> 0:35:42.590  
Peter Novak  
Yeah. So there are other services.

0:35:43.280 --> 0:36:7.250  
Peter Novak  
Also as well because as I mentioned, if it is just biomarker then this one of these would be but there are other services like post discovery there will be development which happens in the process of development the usually a drug molecule will be finalized, this molecule will have to be developed to the scale of drug product.

0:36:7.910 --> 0:36:21.890  
Peter Novak  
OK, so to make the molecule into the phase of drug product, so molecule for example consider this is a drug substance, drug substance to drug product. This is all comes in the phase of product development.

0:36:22.700 --> 0:36:39.930  
Peter Novak  
Discovery is where biomarker could proteomics genomics comes into picture. But these are the some of the organizations. When I say PPD or CELLCARTA or patio on or so, there are several other organizations who have the services.

0:36:40.720 --> 0:36:48.320  
Peter Novak  
You know who could provide from duck substance to drug product? You know, preparation as well.

0:36:49.470 --> 0:36:50.670  
Peter Novak  
In uh development.

0:36:52.500 --> 0:37:9.460  
Peter Novak  
Some some, some. For example passion have even in the manufacturing also. So when they have this end to end support from early discovery to drug product manufacturing, usually that is one of the criteria was pharma chooses.

0:37:11.280 --> 0:37:11.870  
Peter Novak  
Among these?

0:37:11.480 --> 0:37:23.690  
Angela Angle  
Sorry, just like, yeah, just to clarify, are you referring to capabilities to manufacture drug substance or drug products or the like the CMC analytical tests to analyze these products in substance?

0:37:26.350 --> 0:37:26.750  
Peter Novak  
Yes.

0:37:27.410 --> 0:37:35.20  
Peter Novak  
So when I say CMC CMC includes this, CMC is nothing but having this substance and drug product development.

0:37:36.350 --> 0:38:4.340  
Peter Novak  
If you see the CTD document, CD document will have these versions Section 3 which includes the quality information where which is nothing but the CMC does whole CMC section of the CTD document involves drugs substance, drug product and its stability, quality testing. So these are the four areas where this here was some of these arrows are going are providing as along with the discovery services.

0:38:5.20 --> 0:38:5.320  
Angela Angle  
Umm.

0:38:7.120 --> 0:38:19.350  
Angela Angle  
And and I guess how much overlap is there when you think about looking for a CRO to perform these discovery biomarker services versus the the CMC tests, is there a lot of overlap in?

0:38:20.140 --> 0:38:27.640  
Angela Angle  
The assay development teams or the centralization of these services at Sierra's or do you typically evaluate these separately?

0:38:31.970 --> 0:38:37.100  
Peter Novak  
So what will happen in sense of from the CRO perspective or from a biopharma perspective?

0:38:38.560 --> 0:38:43.770  
Peter Novak  
Can you elaborate clearly what is your overlap situation in terms of this analytics?

0:38:46.590 --> 0:38:47.340  
Peter Novak  
This question.

0:39:6.560 --> 0:39:6.950  
Peter Novak  
Yeah.

0:39:8.10 --> 0:39:8.320  
Peter Novak  
Got it.

0:38:44.930 --> 0:39:11.540  
Angela Angle  
Yeah, I'm wondering from the biopharma perspective, yeah, the biopharma perspective, how how when they're selecting CRO for Discovery biomarker work, how often are they considering the CMC work in their CRO decision is that like is is that centralization something that they really look for? Are these considered two different opportunities that maybe you sent to the same serial? Maybe you find a different 0 for it?

0:39:14.310 --> 0:39:25.430  
Peter Novak  
Yeah. So got it. So usually the big. So it actually depends on the type of organization, if it is in big biopharma organization and within.

0:39:25.950 --> 0:39:37.50  
Peter Novak  
Uh, good collaboration with the CRO, who have the CDM option. Also when I say CRO CRO can have a CDM option, CDM is with.

0:39:37.130 --> 0:39:39.920  
Peter Novak  
The you know, uh PMP development?

0:39:40.990 --> 0:39:57.980  
Peter Novak  
They usually this collaboration will help in aligning with this overlap. Having young two and discovery as well as development of the molecule. This is quite possible for only towards the big biopharma companies who has revenues yellow.

0:39:58.60 --> 0:40:2.850  
Peter Novak  
Yeah, well, you know or no, you know, 5 billion or 10 billion USD.

0:40:3.610 --> 0:40:32.630  
Peter Novak  
So who have their revenues about this? Have this collaborations with based organizations directly to have the development end to end as well as discovery. So that happens only with them and this overlap if you ask me, the percentage I would definitely give less percentage because many of the other organization tends to go for individual service based approaches where I have the discovery services from the specific Tyler.

