Roberts, Georgia 2022

Dr. Georgia Roberts Oral History

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Georgia Roberts, Ph.D.

Behind the Mask

October 4, 2022

Barr: Good morning. Today is October 4, 2022. My name is Gabrielle Barr. I'm the archivist at the Office of NIH History and Stetten Museum. Today I have the pleasure of speaking with Dr. Georgia Roberts. Dr. Roberts is a staff scientist and health science evaluator in the Office of Program Operations, part of the Division of Transitional Toxicology at the National Institute of Environmental Health Sciences (NIEHS). Today, she's going to be speaking about how she contributed to some of NIH's COVID-19 research endeavors as well as about her own pandemic experiences. Thank you very much for being with me.

Roberts: It's a pleasure to be here. Thank you for having me.

Barr: Definitely. Will you please introduce your responsibilities? It's a very unique role.

Roberts: Absolutely. As you mentioned, I am a Health Science Evaluator, and my training and background was as a toxicologist. For our Division, my primary responsibilities include serving as a Contracting Officer's Representative [COR] for research and development contracts. As a COR, on behalf of the government, I serve as a technical expert to manage day-to-day activities on some of our contracts. Right now, I manage contracts that conduct in vivo and in vitro toxicology studies in support of our division. Mostly those are evaluating the toxicity of selected test agents.

Barr: Can you speak a little bit more in detail about how you have supported SARS-CoV-2 studies from investigators at NIEHS, and what studies you've contributed to?

Roberts: Sure. In the past two and a half years, we've managed the conduct of ten studies in collaboration with eight different investigators that are part of NIEHS's Division of Intramural Research. The goal of those studies was twofold and varied based on the investigator. Several groups investigated potential therapeutic options to treat the COVID-19 disease. Then there were also several investigators that were looking to develop new mouse models of the disease.

Barr: What have you found to be most rewarding or interesting about your work with these studies?

Roberts: I'd say the most interesting aspect has been from a logistical standpoint. A lot of the work we've done under the contract has been similar to the work we conduct in toxicology research. Obviously, there are some unique differences in working with this test agent, as well as working with a unique skill set under our contract and collaborating with a group of investigators at the institute that I have not worked with before. That's all been really rewarding and interesting and a great learning opportunity.

Barr: Can you talk more about what you do in particular, or what you have done for some of these studies?

Roberts: Sure. As a COR for the contract, our responsibility is to understand the specific needs of the investigator and then facilitate managing the work under the contract. What we would normally do is meet with an investigator and they would give us an abstract summary of what they're thinking—for example, "we want to investigate therapeutic X in this disease model." Next, we provide them with information that helps inform their study design. Based on our work with the contractor and the contractor's internally funded work they may be able to tell us information about recommended group sizes so we can adequately power the study and address the research question. As a COR, I also provide information to inform endpoint selection, so that we make sure that the endpoints being evaluated—whether it's histopathology or lung viral load, which is obviously a major interest for these studies—using technologies that will work under the contract that we plan to use. It's bridging between the facility that has the capability to conduct the studies and working with the investigators to make sure that we're providing them with the information they need. For these, again, because of the different groups that we were working with, it was a lot of day to day—or multiple times a day, particularly when something is on test—providing information and fine-tuning study design.

Barr: What have been some of the challenges that you and others have encountered with these studies?

Roberts: The most challenging thing—and I would venture to guess that this is probably relevant to anybody that's been working through the pandemic, especially on pandemic related activities—is that when you're trying to do responsive research, you want to make sure that you're getting information out to the public or to other scientists in the community as quickly as possible but balancing that with quality aspects that you want to make sure are in place when conducting research. In this case, before you can run a study of SARS-CoV-2 exposed animals, you need to understand the model that you're using. Certainly, there's a lot of information in the literature from other SARS viruses, but we needed to make sure, using SARS-CoV-2, that we understood the disease progression in the planned mouse model. If you want to sample animals all at the same time, you need to understand how long those animals may be expected to live. If you're looking at different endpoints, you need to make sure you understand the right sampling time.

Barr: Understanding about the disease really evolved over the course of the pandemic, even with animal models. Did you make different recommendations about what types of animals and the length the time and things like that?

Roberts: Right. That was a big thing—just something as simple as determining the appropriate time post-infection to look at different endpoints. Obviously, the longer you wait, the more information you may get about endpoints that are human translatable—so different cytokine profiles, or how viral load changes over time. But the longer you wait in this animal model, the number of animals that survive to that selected time point may decrease. As we progressed through the studies, depending on what the investigators' primary goal was, we had to recommend five days post-inoculation—or for a particular investigator's interest that they really should push it out to seven days—based on the information we have now, which is different than the information we had a month ago, and the compromises they needed to understand.

