

# nature biotechnology

VOLUME 20 • NO 1 • JANUARY 2002

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## Publish and be damned

The festive season traditionally serves up fare that wreaks havoc on the digestive system. However, the fodder served up by privately held biotechnology company Advanced Cell Technology last November virtually guaranteed heartburn and dyspepsia for those of us committed to the progress of biotechnology research. The ludicrous manner in which the Worcester, MA, company presented its data on the “first human clones” should serve as a warning to all companies that intend to publicize their research and influence the debate on controversial biotechnologies.

The debacle started in early November. For reasons that should not be difficult to guess (speed being one of them), the team at ACT elected to publish its results in the electronic journal *e-bio-medic: The Journal of Regenerative Medicine*. The paper was peer-reviewed by two independent experts, underwent minor modification, and was published just two and a half weeks later on Sunday, November 25. The same day, online stories appeared in two popular magazines, *US News World Report* (a weekly news magazine), and *Scientific American*.

The warped presentation of the results can hardly be understated. The results of the ACT research were described by the media and ACT alike as the “the hugest medical breakthrough of the past half century,” “the dawn of a new age in medicine,” and a breakthrough that brings “therapeutic cloning within reach.”

It is hard to reconcile the comical media coverage with the preliminary data presented in the electronic paper. Essentially, ACT carried out three failed rounds of experiments and one “successful” round on 71 eggs obtained from seven human volunteers to generate the “first human clone”. Of the 22 eggs activated using parthenogenesis, only six developed to the eight-cell stage. Of the 17 nuclear transfer experiments, only three of the eggs divided, and only one of these developed to the six-cell stage. All eggs failed to grow further, let alone reach the 100-cell stage required to form a blastocyst capable of developing into a human embryo.

Despite ACT’s claims that it had provided the “first proof that reprogrammed human cells can supply tissue for transplantation,” no stem cells were, or indeed could be, harvested from these “clones”. In fact, the clones revealed very little of scientific importance. And certainly, they will not be leading to miracle cures anytime soon.

So why launch a campaign to publicize results of relatively dubious scientific value on an issue as sensitive as cloned human embryos? And why the rush to publicize results? According to

reports, ACT CEO Michael West thought it was important that companies carrying out research on therapeutic cloning should disclose as much information as possible and as soon as possible. He is looking for “total transparency and integrity.” He believes that the United States is poised to bring in legislation that would ban all forms of human cloning. That left ACT with “no choice” but to rush out the paper and launch a PR offensive.

West may very well be right about the prospects for an outright ban on human cloning, whether reproductive or therapeutic. But the blame for that must lie at his door, at least in part. Within hours of the PR offensive, pro-life groups were talking about moral Rubicons. President Bush took time out from tackling the Taliban to announce he was “100 percent opposed to any type of human cloning.” He urged the Senate to enact anti-cloning legislation. He declared renewed resolve to accelerate the formation of a bioethics

council, which will be spearheaded by Leon Kass, a vehement opponent of cloning. Anti-abortion activists led by Senator Sam Brownback of Kansas proposed a comprehensive ban on all cloning experiments and called for greater regulation of private biotechnology companies carrying out “secretive and unethical” research.

Indeed, the US House of Representatives has already voted to make any attempt to clone a human a criminal offense punishable by a \$1 million fine and up to 10 years in prison. The only reason this law is not now being implemented is that the Senate has not yet debated the issue. In the UK, the

government rushed through emergency legislation with the aim of making it a criminal offense to implant cloned embryos (see p. 9). Thanks to ACT and the new millennium’s fastest peer-review and publication journal possible, we can no longer hope for a sensible and thoughtful political debate of the issues. Instead we look forward to a total ban on all forms of human cloning.

One sad sidebar to this already sad story is that the one place where ACT might have found a useful ally in broadcasting its message (if indeed it really has one)—the US Biotechnology Industry Organization—was left completely “out of the loop” (to borrow the words of the genetic father of the US President). According to *BioCentury*, BIO president Carl Feldbaum became aware of events only when ACT contacted him just before the US Thanksgiving holiday, leaving scant time to prepare for the media circus that began on November 25. We can only hope that the Christmas season and New Year bring better news. It certainly has been a bleak midwinter for cloning.

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