0:40:32.680 --> 0:41:3.260  
Peter Novak  
Might be your work and who could generate high quality data from this data output. The CMC can be outsourced to other vendors who could more focused on CMD alone. So this also happened so. But this overlapping from could have only happen in respect to the bigger biopharma organizations who have the collaboration and the CD agreements, confidential data agreements closed with this collaboration.

0:41:3.310 --> 0:41:5.130  
Peter Novak  
Collaborative CRO.

0:41:6.0 --> 0:41:15.30  
Peter Novak  
This happens maybe in terms of percentage. I could give only 10 to 15 percentage this scenario, but the other scenarios for quite huge.

0:41:16.210 --> 0:41:18.410  
Peter Novak  
8% would be the other way round.

0:41:19.210 --> 0:41:28.640  
Peter Novak  
The discovery services are of I know are getting offered from the specific CRO and CMT from other CRS.

0:41:29.520 --> 0:41:29.870  
Angela Angle  
Umm.

0:41:29.570 --> 0:41:36.470  
Peter Novak  
This is the usual uh scenarios, but the overlapping happens only with the large biopharma company.

0:41:38.220 --> 0:41:54.130  
Angela Angle  
So just to the clarify the the 10 to 15% is that of large biopharma companies that are combining CMC and biological or CMC and biomarker services or 1050% of the market?

0:41:53.520 --> 0:42:1.570  
Peter Novak  
Yes. Large, yes, that 15%, yes, yes. So 10 to 15% is basically the large performer.

0:42:3.760 --> 0:42:4.160  
Angela Angle  
OK.

0:42:4.30 --> 0:42:23.170  
Peter Novak  
Who are the capable and not only the large biopharma? There might be some mid size also who have this collaboration or you know there will be some agreement based approaches where the profits can be shared. So those things were also there.

0:42:25.0 --> 0:42:25.340  
Angela Angle  
Umm.

0:42:27.160 --> 0:42:55.690  
Angela Angle  
Umm I I guess other than CMC services have a few other adjacency service offerings that I'm curious on how much overlap there is with the the biofarm or biomarker testing provider. So other than CMC just curious about clinical testing, so bioanalytical testing where maybe you're testing for some of the same biomarkers or the tests are completely different, maybe there's some central lab testing involved?

0:42:56.120 --> 0:42:58.880  
Angela Angle  
I'm curious how much overlap there is with the clinical phase testing.

0:43:2.610 --> 0:43:25.270  
Peter Novak  
Yeah. Well, within the clinical phase or clinical phase is also the three development, three CMC stage only, I would say. So basically because phase one, maybe the process would have been locked for the desk product, but for the clinical there will be biomarker solutions which are required for clinical biomarkers.

0:43:25.880 --> 0:43:37.260  
Peter Novak  
And those uh bio analytix clinical bioanalytics would be, you know, provided by the same PR works which we mentioned before, like for cellcarta they have this clinical biomarkers.

0:43:37.920 --> 0:43:38.830  
Peter Novak  
Uh, done.

0:43:40.200 --> 0:43:42.890  
Peter Novak  
Within their service portfolios.

0:43:43.520 --> 0:44:12.890  
Peter Novak  
Umm uh, you know, along with the proteomics. And they use they have genomics also you cannot run genomics as well as the you know the tissue based histopathology. So these are all the services overlapping within these organization not only cellcarta, PPD as well as you know for example as we discussed this before buyers agilytix also have the services overlapping so.

0:44:13.510 --> 0:44:24.880  
Peter Novak  
That they might have less of, you know, proteomics. But they have these solutions which are overlapping because when we say clinical by analytics, which includes DMPK.

0:44:27.0 --> 0:44:27.370  
Angela Angle  
Umm.

0:44:26.670 --> 0:44:31.580  
Peter Novak  
OK, for small molecules it will be DMK the large molecules it will be, you know.

0:44:31.650 --> 0:44:33.430  
Peter Novak  
So you by your. Yes, yes.

0:44:35.200 --> 0:44:44.910  
Peter Novak  
Cell based layer. So this services are being overlapping within this organization because they have this CRO established.

0:44:46.330 --> 0:45:0.180  
Peter Novak  
Because they cannot establish only on this so conflictive proteomics based right. So that has a less margin than having this all workflows, this all the services within the discovery support or clinical support.

0:45:1.840 --> 0:45:2.160  
Angela Angle  
Umm.

0:45:2.0 --> 0:45:5.170  
Peter Novak  
Usually the scenario with many of the.

0:45:6.440 --> 0:45:15.230  
Peter Novak  
No quantitative proteomics or the discovery, says CRS Discovery says analytics support serros I would say.

