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in initiating the prospective cohort with multi omics data set was 10 years ago and he's I think he's a kind of visionary. Today he will introduce us now the homeless

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everybody I'm sorry I didn't listen to what it says it has because I was perplexed by

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the course. Yes. So yes.

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So today we have we had a good week. I imagine what what I'm going to present is relatively small, with different applications is different. So our formula is called a study and

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why we call this a mystery is the copies of receipt. And let me let me repeat to just what they're gonna have. What the city is, a city is relatively small, with what happened. Our residents are rich 80% are older than 65 years old. And this is so represent a teeth of the typical Japanese population. And the city is here and the population is relatively homogeneous in the background, which we got from our

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and that is a limited population migration. If you live here in Bowser, or this area, this area is still the commute area to the urban Tokyo so people stay in this area. Temporarily and have no diversity but in data however, it is because that movements 95% of people who are born in live there so it has the advantage of the following. And there are three cohorts does have more than 200,000 registrants including those in cities. So we have again, the advantages in collecting this information from so this is a summary of nahama study, which is a small scale model for human biology of aging and diseases. And this is a prospective genome cohort. Of 10,000 participants, initiated in 2007. And the COBOL is very small and it's sort of handmade COBOL is easy, but relatively easy and flexible, in accommodating different research projects, including academia, industry cooperation. And one of the very important characteristics of this cohort is we promote social life science, so forth social science, which is the combination of economics and maths than to be nonspecific. We collect we've been collecting Social Capital information such as fairness and sociability. And so some other information which are going to help you and these these information, requests human mental. And when you do human science or human biology, of course you can do voice to DVD as as needed. But you shouldn't forget breath or listen for that mental map of a human being which characterizes humans as so there is no other hair no or ways in even with cutting edge technology or medical science to measure the brain activity, you can you can use functional MRI to measure when you see something which part of the brain is firing and so on. But it doesn't have to be a metal. It is solid reaction. So to get a mental activity for the moment, we don't have good ways to do that. So we need I tried to find the way to do that. Then I found that has been done for many years in the fields of economics. They have virtual questionnaires to evaluate humans. And the way to evaluate is very well established and the data is reliable to do so this economical survey and policymaking and so on. So we decided to cooperate to get this patient into and we of course we like to integrate mathematics and social science and epidemiology to identify the mothers for this prediction, analysis and drug development as well as evidence based policymaking. And this field is in diverse the basis of Union Center says study the diversity and ask the passenger so there are three studies at 23 departments in the school of medicine that is engaged in this study. And there are different diseases. Of course here some of them can be studied in our code for relatively small scales, but for example, in this film, we saw that this facility 3d So as which is always on your mind, and also the venture and CI and some others the population of individuals as to start

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so this is a brief progress report of the study. We initiated a study in 2007. And the first baseline study was finished in 2010. Why don't we get more than that? As a second follow up study in 2012. And ended in 2016. And the third floor this is the first floor. Second, second floor, which is fairly busy starting to tell them the same thing. But because of the COVID we couldn't do that. And 221 22 We had a much lower number of participants who were willing to come to the single site. So follow up right from here to here with me for for this support mode of 2016. We knew we needed around one 1500 individuals and the return rate of baseline participants to the first follow up is 80% which is that is enough. In Singapore as I said we have less number of people who get involved in participating in the study so the follow up rate is around 2% Excluding the move out and each stage we have a different set of research plans. And we started to add in the second visit, which is the first of all the sociologists any cognitive function as easy socio socio science and so on. And in the third visit which is Singapore work, we started to cooperate with dieting, a famous air conditioner company, the world's biggest difference which one to work on air conditioning and just to mention about the data sharing and collaboration of the entire company, and disclose to the community of these data, five years after data collection, and this is a compromise between me and different clinical departments to get participate in a study because they want to have something to do besides that if we wait for five years, and they do nothing it's no longer themselves. We should so we continue doing

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so this is a summary of what sort of information we have collected. So question here about this is the whole purpose of terminology and so on. And we have as a bit of money on information. We are for example. We collect the actual lines, refraction and so on with us and this is complicated to do that. And maybe if people don't think that we have very much to do this and we just need more time by actigraph as an adult just show you like that. And Brad pressure as we bring him alive. So this is a example of a suite monitoring study. We use this works by sleep monitor for up to afternoon. This is a sensor of two dimensional observation this way and this way. And if you don't move that Aha, there it is. Because that as your three and younger sleeping even during the sleeping in their sleep. State says you know, like distances accuracy and the passage of smell. And we have measured in our first visit the sleep of more than 7600 people of weight we have good quality data for APA. The reason why we have many demos here is either because after four people do not encourage you some reaction in skin, I guess this laptop device. When you measure see then you can have very very nice so distribution of sleep hours in this is something nobody sleeps. And we were particularly interested in these southern populations who don't need long sleep. If we do this way, this is sort of Napoleon. We were trying to find the German pastors and we did this this is one of our very, very first sequence of samples. Because we want to know that and we did and we try to pull the reason and we found that sleep monitoring is done. Only the analyzed only for that nice as these people read me old people will take siesta and this is why they don't need to sleep longer. And this is something I was very but anyways, you know by measuring very carefully for a week. We can have very good data like this and we checked the sleep apnea and found that intermediate to severe sleep apnea happens to 1/4 of the population which we have measured the male and the female is only 1% for three minutes. That first minute the business of a CPAP may resist so this is quite interesting results. And this is related to the reason why different people are so well socialized science model data collection we have a correlation with here the Institute of Economic Research at the University and the Research Institute for Economic technology and industry which is called way too young into the Ministry of Economy and we have done full round of questionnaire based surveys since 2017. And just retirements response rate was quite high with that 70% response rate in survey data how people I'm pretty much go for it. And we have done we have made so because scale model data. And now association studies with genomics is a very tough thesis and health diseases rewriting information is underway. So we may have chance to find the gene which is related to the fairness for cooperativeness is that the ICC is is is important. So, for the analysis, we have obtained the DNA personal assay RNA sample for instruction, and we have done the SAP analysis for the poor part of the population and the only one with a public sequence but for metabolism and we have done a lot with the samples in place. And we started proteome analysis by providing with C is a program that have similar and this is we are we encourage very much preparation with different things to different institutes and also the industries and this is an example of progression within us and industry semesters. That spec based metabolomic analysis shows a schematic study a map sequencing is heavy. And as for the SMD RAS we've already designed it Jeff but since then we have probations past the NEC and it just breaks