Barr: You are constantly reading the literature?

Roberts: Well, a lot of the information that we were using was from the studies that we were conducting. You need to be informed by the literature, but when you've got a specific mouse model that you're using and a specific strain of the virus, along with the individual test conditions, those are your best information sources to work with when available.

Barr: Definitely. Toxicology and infectious diseases have not always been associated in the public's mind. How do you feel that COVID-19 has changed this perception, and what do you hope it does for the field of medical toxicology at large? Similarly, what expertise do you feel a toxicologist can bring to the table and what are some of the toxicology issues and questions that the pandemic has elicited?

Roberts: Taking one of your later questions first. The pre-clinical testing paradigm that toxicology uses obviously is geared towards understanding therapeutics or the toxicology of environmental chemicals, but it's really applicable in this case. What we were able to do is use those skills and the capabilities that we had under contract to address this emerging need. A lot of the workflows that we already had established we were able to efficiently utilize to study this other test agent. Historically speaking to the public's understanding, you're right, toxicology and viruses aren't necessarily one in one. However, there are some examples of where we have studied viruses in the past. One interesting aspect that most people are aware of is that we know in humans that immunocompromised people tend to have a different disease profile than a "healthy" person. A field that continues to gain increasing highlights within toxicology is environmental chemical exposures that have an impact on the immune system. Understanding how environmental exposures can create a sensitive population that may be impacted in a different way by the pandemic is an example of where the two converge.

Barr: Definitely. What do you feel that you have learned from your work on the pandemic related projects that you would maybe apply to some of the other initiatives you're involved in?

Roberts: Yeah, so again, my answer for this one is probably less about the science of COVID-19 and more about the importance of communication in working with new collaborators, but also in a high stress situation like this where everybody's trying to do their part to address questions and answers for this new problem. One of the things that I learned is that clearly articulating expectations to both internal stakeholders, as well as our contractors has been really critical. Looking back, I probably could have done a better job of that, and it's definitely something that I would keep in mind as I move forward.

Barr: Did you meet multiple times a week with both the internal and external stakeholders? Or how did how did you keep track of all these different people and projects?

Roberts: The number of projects, in terms of simultaneous management of multiple studies with numerous internal stakeholders, was not unique. That's something that we do on a day-to-day basis, just with a toxicology focus, and so we adapted our workflows and skill sets to that. But certainly, we weren't meeting in-person, obviously, because this was 2020. We were in regular email communications, virtual meetings, and phone calls with the investigators—particularly in the time when you're fine tuning, understanding what their needs are, and proposing a study design that may work for them. It was really frequent communication. We communicate with our contractors multiple times a week. We have scheduled interactions, but then for something like this, it would not be unusual to get three phone calls in a day to address different kinds of issues.

Barr: In addition to being a scientist, you're also a person who's been living through the pandemic. How has COVID-19 impacted you as an individual?

Roberts: Obviously, everybody has their own story that they've lived through. For me, I've had two children in the last two and a half years. Going from a carefree individual to having a family to take care of and worry about has been really interesting. Access to things that we probably took for granted before, like maternity classes or resources like that which people decided were not emergent—all of that sort of went away, particularly at the beginning of the pandemic.

Barr: Did you have your child in the beginning of a pandemic?

Roberts: My son was born in October of 2020.

Barr: Wow. Congratulations.

Roberts: Yeah, thanks. But it's been interesting—the kinds of things that maybe people take for granted, like taking your sick newborn to see their pediatrician, wasn't available or easily accessible. We've definitely seen some of the worst-case scenarios for that.

Barr: Yeah. Did you worry about him learning certain skills, being that he was not allowed to be with a lot of other kids or people?

Roberts: He did start daycare at the beginning of 2021, but one thing that's been really interesting has just been his language development. The range of normal is all over the place, but for a lot of his first year and a half, every adult that he interacted with outside of our home was wearing a mask. Being able to watch adults speak and how that plays into speech development will be an interesting retrospective study that somebody could perform.

Barr: Definitely. Is there anything else that you'd like to share about your professional or personal COVID-19 experiences?

Roberts: I don't think so. It's been a great opportunity, a pleasure, and a learning experience for everybody, and certainly for me as well.

Barr: Well, thank you for your efforts on behalf of NIH and I wish you and your whole family continued health.

Roberts: Thank you so much. You as well.