0:45:18.400 --> 0:45:47.70  
Angela Angle  
And I guess how big of a driving factor is the ability to offer this clinical stage testing when you are initially choosing that biomarker testing provider in the discovery phase, do you think long term and that this is a partner that I will like to continue working both on the manufacturing side and the clinical testing side or when do you just consider I want the best person that can do my discovery work and I don't necessarily care if they're gonna be involved later in the project.

0:45:50.860 --> 0:45:54.850  
Peter Novak  
Yeah, the usually from the biopharmas websites perspective.

0:45:55.30 --> 0:46:0.740  
Peter Novak  
Uh usually choose a single vendor because of the less amount of documentation involved.

0:46:2.410 --> 0:46:31.860  
Peter Novak  
Uh, because uh, having two vendors basically delays the timelines of the product discovery or development phases because both the problem is if the company is a well organized as well as having a collaboration and an agreement confidential agreement is the one which could. If the same organization could provide the services, other solutions pertaining to both genomics as well as clinical.

0:46:32.310 --> 0:46:59.320  
Peter Novak  
Says the analytics. If the same organization is providing, then the preference would be given with the one who is providing both the services. Why? Because the amount of documentation documentation involved from the biopharma perspective, basically it involves the CDA agreement as well as the lot of confidentiality agreements which will be made. There are other documentation with the vendor.

0:46:59.790 --> 0:47:14.140  
Peter Novak  
Uh, for for this analysis has to be made both internally as well, as you know externally and invoicing and lot of this SCM based services also plays a key role in this.

0:47:15.250 --> 0:47:18.230  
Peter Novak  
Now, uh, there directly defines the timeline.

0:47:19.420 --> 0:47:19.680  
Angela Angle  
Umm.

0:47:19.220 --> 0:47:26.930  
Peter Novak  
So that's the reason the choosing of the single vendor is who could provide both this in an expected way.

0:47:27.710 --> 0:47:39.620  
Peter Novak  
Umm, in terms of when in an expected way, in the expectation should be the one which we discussed before the high quality data output with the reports which could be integrated into the CTD document.

0:47:40.870 --> 0:47:41.120  
Angela Angle  
Umm.

0:47:42.50 --> 0:48:3.560  
Angela Angle  
OK. One other area that you mentioned earlier is imaging and I'm curious how much over the lap there is with imaging services and biomarker discovery biomarker assay development. And maybe I don't know if this is difference between some of the discovery work versus preclinical when you're working with animals versus imaging offered during clinical trials.

0:48:19.780 --> 0:48:20.80  
Angela Angle  
Uh.

0:48:20.880 --> 0:48:21.610  
Angela Angle  
Yeah.

0:48:9.590 --> 0:48:22.760  
Peter Novak  
So the prickly. So basically you're combining the preclinical as well as the discovery and clinical right. So I couldn't clearly get your question. So what is the question, could you please repeat it?

0:48:23.900 --> 0:48:25.150  
Angela Angle  
Yeah, I'm curious for.

0:48:23.910 --> 0:48:26.460  
Peter Novak  
Because the animal studies comes as a part of free cleaning and.

0:48:27.310 --> 0:48:44.810  
Angela Angle  
Yeah, I'm curious for I I would consider animal with preclinical. I'm just curious how much overlap there is with the biomarker testing CRO versus services needed for imaging and the imaging could be discovery versus preclinical versus clinical phase.

0:48:48.490 --> 0:49:1.590  
Peter Novak  
Yeah. So basically for the preclinical, the same here was were very less tendency to provide because there are specific errors who are very focused on the preclinical studies.

0:49:2.470 --> 0:49:9.530  
Peter Novak  
Umm, not all the CRO's are providing. Maybe the analytics part of the studies would have been provided by this.

0:49:11.860 --> 0:49:12.190  
Angela Angle  
Umm.

0:49:10.680 --> 0:49:18.350  
Peter Novak  
You know the CRO, but not the animal studies, because animal studies required for an extensive amount of approvals from the.

0:49:18.620 --> 0:49:20.960  
Peter Novak  
Umm, you know, government bodies?

0:49:21.880 --> 0:49:47.240  
Peter Novak  
It should be there, but that's why the IT it didn't look at error. You OK if I if you ask me, I think, OK, there are two or three could provide these three clinical Animal Services because we were treating the your drug molecule to the animals and that to the non human private it's very less checked and tenancy.

0:49:49.220 --> 0:49:49.570  
Angela Angle  
Mm-hmm.

0:49:49.150 --> 0:50:18.980  
Peter Novak  
So when I say preclinical, there are different types of you know, models, right? So nonhuman primates are some, some of the you know animal studies which were offered by very few CRO and this requires a lot of ethical approvals, ethical committee approvals from not only from a single country across the globe. This is a situation preclinical. That's why if you see.

