UYGHUR TRIBUNAL

AN INTERNATIONAL PEOPLE'S TRIBUNAL

Witness Name: Maya Mitalipova		
Witness category:	fact ☐	expert ☒
Date of testimony: 12 September 2021		
Link to recording*: https://www.youtube.com/watch?v=tFkr3pC1BmI&t=20235s		
Time stamp (start/end): 06:16:10 – 06:55:20		
Report included:	yes ☐	no ☒
Statement included:	yes ☒	no ☐
Transcript included:	yes ☒	no ☐
Presentation included:	yes ☐	no ☒

*Please note that all recordings of the Uyghur Tribunal hearings can be found on You Tube: Uyghur Tribunal - YouTube

Link between Large Scale of DNA Sequencing and Organ Transplantation

By Maya Mitalipova

We know now from credible sources that entire population of Uyghurs, Kazakhs and other turkic population of occupied region of East Turkistan named as Xinjiang Autonomous Region by China, had been forcefully health checked and the blood samples were withdrawn since 2016 to date. These procedures were not performed to Han Chinese population of Xinjiang, but only to Muslim population.
The entire Muslim's population blood was used for DNA sequencing.
DNA sequencing is a critical biological technique utilized in laboratories. By using this, we are capable of investigating various diseases and genetic illnesses. Additionally, many mutations are initiated by faulty genetic sequencing. Scientists can gain epidemiological data with multiple genomic candidates. Meaning, genomic sequencing (in clinical trials) can provide convenient information in treatment development. Below are specific advantages of DNA sequencing:

- DNA sequencing has exhibited much importance in disease discovery, novel treatment, forensics, and human understanding. By using genetic sequencing, we are capable of exploring mysteries in many aspects of biology/life.

But, the question remains unanswered: what for Chinese government is using million people's DNA sequenced data? It is very expensive procedure to perform DNA sequencing on such large scale. So, there has to be a very valid pay back outcome.

For successful organ transplantation doctors rely on several important criteria including three main blood tests, cell surface tests and limited DNA tests to determine if a patient and a potential donor are a match.
Now scientists have come up with a comprehensive DNA scoring system using many genes to predict long-term success of transplantation.

Current genetic tests detect differences in DNA sequences at just a few specific locations in the genomes of transplant recipients and their organ donor. The fewer differences, the better the chance of long-term acceptance of the new organ. But scientists reasoned that a much larger scale collection of DNA data for a large number of genes would give a better indication.

Group of researchers study it by taking large samples from 53 pairs of kidney donors and recipients, developed a computational method that assigned a DNA score to each pair based on mismatches in their DNA sequences. They followed the progress of the patients following transplantation surgery over several years and found that the score significantly predicted the success of the transplanted kidneys. These data showed that there is a need to more future studies to build on this new concept to confirm the initial observations by which may lead to using this new concept of DNA sequencing in the clinic to optimize the matching of donor and recipients before transplantation.

The researchers say that any process that improves the success rate of transplants will also take pressure off the shortage of kidneys for transplantation. A major contributor to shortage are patients who have to go back on the waiting list after an organ has failed.

Over the last two decades, more than 300 000 solid organ transplantations have been performed in the United States alone. However, despite improvements in surgical techniques and the development of more effective immunosuppressant therapies, allograft rejection still affects 60% of transplanted individuals and remains one of the major risk factors of graft loss. Up to 40% of graft recipients experience some form of rejection within the first postoperative year, with lung and heart recipients showing the highest rates of rejection, with 55% and 25% of patients, respectively, and kidney and liver the lowest, with 10% and 17% of patients experiencing rejection, respectively. Rejection can occur where genetic disparities exist between donors and recipients, which may lead to presentation of polymorphic peptides that the recipient's immune system recognizes as non-self. Although key HLA loci have traditionally been considered to be the main contributor to the genetic variability of allograft rejection, some degree of rejection still occurs in HLA matched sibling transplantations, which may be the result of non-compatible loci beyond HLA between donor and recipient. Indeed, new findings indicate that non-HLA polymorphisms can impact upon transplantation outcomes since they have the potential of generating histo-incompatibilities influencing allograft rejection, and impacting immunosuppressant responses. Approximately 3.5 million common and rare polymorphisms exist between two unrelated individuals of European ancestry and up to 10 million variants in individuals of African ancestry. However, investigations of non-HLA genetic determinants of clinical outcomes following organ transplantation have yet to be performed in any systematic fashion to date. Recent technological advances in genomics such as genome-wide association studies (GWAS) allow the characterization of hundreds of thousands to several million single nucleotide polymorphisms (SNPs) and copy number variants (CNVs) across the human genome rapidly and efficiently. Furthermore, whole exome and whole genome sequencing, which interrogates the coding regions and the entire human genome, respectively, are quickly becoming commonly used tools within the clinical diagnostic arena. These second-generation sequencing technologies have the ability to extensively characterize genome-wide sources of histo-incompatibility between donors and recipients, potentially unraveling specific genetic risk factors influencing rejection and immunosuppressant responses or severe adverse effects.

