

Under new rules, basic studies of how the brain processes images could be redefined as clinical trials.

Social Sciences Research, gave a talk to the behavioral sciences board at the National Academy of Sciences in Washington, D.C. Riley warned that many studies in disciplines under his office's purview could fall under the new policy, which kicks in with applications submitted in January 2018.

The remarks sparked fierce pushback. In a 6 June letter to NIH, the Association for Psychological Science (APS) in Washington, D.C., argued that the agency's definition of an intervention "is exceptionally broad and appears to encompass any manipulation of a variable hypothesized to have an impact on a measured behavioral outcome." APS also worries that many researchers may not be aware of the new FOA requirement, leading NIH to reject their applications and forcing them to miss a funding cycle. And it fears that applications that do reach a review may suffer, because the criteria traditionally used to evaluate a clinical trial might not apply to the proposed research.

Similar "serious concerns" were voiced by the Federation of Associations in Behavioral & Brain Sciences (FABBS) in Washington, D.C., which represents 20 scientific societies, in a 12 July letter asking NIH to pause the policy and gather more feedback. Among other fears, FABBS members worry that researchers will be required to report any added experiment as a new protocol on [clinicaltrials.gov](http://clinicaltrials.gov)—something not usually required in basic research. "It would bureaucratize the science in a way that would cripple exploratory research," says Harvard University cognitive psychologist Jeremy Wolfe, FABBS president.

The FABBS letter also predicts that including a wider range of studies on [clinicaltrials.gov](http://clinicaltrials.gov), which many patients use to find trials that are seeking participants, will confuse the public by clogging the database with irrelevant studies. Although the policy might help address the "file drawer problem" in psychology and neuroscience—the failure to report negative results—using [clinicaltrials.gov](http://clinicaltrials.gov) as a solution may do more harm than good, Wolfe says.

Wolinetz says NIH has "heard the concerns," which are also being voiced by leaders at some NIH institutes, and is working to clarify the scope of the definition. "We're not out to harm our grantee community in any way here," she says, adding that "our interpretation is evolving as we recognize areas that are ambiguous." The agency expects to offer guidance within a few months on which behavioral studies will now be called clinical trials. ■

## WOMEN IN SCIENCE

# Gender discrimination lawsuit at Salk ignites controversy

Institute's critique of plaintiffs' science comes under fire

By Meredith Wadman

**A**lleging decades of gender discrimination, two senior female scientists last week sued the Salk Institute for Biological Studies, sparking a public relations debacle that has engulfed the venerable institution and could threaten its appeal to donors and new researchers. Leaders of the San Diego, California, research center have strenuously denied the allegations made by biologists Vicki Lundblad and Katherine Jones, and publicly questioned their productivity and the quality of their scientific work.

The case has divided the institute's staff, and Salk's statements about the women have drawn social media dismay and rebukes from prominent biologists, including Nobel laureates. "The fact that an institution would treat its own distinguished faculty in this way is very disturbing," says Nancy Hopkins, professor emerita of biology at the Massachusetts Institute of Technology (MIT) in Cambridge, who in the late 1990s led a groundbreaking review of MIT's treatment of its female faculty.

Salk President Elizabeth Blackburn said in a statement that she is "saddened that an institute as justly revered as the Salk Institute is being misrepresented by accusations of gender discrimination. ... I would never

preside over an institute that in any way condoned, openly or otherwise, the marginalizing of female scientists."

Perched on an oceanside campus, Salk is a storied hub of biology founded 57 years ago by polio vaccine pioneer Jonas Salk. It has a scientific staff of more than 600 and spent nearly \$117 million in 2015 to support research into topics including aging, cancer, and brain science. Blackburn, a Nobel laureate, became Salk's leader in January 2016.

In a pair of lawsuits filed 11 July in California Superior Court in San Diego, Lundblad and Jones seek unspecified compensation for an array of harms. Lundblad, 64, is a cell biologist who made her name studying telomeres, the structures that cap chromosomes. She has been at the institute since 2003. In 2015, Lundblad was elected to the National Academy of Sciences. Jones, 62, is an expert in transcription elongation, a process relevant to HIV infection and cancer; she has been at Salk since 1986.

Both are tenured professors at Salk, which has five tenured female faculty, including Blackburn. (A sixth, Yale University immunologist Susan Kaech, will join the institute in early 2018.) Salk has 28 tenured male professors.

Lundblad and Jones allege that Salk administrators have for years disparaged their work, shut them out of advancement oppor-



Katherine Jones (left) and Vicki Lundblad say gender discrimination at the Salk Institute damaged their careers.

tunities, pressured them to shrink their labs, and prevented them from being considered for lucrative grants. Jones alleges these actions fueled a “vicious cycle” of shrinking labs, declining productivity, and dwindling funding. In one example, Lundblad claims that she, Jones, and a third tenured woman at Salk received none of a \$42 million gift to support genomics research, although they worked in the field; 11 labs run by men received most of the money, she claims. The women also claim Salk’s hiring and compensation practices are opaque and leave women at a disadvantage. Salk has not promoted a woman from associate to full professorship since 1999, Jones alleges. “Salk has allowed an ‘old boys club’ culture to dominate, creating a hostile work environment for the Salk tenured women professors,” Lundblad claims.

