

Scientists Struggle in Stem-Cell Work

By GAUTAM NAIK
AND ALEXANDER MARTIN

Scientists say they are struggling to replicate a new approach for creating stem cells, raising further questions about the breakthrough technique whose announcement garnered international attention.

The experiments have come under increased scrutiny after Japan's Riken research institute opened an investigation last week into whether there were any irregularities in images used in two papers describing the stem-cell technique using mouse cells.

Several laboratories now report that their initial efforts to duplicate the experiments have failed.

Like many scientists who rushed to try the approach, Yoshiyuki Seki of Kwansai Gakuin University's School of Science and Technology in Japan thought it would be simple. But he couldn't get it to work with mouse cells. "It may be the case that

it only works when various conditions are perfectly satisfied, or there may be some processes not mentioned in the article," he said.

"We tried it on human cells, and so far it hasn't worked," said Jeanne Loring, director of the Center for Regenerative Medicine at the Scripps Research Institute in La Jolla, Calif. "That's consistent with what other people have found" in their initial efforts to replicate the experiments, she added.

The original results appeared in January in two studies published in the high-profile journal *Nature*. They caused a stir because they described how mouse blood cells could be rapidly changed into an embryonic-like state simply by dipping them in a mild acid solution. The ease and speed of the technique promised to offer a far better route for making patient-specific tissue to potentially treat a range of diseases.

Paul Knoepfler, a stem-cell researcher at the University of Califor-

nia, Davis, runs a blog that is documenting efforts by various labs to replicate the findings. At least nine have said they couldn't do so, according to Dr. Knoepfler.

In addition, about a half-dozen "top notch" labs had privately disclosed to him their failed efforts to replicate the findings, he added.

Many of the labs' replication efforts may not have worked simply because they weren't following the exact protocols described in the *Nature* papers.

Even so, "it looks like it's not such a simple technique at all," said Dr. Knoepfler. That could undermine the main appeal of the method—the apparent ease with which it is supposed to work.

The controversy began when some outside researchers noticed anomalies in several images in the *Nature* papers. In response, Riken opened its investigation. The journal *Nature* says it also is investigating the matter.