In this article I tried to emphasize the current knowledge from existing genetics studies conducted for transplantation outcomes and therapeutic responses to immunosuppression therapies and bring to attention of the court the importance of using large cohort of DNA samples sequencing for the translational components from this genetic knowledge that may be rapidly implemented in organ transplantation field.

There is a huge direct link between DNA sequencing and organ transplantation outcome!

We know that Chinese government favors forced-organ harvesting from prisoners of conscience and this has been practiced for a substantial period of time involving a very large number of victims. It is beyond doubt on the evidence presently received that forced harvesting of organs has happened on a large scale by state-supported or approved organizations and individuals. And State approved DNA sequencing of entire Muslim population of Xinjiang without informed consent is another proof of evidence that the knowledge obtain from genomic data analysis will be used to determine if a patient and a potential donor are a better match for a long-term success of transplantation.

Uyghurs detained in secretive “political re-education” camps in China’s northwestern Xinjiang region may have their organs harvested for profit by the Chinese Communist Party (CCP), a former medical surgeon who was forced to carry out the procedure in 1995 told The Epoch Times.

Not surprisingly, China has the second-highest transplant rate in the world, with amazingly short transplant wait times of just two-to-three weeks.

12th September 2021 (6:16:10 – 6:55:20)

Maya Mitalipova

MAYA MITALIPOVA – I want to talk about the large-scale DNA sequencing in Xinjiang, or East Turkestan. We know that from about 2016…

[*Technical issues*]

MM – We know from credible sources that entire populations of Uyghurs, Kazakhs and other Turkic ethnicities in occupied East Turkestan, named as XUAR, have been forcefully health-checked. Blood samples were drawn since around 2016. These procedures were not performed on the Han Chinese population of Xinjiang, but only on the Turkic population. The entire Turkic population's blood was used for DNA sequencing. Now, what is DNA sequencing? It is a process of determining the nucleic acid sequence, the order of nucleotides in DNA. It includes any method or technology that is used to determine the order of the four bases (adenine, thymine, guanine and cytosine). I just want to briefly talk about the applications of DNA sequencing: it is applied in many aspects of biological research, in medical research, forensics, and anthropology. But the question that remains unanswered is why is the Chinese government using millions of people's DNA sequencing data? It is a very expensive procedure to perform DNA sequencing on such a large scale, so there has to be a very valid payback outcome for these procedures. Several new methods for DNA sequencing were developed in the mid- to late 1990's and were implemented in commercial DNA sequencers by 2000. Together, these were called the "next-generation" or "second-generation" sequencing technologies ("NGS methods"), they are highly scalable, allowing the entire genome to be sequenced at once. Now, there

are sequencing machines which are produced by companies like Thermo Fisher, here in Massachusetts, which allow the sequencing of thousands of samples at once, but those machines are expensive of course. Next-generation sequencing technology has tremendously empowered the researchers to get insights in health, human and animal origins, and it catalysed the “personalised medicine” movement. NGS technologies allows potential benefits for personalised medicine with, for instance, organ transplantation.