0:50:19.740 --> 0:50:22.750  
Peter Novak  
For the cancer as well As for many of the.

0:50:23.830 --> 0:50:36.400  
Peter Novak  
Development is this for even for biosimilars, if you see there are a lot of various given by USDA as well as VMA to avoid the testing on animals.

0:50:37.750 --> 0:50:40.960  
Angela Angle  
Umm, so how valuable is it for?

0:50:41.180 --> 0:50:41.460  
Angela Angle  
A.

0:50:39.770 --> 0:50:42.170  
Peter Novak  
So so there are very few services.

0:50:44.580 --> 0:50:44.800  
Peter Novak  
Yeah.

0:50:43.140 --> 0:50:49.260  
Angela Angle  
Yeah. How valuable is it for the the CRO providing biomarker testing services to off also add?

0:50:49.700 --> 0:51:2.770  
Angela Angle  
UM imaging services like, is this a helpful in terms of centralization or these different enough that there isn't really much value in having one location for imaging and bad market testing?

0:51:5.650 --> 0:51:34.580  
Peter Novak  
Yeah. So having both the services is definitely in plus point for the CRO. And but it's not in Arden first mandatory rule to have both the services because many of these currently establishing the cell therapies or you know gene therapy as or advanced based therapies. The preclinical is getting waved off, it's not mandatory, but there are imaging.

0:51:35.550 --> 0:52:5.450  
Peter Novak  
Requirement for you know specific therapeutic areas and for these specific therapeutic areas, the imaging services is quite required. And so because not all the organizations might come because it's actually it depends on the demand from the biopharma, right. So that demand, if it is less what is the use of having both these organizations in the same but having both would be definitely A+ point because.

0:52:29.350 --> 0:52:29.610  
Angela Angle  
Umm.

0:52:5.700 --> 0:52:31.810  
Peter Novak  
Choosing the vendor would be easy, so the vendor can be the same for both the services and it is as as I mentioned before from the biopharma set perspective, I would usually choose the the person the same render who have both the services and get the results out from for the for finalizing the biomarker at the tissue level as well as at the proteome level.

0:52:33.840 --> 0:53:2.50  
Angela Angle  
OK, that's helpful. And in the last couple of minutes, just wanted to ask about one more. Uh, what we're viewing as the jsonify service and that's uh, sample logistics and curious how much overlap there is and maybe we could talk about sample and clinical specimen logistics, how much overlap there is between zeros offering bowl farm or biomarker testing services. Is it valuable for them to also provide logistics or is this something that's typically handled by a third party?

0:53:4.840 --> 0:53:10.270  
Peter Novak  
Yeah, some of them are having this logistics also within their.

0:53:30.480 --> 0:53:30.790  
Angela Angle  
Mm-hmm.

0:53:10.870 --> 0:53:38.520  
Peter Novak  
Umm, uh, there was, but not all have. But this overlapping, I would definitely say it's only, you know, 3070. I would say maybe 30% only are offering this overlapping services with the logistics in build within their portfolio services. But 70% are not having these logistics because they usually rely on the other.

0:53:38.590 --> 0:53:49.380  
Peter Novak  
No, no services, logistics services based organization who are more specified in handling the tissues as well as the you know biospecimens.

0:53:50.50 --> 0:53:55.800  
Angela Angle  
Umm. Is it a big advantage for them to also offer logistics that that 30%?

0:53:59.520 --> 0:54:19.140  
Peter Novak  
Yeah. Yeah, it is an added advantage as well. As I mentioned before, yeah, these are all the added advantage to have in any single organization that is definitely an added advantage. So in a, in a customer point of view, if I'm the customer, I'm going to have this services for making organization there definitely.

0:54:19.480 --> 0:54:22.130  
Peter Novak  
That Wantage for the biopharma customer.

0:54:24.230 --> 0:54:24.580  
Angela Angle  
OK.

0:54:25.290 --> 0:54:26.480  
Angela Angle  
I will, yeah.

0:54:25.180 --> 0:54:30.850  
Peter Novak  
But we have to think it involves a lot of, you know, for the CRO. It involves a lot of.

0:54:35.60 --> 0:54:35.350  
Angela Angle  
Hmm.

0:54:31.440 --> 0:54:43.340  
Peter Novak  
Umm, support within the CRO people support or you as well as the customer support we because the the same type of support from the biopharmas perspective we expect.

0:54:45.370 --> 0:54:46.440  
Peter Novak  
Uh. From the.

0:54:48.160 --> 0:54:49.500  
Angela Angle  
Yep, makes sense.

0:54:49.320 --> 0:54:50.510  
Peter Novak  
Call this support I mean.

0:54:51.970 --> 0:54:52.180  
Peter Novak  
Yeah.