Lundblad alleges that a group of “senior men”—she names cancer biologist Inder Verma as an example—has repeatedly verbally disparaged the institute’s senior female scientists. (Verma did not respond to requests for comment. The institute notes he played leading roles in hiring Lundblad and Kaech.) “Even Dr. Blackburn ... one of the most accomplished scientists in the world, has not been immune to ... judgmental comments about her abilities to function as Salk’s president,” Lundblad states.

On 14 July, Salk released a statement saying Lundblad and Jones “have been treated generously by the Institute, including relative to their male peers. ... Each scientist’s lucrative compensation package is consistent with well-recognized metrics that have been applied to all Salk faculty.”

Hours later, with Blackburn’s approval, the institute issued comments on the scientific records of the two women. It had “invested millions of dollars” in each scientist, Salk stated, but a “rigorous analysis” showed each “consistently ranking below her peers in producing high quality research and attracting” grants. Neither has published in *Cell*, *Nature*, or *Science* in the last 10 years, it said. Lundblad’s salary “is well above the median for Salk full professors (\$250,000) ... yet her performance has long remained within the bottom quartile of her peers.” The institute wrote that Jones’s salary, in the low \$200,000 range, “aligns” with salaries at top universities, although she “has long remained within the bottom quartile of her peers.”

Salk declined to make its analysis public. It also declined to release a 2003 report on Salk’s treatment of female faculty written by an internal panel that included Jones, as

well as 2016 “white papers” on the same subject by Jones and cancer biologist Beverly Emerson, another tenured female professor.

Salk’s statements infuriated some scientists, who rushed to Lundblad and Jones’s defense. “I am really surprised that [Salk] decided to litigate this in public using personal criticisms of the scientists,” says geneticist Steve Elledge of Harvard Medical School in Boston, a longtime colleague of Lundblad’s who calls her science “brilliant.” He and others argue that publishing in prestigious journals is a flawed measure of scientific success. Salk’s statements about Lundblad are a “character smear,” tweeted telomere biologist Carol Greider, a Nobel laureate at Johns Hopkins University in Baltimore, Maryland. Lundblad is “one of the top leaders in the field” and “not in the bottom quartile of anything,” Greider says.

“The idea that [Jones] is anything like a second rate scientist is absolutely wrong,” says biologist Phillip Sharp of MIT, a Nobel laureate. She “is a very accomplished, deep thinking, highly rigorous, no-BS [bullshit] research scientist,” adds biochemist Robert Tjian of the University of California, Berkeley, former president of the Howard Hughes Medical Institute (HHMI) in Bethesda, Maryland.

Reaction among other senior female scientists at Salk was mixed. Plant

biologist Joanne Chory, an HHMI investigator, stated that “the Salk has provided me with the facilities and resources that I needed to flourish as a scientist,” adding that her discoveries “would not have been possible anywhere else.”

The lawsuit is “entirely appropriate,” Emerson says. Her own experience, those of Lundblad and Jones, and “unbiased data show that the situation at Salk for senior women faculty is grim on many levels, resulting in a slow death even for the strongest individuals,” she says.

Jones’s lawsuit states that she, sometimes with Lundblad and Emerson, met with Blackburn several times early in 2016 to discuss the alleged gender bias. “Since that time, Salk has continued its discriminatory practices,” her lawsuit claims. “In President Blackburn’s defense,” says Emerson, “I think she first wanted to stabilize the finances of the institute before tackling other longstanding problems. But these problems keep being punted forward for decades.”

For Hopkins, the Salk controversy is causing some déjà vu. The current allegations, she says, “are the kinds of things that women experienced 20 years ago when we did the MIT report.” ■

## ARCHAEOLOGY

## The first Australians arrived early

65,000-year-old tools suggest very ancient migration out of Africa

By Ann Gibbons

**A**s archaeologist Chris Clarkson was excavating a rock shelter in northern Australia one day in 2015, May Nango of the aboriginal Mirarr group brought her grandchildren to look at the pit. She pointed to a spot near the back wall of the red sandstone cliff and told the children that it was a wonderful place for their ancestors—the “old people”—to sleep 65,000 years ago, says Clarkson of the University of Queensland in Brisbane, Australia.

Nango’s tale was more than an aboriginal “dreamtime” story. She was one of the first to hear from Clarkson’s team about new scientific dates for the Madjedbebe rock shelter in Australia’s Arnhem Land, a region the Mirarr still call home. The dates, based on new excavations and state-of-the-art methods, push back the earliest solid evidence for humans in Australia by 10,000 to 20,000 years and suggest that modern humans left Africa earlier than had been thought. Published this week in *Nature*, the findings also hint at when modern humans interacted with other archaic humans.

This early date will force the field to “rethink fundamentally the whole issue of when our species started to colonize Asia,” says archaeologist Robin Dennell of the University of Sheffield in the United Kingdom.

The timing of the peopling of Australia has been contentious for decades. Many archaeologists split into two camps, favoring settlement either 60,000 years ago or sometime after 50,000 years ago, depending on whether they trusted the dates from certain sites (see map, p. 239). Last year, geneticists analyzing DNA from living Aborigines joined the fray, but they came up with a wide range of dates, from 50,000 to 70,000 years ago.

The Madjedbebe rock shelter, formerly known as Malakunanja II, has always been central to the issue. Known for its striking rock art, researchers proposed in 1989 that the shelter was the oldest hu-

### “Salk has allowed an ‘old boys club’ culture to dominate.”

Vicki Lundblad’s lawsuit

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*Science* **357** (6348), 237-238.  
DOI: 10.1126/science.357.6348.237

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