Since the first organ transplantation was conducted in 1953, the overall process of organ transplants has been remarkably developed, not only in surgical techniques, but also in peri-surgical treatments, like appropriate matching donors, and immune-suppressing agents, and other factors that improved this technology. Now, organ transplantation is considered a routine, curative treatment for end-state diseases in kidney, heart, liver, lungs and other organs. Even with these successful improvements in transplantation, the acute rejection rate is still significant, and it is up to 60%, especially in the first two years after the transplant. And why is that? There is immuno-compatibility between the donor and the recipient, and if that is not a perfect match, the organs can be rejected within those first two years. How to overcome these difficulties in organ transplant technologies? One of the best solutions could be DNA sequencing technologies, especially developed after 2010. NGS technology can be applied to patients suffering from organ failure and failed organ transplantation, estimating rejection rates using the specific biomarkers identified by this NGS between the patient and the donor and finding the best-matching donor, transplanting the organ, and achieving successful donor transplantation. The diversity of the human genome is as immense as the population of human beings on earth. Those diversities reach from population to personal diversities, caused by genomic variations like deletion,

insertion, translocation, copy-number changes, single nucleotide polymorphism, and others. The development of genomic research and organ transplantation can help in pursuing the accomplishment of the goal of long-term function of allografts. Until recently, genomic approaches have not actively been applied in organ transplants. Finding potential genes and biomarkers related to a certain disease entity, and understanding their mechanism are not easy, and time-consuming and expensive task. Improving sequencing technologies dramatically reduces this time and effort.

For successful organ transplants, doctors rely on several important criteria, including several main blood tests, self-service tests and limited DNA tests to determine if a patient and a potential donor are a match. Now, scientists have come up with a comprehensive DNA scoring system, using many genes to predict long-term success of the transplantation. Current genetic tests detect differences in DNA sequencing at just a few specific locations in the genome of the recipient and the organ donor. The fewer the differences, the better the chance of long-term acceptance of the new organ. Scientists argue that a much larger scale collection of DNA data for a large number of genes would give a better indication, and a better survival of the allograft in the recipient. There is a huge direct link between DNA sequencing and organ transplant outcome. We know that the Chinese government favours forced organ harvesting from prisoners of conscience and this has been for a substantial period of time, involving a large number of victims. It is beyond doubt, on the evidence presently received, that forced harvesting of organs has happened…

[*interruption*]

MM – Uyghurs detained in secretive political prisons, or “re-education camps” as they call them, in northwestern Xinjiang, may have their organs harvested for profit by the

CCP. It has been said by a former surgeon who was forced to carry out this procedure in 1995. Unsurprisingly, China has the second highest transplant rate in the world with amazingly short transplant wait time, with as little as two or three weeks.

[*interruption*]

COUNSEL – As I understand it, the two reports you have submitted are just in preliminary form, partly because of extreme time pressure you were under to provide these to the Tribunal. Might I ask whether you are able and willing to provide a fully sourced report identifying the exact sources of some of the claim that appear in the two reports?

MM – The sources are just a review of what is the link between DNA sequencing and organ transplantation. As I said, if the Chinese government can afford… I mean no other private entity can afford to do a large-scale DNA sequencing in millions, up to twenty million people in Xinjiang, so there has to be a reason why. I don't have direct evidence that this has been actually applied to Uyghur or Kazakh people, but if they are being selected for DNA sequencing, I think that there is a big link, that this could be used in order to prepare them for forced organ harvesting.

COUNSEL – My question really was about three claims in particular, by way of example. The report suggests the DNA sequencing of the entire Uyghur population first. The second that there are state-wide health checks and blood samples only for Muslims; and the third claim was that there is extensive blood plasma collection within detention facilities. These are in the report, unsourced at the moment, and if you happened to have those sources, might you be able to identify them for us?

MM – So, I do have a source for the blood and plasma collection centres in Xinjiang, especially from 2017 to today. It is from Beijing News and this is a source from the Chinese government.

COUNSEL – You have stated that it would be very expensive to DNA sequence the whole Xinjiang population. You provided a few more details in your presentation. Can you tell us exactly what kind of numerical costs are we talking about?

MM – Yes. The least expensive genome sequencing, for one sample, for one person, can cost from $1,000 to $5,000. We are talking about a population of at least 10 million people. The cost of the DNA sequence will depend on how widely this will be sequenced, is it a whole genome sequencing, or a short DNA sequencing? And as we know, the Chinese government purchased and supplied to Xinjiang quite a few, and very expensive DNA sequencing machines from Thermo Fisher; and up until today we know that Thermo Fisher and another company, [*inaudible* – 6:32:17], which supplies DNA sequencing kits, are still supplying those to the area, and especially to the Xinjiang area.

