Bigelow | Laboratory for Ocean Sciences

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Senator Claxton, Representative Meyer, and other honorable members of the Health and Human Services Committee

I am Dr. José A. Fernández Robledo and I am honored to testify on behalf of Bigelow Laboratory in **support** of **LD 1601**.

When people ask me what I do for a living, I tell them I am a scientist, in particular, a Molecular Parasitologist and a Genetic Engineer.

As a research scientist, we are often confronted with complex questions in a dark box. Now imagine a microscopic organism growing in a flask, I do talk to them, but they do not speak back to me. We need a new language.

That language is DNA; it consists of a list of four letters that, when put in a particular order, make all the living organisms we see in our forests, mountains, coasts, and our villages and cities. However, just reading it aloud is not enough; we need ways to decipher those sounds, and we solve them by using molecular tools. CRISPR is one of the best things that has happened to us.

CRISPR is a tool from nature; we did not invent it; we discovered it. Before CRISPR, genetic alteration in living organisms was mostly achieved through selective breeding and random mutagenesis, which could take years if at all possible, to apply. Now, with these new precise genetic tools, we can eliminate the random component, and target desired traits in a secure, ethical, and sustainable manner, and in a matter of days or weeks.

I spent most of my career learning about parasites of oysters and how to engineer them for biomedical applications. I have been developing the tools to interrogate the parasite's

genome, and CRISPR is one of them. I am studying oyster parasites as a way to help develop vaccines that can help people and animals.

I also teach Synthetic Biology, a discipline that introduces the students to the latest gene editing tools and ethics involved in their use. Two years ago, a teacher from the Center for Learning & Teaching in Edgecomb reached out to us in Bigelow Laboratory to help him with a hands-on lab using CRISPR. One of the things I will never forget was the face of the 8th graders when they were pipetting the CRISPR components in a tube. They were not watching a sci fi movie; they were learning the ways of the future in biological sciences.

When you meet to work this bill, I want you to think of them, their future, our future; I saw in their eyes the next nature tool waiting to be discovered, let them pursue that dream here in Maine.

Thank you for your consideration. I would be happy to answer any questions

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