

Dr. Mariana Kaplan
Behind the Mask Interview
October 20, 2020

Barr: Good Morning. I'm Gabrielle Barr of the Office of NIH History and Stetten Museum. Today is October 20, 2020 and I have the opportunity to talk to Dr. Mariana Kaplan. Dr. Kaplan is the Chief of the Systemic Autoimmunity Branch at the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). Thank you very much for being with us.

Kaplan: Thank you for having me.

Barr: So, Dr. Kaplan, as the Chief of the Systemic Autoimmunity Branch of NIAMS, what have been some of your COVID-19-related responsibilities? How have you had to adapt to a highly unusual and rapidly changing environment?

Kaplan: We have had to adapt to the changes that the pandemic has brought, regarding how to operate in this environment and how to be safe while trying to continue to be productive and advance the science. Our group has engaged in some projects that are trying to answer some questions regarding how the COVID-19 pandemic affects certain patient populations as well as to understand some of the ways that COVID-19 can affect the body.

Barr: I know you're working on modulating chronic inflammatory responses by COVID-19. Can you talk a little bit more about that study that you're working on?

Kaplan: Yes, this is a study that we are about to start. We have been preparing to start it for several months now. Basically, what we're hoping to do is to understand how the COVID-19 infection can affect people that already have a variety of systemic autoimmune diseases because their immune systems are already different to start with. We want to understand how getting COVID-19 may affect them both acutely but also in a more chronic form and how it will affect their autoimmune disease.

Barr: What kinds of autoimmune diseases will be a part of your study and at what level of severity are you looking to get a lot of different types? Are you concentrating on a certain kind of disease or a certain level of severity?

Kaplan: That's a great question. We want to enroll patients that have a diagnosis of what we call systemic autoimmune diseases that are associated with the development of what we call autoantibodies—the antibodies that our bodies make—but instead of being made to attack bacteria or viruses, they are attacking our own body. Among those diseases we include systemic lupus erythematosus or lupus; rheumatoid arthritis; inflammatory myopathies, such as dermatomyositis; a condition called ANCA- associated vasculitis that attacks the blood vessels; scleroderma; and a number of autoimmune diseases that can affect the kidneys; and then we also will include patients with Sjogren's syndrome, which is an autoimmune disease that affects the salivary and the lacrimal glands in the body.

Barr: Oh, that's a lot of different kinds of diseases. Do you have any ideas of one being worse than another or you haven't any idea yet?

Kaplan: We don't. Yeah, it's early to tell how COVID-19 will affect patients with autoimmunity in general. There have been some preliminary reports coming from different parts of the world, but here we're interested in understanding also long-term consequences. We are also hoping to understand not only exposure to COVID-19 but also how will patients with autoimmunity respond to vaccines once one becomes available. We want to enroll patients, both kids and adults, with these diseases and also with different levels of severity of their disease.

Barr: Can you talk a little bit about how you are structuring this study?

Kaplan: Yes, sure. We hope to enroll as many patients as possible to obtain what we call a baseline visit so they will come before they are exposed to COVID-19 or before getting a COVID-19 vaccine. Then some of these patients will come back after a confirmed COVID-19 diagnosis or after receiving a vaccine. We hope to do that relatively quickly, not when they're acutely infected but a few weeks or months after. There will be another group that we will know have not been exposed to either COVID-19 or a vaccine and a few patients that happen to come to the NIH without any symptoms and when we're testing them, we find they're actually positive and we may study them as well.

Barr: So, you can see subsequent studies coming from this study I'm gathering.

Kaplan: Yes, I think we plan to gather very extensive information and many different aspects of the disease.

Barr: What is your role in this study?

Kaplan: I'm the principal investigator. I wrote the application; I designed it; and I'm really overseeing all aspects of the proposal. I'm lucky to have a number of wonderful collaborators and support staff that will make this possible.

Barr: That's really great that you're also working with a lot of different institutes on this study. Can you talk about what it's like to work with them?