COUNSEL – You have suggested that such large-scale testing could indicate that the testing was for either more successful organ transplantation or reducing the incidence of organ rejection, are there any other plausible reason for such large-scale testing? For example, for identification of problematic illnesses or other forms of treatments that might benefit the population.

MM – Of course, DNA sequencing can be used in a wide variety of purposes. I just concentrated on organ transplantation because we know that crematoriums were seen next to concentration camps, and there is evidence of that, and there was a report by Radio Free Asia. We know that people from the camp come out, and sometimes no

one returns, and there are lots of missing people, especially young people. Those people can be subjected not just to torture but to organ harvesting. These, along with numerous testimonies, lead to the conclusion that these people could be subjected to organ harvesting as well, which in my opinion is most likely.

COUNSEL – You have claimed that massive blood plasma collection from Uyghur detainees occurs around every two weeks, and that frequent blood collection may not allow blood cell regeneration. What is the evidential basis for this claim? If you do not have it to hand, is that something you might address in writing to the Tribunal?

MM – Yes, multiple testimonies from former detainees confirmed that they had been giving blood. We are trying to find out the frequency at which inmates in re-education camps have been giving their blood. In mid-June 2020, one Chinese company was given a contract to give up to 900 tons of blood plasma in Xinjiang alone, and this is a really huge part of the entire Chinese blood plasma supply, especially given the fact that there was another company who was already in contract with Xinjiang. As I mention in my writing, you need a minimum of two months between the blood withdrawals in order to regenerate blood cells, and this is considering that you have a proper diet and health status. We know that if this is happening in camps, and much more frequently, this could be explaining why we have so many people coming out with such a poor health status that they are dying within two months of their release. Their health condition is very poor when they come out. This could also be one of the reasons why detainees are released, and shortly after their release they die at home.

PANEL – [inaudible] *… we hear from multiple sources that blood is being taken, and we assume that there is widespread DNA testing, but there seems to be a remarkable lack of direct evidence, and it would be good to know whether you know what type of*

DNA testing is being done. Do you know whether it is whole genome sequencing or just SNP analysis?

MM – I cannot answer this question, but according to my research, Thermo Fisher has sold quite a few machines to Xinjiang. According to them, five or ten machines have been sold. The capacity of these machines is pretty large, each cost around a quarter or a half million dollars, and its sequencing capacity is pretty good. In the machines that I researched, from the two 2019 New York Times articles about this, the machines are very advanced, so they can do a whole genome sequencing, especially with the technologies existing at the moment, and this is definitely not something a private company can afford to do. We think this is state-funded research. And we know that China wants to have this not only in Xinjiang, as they have already done it from 2013 in Tibet, and I have read quite a few articles about this. I cannot answer the question of what type of DNA sequencing they are performing but knowing what kind of machines they purchase I would assume that they would do a whole genome sequencing. It is expensive but it is very advanced and would give them a much wider range of experiments to do with the data… [*interruption*]

PANEL – You talked about the use of a comprehensive DNA scoring system and from your report I could not quite understand how that is being devised and tested?

MM – The comprehensive DNA scoring system was developed especially with kidney transplantations, and I actually reviewed some articles on organ transplantation. In cases of kidney failures, particularly in children, the relatives can be successful donors, so they have developed genetic marking and the allografts had prolonged survival… [*interruption*]

PANEL – In your report you refer to fifty-three pairs, does that mean that this has been tested in fifty-three donations?

MM – Yes, in one article it is fifty-three pairs and… [*interruption*]

PANEL – So, in terms of organ rejection, the power of a study of fifty-three is incredibly low, you would not be able to take that as an assumption, that would be a preliminary finding to be tested. I don't think anyone in the UK or in the US is routinely using such a system. That is not to say that you could not do research on much larger numbers to find out. You referred to forced organ transplantation and, again, it is good to know if you have any recent, definitive evidence that that is going on, and what category of people are being put in that situation. You give a reference from twenty-six years ago, which is not terribly useful I think, so it would be good to know if you have got more data there. Another thing: all the people that we have the chance to talk to, talked about frequently having blood taken, but it is nearly always about relatively small volumes of blood going into small vials whereas if people are doing plasma collection by venesection it is going to be a whole bag of blood taken off, and that is not the reports we have been hearing. So, again, any evidence that you may have that these large volumes of blood are being taken, would be very useful.