19:08

so this is an example of a zoo we have a series of instruments are purchased by ourselves to measure different qualities. And this is one of the one nice example of what we have gained from that measurement. We know that food intake inferences personality profile influences the past three or four the other is LDLC or HPLC or some fraction of these liquids whenever you want and it has already reported by yes and the EF M joined consensus studies in 2016 with a large European population as you see figures that was that Nokia and we have these this was approved for the surplus of personalities in the left hand side. So when you focus on frequency what is going on we have measured 45 This is different column numbers and as such it's useless and we have average concentration of different free triglycerides based on the level of the carbon separating and what we did is to split our population into five groups. And this is basically visitors have a stake in the morning session and they don't do anything after dinner before even we asked them not to eat breakfast for the morning session. There is something to eat this that. So this is the African support who are not supposed to eat so we need our fasting time is around eight hours. As you see, they need to answer this and this is the site the site. So this one we look at we generate these two sub population and we check correlation between passing time and concentration of different factors. And the curve is like this and that what we found is the if you have a larger number and saturated you have been less than light inclination very, very small which means that if you have larger number of assets in bonds, they've even stayed even after during the time and this one for example, smaller number of callers goes down further. So what we got is even in the population of the tribe the decrease in breath concentration is different. What we did is tries to associate the concentrations of triglycerides, with questions and we found here as you see the questionnaire how often do you eat fish is associated very, very strongly with a concentration of C 55. It's very, very strong. And nice Association and seafood CPT five A is what we call which is strongly associated with this patient. So by measuring the frequency then we got an interesting question how often you eat which is not very accurate. And so I think that okay, measuring with lipid with recency bias is very very possible. So instead of visiting with the last question, because the results is very very simple. If you measure the liquids, then you can try to give information to do some questionnaires, different measurements of the traces. So I think and try to avoid low quality data, but to say something excellent.

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So sorry I should speak that there is no timekeeper. Okay, go straight to this. This is a very very specific progression.

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You know, everyone knows that sequencing isn't good bye bye bye, Michael. And Steve, is it's with a history will affect self confidence and sense of empathy and also slow aging. is also pushed out to maintain social jobs. And Coco Chanel said that if we are more than your older than four years, we are not we can be attractive. So skin health is very very important for human beings are discussing the social context. So we started first with Chanel. Chanel was to look for breastfeed. We our people. We have biomarkers and so on, and they have to be evaluators.

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So that combination is complemented feature. We don't have a system or our way to evaluate because they are the messengers or he or skin diseases and support but their focus in research is not the condition. So we started exploration and we measure we need to picture of the participants and we do it in what has been done however the female while taking that within and assembly and questionnaire simulators have ended prepare evaluation by Santa RT, just to give some filler if they have sort of GMO or that condition and we assess the and one five they are our business associates. And I suppose I told you the end of the afternoon and in this session session that face is very very typical personnel but also by mouth as you see so we needed to deal with a goal and tagline and also scientists to compromise that temperature on the face and that we use that as far as is it true. Now

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make the long story short. This is a problem of ages and skin ages. Score measured by somewhere. So you have these population that are older than the actual as you have this population that are younger than your actual. So if you pick up these subgroups of cell population and the subgroup several populations to compare that you may be able to find something and we do and we found we can either say what a genius because this is foundationally the industry but as a gene related amino acid metabolism is strongly associated associated with so shall try to find natural compounds to spray and de identify those activating metabolismo they found that that Enya witchiness are works very well to stimulate the disability and they put that on this this is our success example of of this is not $200 So like in a week, they thought 10,000 boys

30:39

so just keep that is for interest accommodation we have probation is Canada and France for 3d study and CSA. These are sort of intermediate size for both and the corrective information is received so we are very happy to come in. And

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get you this is very nice for your

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amazement. We have Saturday's discussion session. I asked. We have not shifted time. So please feel free

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to microbe says that and I don't know it's 30 minutes

31:51

in questions

32:01

thank you for for a very nice talk. I was very impressed and also jealous of all the successful collaboration your established industry. And I was wondering whether you have a secret recipe that you establish those ERATION because I think as you know, also a part of smaller scale work you're always seeking. And I just wanted to know whether you found the secret to

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no particular secret but I try to find time to speak with industry. I go to seven senses. And also I have researchers in industry this who

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enjoy

33:00

sometimes you shouldn't go out with them too.

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Thank you so much for your actual

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final speaker of the session is the University of Tokyo