Kaplan: That's one of the fantastic things about the NIH, that we can gather all the collective expertise of many wonderful investigators. Several of the associate investigators are NIAMS investigators that have expertise in the different autoimmune diseases we're going to study, or some of the aspects of the disease we're going to study. We also have engaged collaborators at the National Institute of Dental and Craniofacial Research, at National Institute of Environmental Health Sciences, and at the National Institute of Diabetes and Digestive and Kidney Diseases for the component on renal diseases.

Barr: That's just a lot of different components. What kinds of technology do you think that you'll be using to conduct your research?

Kaplan: Part of what we are going to do is to try to understand how the immune system becomes affected in patients that have autoimmunity after exposure to COVID-19 or to a COVID-19 vaccine. There will be a variety of immunologic techniques that we will use to understand how different cells of the immune system change. Also we'll be doing DNA and RNA sequencing to try to understand how certain genes may predispose to different responses to COVID-19 in autoimmunity, how gene transcription in different cell types gets modified and how the immune response changes following the viral exposure. We're also going to try to understand how the blood vessels change in patients with autoimmunity because we know that they're already somewhat abnormal and because COVID-19 can affect the blood vessels. That's another part of the research that we're hoping to understand.

Barr: I didn't realize that the blood vessels were so different. Why do you believe that your study is really important?

Kaplan: This is a rapidly evolving situation as you know, and everything is in flux. Patients with autoimmunity represent a group of individuals where we really need to understand how this is going to affect them, how treatments for COVID-19 may work differently than in the general population, how being on certain medications for the autoimmune disease may change how they respond to COVID-19 or the vaccine. It could be that they may actually be protected from certain complications. It could also be that they are going to be more likely to get more severe disease. How will their autoimmune diseases behave afterwards? It's something that we're hoping to understand to have insights regarding monitoring and management of these patients moving forward.

Barr: What percentage of the American population has an autoimmune disease?

Kaplan: This is not entirely clear and depends on how you define autoimmunity, and whether it's organ specific versus systemic immunity. As an example, rheumatoid arthritis affects approximately 1% of the population.

Barr: This is going to be a question about your personal experiences. Have you been to campus during the pandemic and, if so, what were your impressions?

Kaplan: I've been working primarily from home and teleworking. People working in the lab are the ones that are working in shifts, keeping social distancing and going to the lab and trying to keep the work going. We are actively engaged every day through mostly virtual communications.

Barr: What's it been like to work from home?

Kaplan: Well, we all have to adapt. I have school-aged kids so they are also studying from home and so we all had to through a period of transition. I think by now everybody is more or less used to it and there are advantages and disadvantages. I think about our doing this but we're all trying to do our best.

Barr: Definitely. What have been some personal opportunities and challenges for you with COVID-19?

Kaplan: I think as for many researchers this has been a challenge because we have to hold our work for some time and then really adapt to the change of pace of our work and try to get creative on how to keep moving things. We have to keep moving the science at the same time. It's been an amazing time to establish new collaborations and be creative about how our background in immunology and inflammation can help better understand COVID-19 research. Within the NIH and also with extramural collaborators we have managed to establish some really outstanding partnerships. We are hoping that that will help us understand aspects of COVID-19 and contribute to the science of what is going on.

Barr: Yeah, so in a time when groceries and other stores have some pretty empty shelves, what has been your strategy for obtaining items that have been regularly unavailable or are hot commodities?

Kaplan: I guess just to be patient and plan. Some things are not available. If we need them, we keep trying to find them but try not to panic. I think being understanding that these things happen, and things will get right.

Barr: Who are you most looking forward to visiting when the pandemic is over?

Kaplan: I have a lot of family abroad and many relatives abroad that I haven't been able to see for many, many months. I'm really looking forward to being able to travel again and to visit them in person.

Barr: Is there anything else you would want to share as an NIH scientist or as a person who's undergoing the pandemic like every other American right now?

Kaplan: Well, I think we have learned a lot during these months about adapting rapidly to situations that are out of our control and really trusting the science and what the scientists say in what we do both professionally and personally.

Barr: Thank you very much for being with me and I wish you the best with your study. Thank you very much.