MM – I know that there is a contract, actually two contracts in the Xinjiang area that have been signed starting from 2017. One contract should have ended in August 2021. And it is a pretty significant amount of plasma that they promised to collect. Of course I don't have any evidence, but when the next company comes with a much increased volume of plasma collection in the same area, there should be some source for the plasma. Of course, with the limited number of people that we have that can testify, there is no evidence that I can bring to the table, I just don't have it. I follow the news,

and business news on the subject, and regarding the forced organ harvesting I know that there are conclusions from the China Tribunal, and the people in detention could be subjected to forced organ harvesting as well.

PANEL – At the moment, worldwide, the biggest databases for DNA are the Biobank in the UK, and the 100000 Genomes Project. Of course, these are consented samples. I am not sure what you are saying, so far what we heard from the fact witnesses is that they have had small quantities of blood put into bottles, and it is nowhere like taking blood to extract plasma. I take your point that frequent blood tests would lead to lack of regeneration of red cells, and particularly with a poor diet. I would like you to tell us what are the reasons for raising this? Is it for research? Is it for stopping forced organs transplantations at the rate they are going? And I think you do raise an interesting point, that if they are sitting on a most enormous database of DNA, and I suspect they are not doing whole-sequencing DNA although they may well be thinking of experimenting on that.

MM – It is not the area of my research, but I was trying to understand why the Chinese government goes to the point of collecting biometric data like DNA sequences (which can be used for multiple reasons). But all the reasons I mentioned really don't apply to the people in detention, the entire Turkic nation that they are genociding. Yes, to study with this research base, but you don't have to actually conduct such an extensive project on such an extent. What really bothers me is that is it a very expensive project to do, it has to be a state-funded project to sequence DNA from let's say minimum ten million people. The reason why we cannot develop very successful organ transplantation even though we have the tools to do that, is that the person who dies at a moment does not have the time to get the match, or to become a donor for the person in need. That is in a normal, non-authoritarian country. That is why we cannot

perfect the procedure of organ survival in a patient for more than ten years after being transplanted. But here we have the government who collects the biometric data, and sit on it, which is extremely expensive, probably nearly a billion-dollar project, so there has to be some sort of purpose to have these done. They have done it on our people, on Tibetans as well, but they have not done it on Han Chinese. Excluding Han Chinese and having all the Turkic people, especially in detention, where they can find out if you are a perfect match because your biometric data is already there. Then, here comes the recipient, from any country, maybe even Saudi Arabia, with cash, they need an organ, and they don't have to wait that long, a couple of weeks maybe even less. It is not just the DNA sequencing procedure by itself, there are highly trained, PhD-level bioinformatics people who process this data. You have a recipient needing an organ, you can just blast it in the machine, and you have ten million people's data, and if that person [the perfect match] is not in a detention camp but at home, they are still in an open-air prison because in no time that person can be taken to a camp and made into a organ donor. That is one of my assumptions, and unfortunately, I don't have evidence for that, and I cannot have that evidence because when you donate, you don't survive. Witnesses have reported detainees disappearing in the night and never coming back, and no one sees them.

PANEL – It is not quite true to say that you can't tissue type patients for transplants, because all renal transplants are tissue typed, it is true that cardiac and liver transplants aren't typed but that is more because it is not found useful, rather than the fact that you can't technically do the test. I accept that by creating a huge bank you could, in theory, select very good matches; and I completely agree that your supposition is a possibility, and what we know about what happened to other groups

raises that strongly, but it is very important that we actually have some confirmatory data.

MM – Yes, we know that there is a lot of DNA-sequencing supplies, that there are companies that are still supplying the area. There was even a sanction from 2019 by the U.S. government, and two companies in the U.S. have failed to comply, they still supply, not because they did not stop it but because they have subtractors in China. 10% of Thermo Fisher's business in China alone… [*interruption*]

PANEL – Yes but please bear in mind that many groups throughout the whole of Europe, including my own institution actually send our samples to China for sequencing, because they do it so much cheaper than we can do it in this country or in the U.S. So, it is not a surprise that they do huge amounts of sequencing.