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Delegation paves way for US–Cuba research collaborations

In April, a delegation of 30 university representatives and members of the National Council of University Research Administrators traveled to Cuba, where the island nation's Ministry of Education guided the visitors around the country to meet with scientists and government officials, and to tour universities and research institutions.

Suzanne Rivera, vice-president for research and technology management at Case Western Reserve University and a member of NCURA, was struck by the potential for US–Cuba partnerships during a visit in 2015. Rivera wanted to get NCURA involved to help forge relationships between Cuban scientists and NCURA's more than 7,000 members. Along with NCURA President Robert Andresen, she negotiated with Cuban and US officials for nine months to get the trip approved and to work through logistics.

The goal was to begin to break down barriers between US and Cuban scientists and to figure out ways for the countries to collaborate. Owing to the economic and trade embargo, scientific collaboration between the two countries has been difficult. Cuban universities cannot purchase equipment from US companies. Travel is complicated: Cubans are often unable to get visas to travel to the US for conferences, and US researchers cannot use government grant money to fund travel to Cuba. The Internet is slow and not unrestricted, making communication, data transfer and acquiring access to scientific publications and services hard.

Nonetheless, scientists on both sides are excited about the potential for collaboration. Despite its economic isolation, Cuba excels in preventive medicine and is especially proficient at controlling infectious diseases and developing vaccines. But the country's biomedical researchers could benefit from advanced technologies, access to research grants and collaborations with US scientists.

By the end of the delegation's week-long visit, NCURA and the Cuban Ministry of Education had developed a draft memorandum of understanding (MOU) that establishes a framework by which NCURA would help Cuba to prepare to “navigate the world of

research grants and contracts” that will be open to them when the economic embargo is lifted, Rivera says. The draft MOU could be signed by NCURA and the Cuban Ministry of Education in July.

“There was a real palpable feeling that collaborations will burst forth” once the embargo is lifted, says Kathleen Larmett, NCURA's executive director.

In fact, Larmett says that she was surprised to learn that US and Cuban scientists are already collaborating, albeit on a small scale. For instance, she says, Auburn University in Alabama struck up an agreement to enable faculty and student exchanges with the Agrarian University of Havana and the Cuban National Center for Animal and Plant Health last May—one of the first agreements to be negotiated between US and Cuban universities since the embargo was imposed.

Another research agreement is in the works between neuroscientists at the University of Southern California (USC) and at the Cuban Neuroscience Center in Havana. John Van Horn, an associate professor of neuroscience at USC, traveled to Cuba in October 2014 for the anniversary of the center and the unveiling of a functional magnetic resonance imaging (fMRI) scanner donated by Maastricht University in the Netherlands that summer.

Van Horn says that collaborating with Cuban neuroscientists would be a boon for US scientists. The Cuban Neuroscience Center has been a “leader in the analysis and modeling of electroencephalographic [EEG] time-series of brain activity,” he says. In return, Cuban neuroscientists would benefit from gaining access to large US neuroimaging databases and neuroimaging software that is not available in Cuba.

Because of the embargo, “it's not been feasible to buy equipment” from US companies, Pedro Valdes-Sosa, vice-director of research at the Cuban Neuroscience Center, says. And much of Cuba's neuroscience research has involved the use of older technology. While neuroscience research in the US now uses more advanced technology like fMRI, which can essentially pinpoint in real-time active portions of the brain, Cuban neuroscientists

have primarily relied on EEG, which measures activity in the brain, but at a much lower spatial resolution than fMRI. Even its ‘new’ fMRI machine from the Netherlands was a version that the Maastricht University had planned to retire.

Nonetheless, there are areas in which the US can learn from Cuba, particularly when it comes to public health and vaccine development. “We measure our research centers not only by what they publish, but how they move public health,” Valdes-Sosa says. For instance, Cuba has implemented a hearing-loss screening program, and because it cannot buy US equipment, it has developed its own neurodiagnostics and cochlear implants.

In addition, scientists at the Center of Molecular Immunology in Havana have developed a lung cancer vaccine, CIMAvax-EGF, which is approved in Cuba and Peru. A study in 2008 found that vaccinated patients younger than the age of 60 had a mean survival of 18.5 months, as compared to 7.6 months for unvaccinated patients (*JCO* 26, 1452–1458, 2008). The vaccine is not available in the US, but last year, amid improving relations, scientists from Roswell Park Cancer Institute in Buffalo, New York, reached an agreement with the Cuban center to conduct a clinical trial of the vaccine at Roswell Park. Pharmaceutical company Bioven is also conducting a trial of CIMAvax-EGF in the UK.

Larmett says that NCURA's role will be to facilitate communication between US and Cuban universities to help to forge research agreements. Larmett says that there are already discussions occurring to bring a Cuban scientist to speak at NCURA's national meeting in August. Larmett hopes that by reaching NCURA's more than 7,000 members, collaborations will pick up.

It's early, and there are still a number of challenges, mostly related to the embargo. US scientists cannot use money from a US National Institutes of Health grant to travel to Cuba, for instance. But, says Valdes-Sosa, “we're committed to try and collaborate.”

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