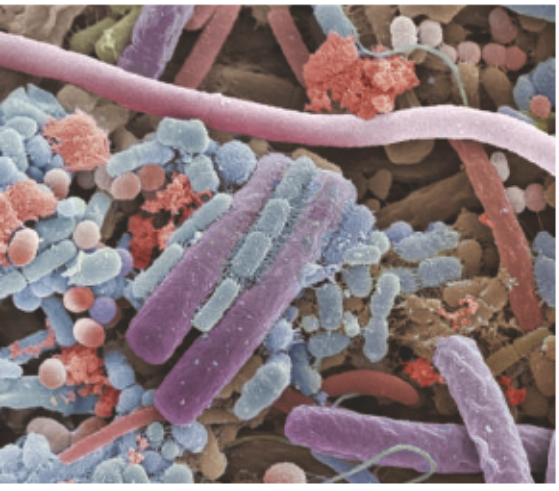
reductions will protect humans. Just ten cells of O157 are enough to infect a person, compared with hundreds of thousands needed for a *Salmonella* or cholera infection. "It's a very different standard for foods to meet," says James Kaper, an *E. coli* expert at the University of Maryland, Baltimore. He notes that irradiation would rid food of the bacteria but that the public, food industry and food-safety regulators have been reluctant to adopt it.

So researchers are also working on treatments, for example with antibodies that inactivate the toxin. (Antibiotics aren't recommended for *E. coli* because by the time the infection is diagnosed, the bugs have usually released so much toxin that killing them doesn't help.) But researchers admit that the demand for such drugs is likely to be low.

Perhaps an underestimated problem are other pathogenic *E. coli* strains, including O26, O111 and O145. These can also cause serious food poisoning but are more likely to go unnoticed, because lab tests are more difficult or not routine. These strains are more common outside the United States; in Italy, for example, most cases of *E. coli* food poisoning probably go undetected, says Alfredo Caprioli, who directs the *E. coli* reference lab at the Istituto Superiore di Sanità in Rome. There is intense interest in finding the exact combination of genes that make strains harmful to humans and quick ways to test for them.

Ultimately researchers must find the critical points in the food supply at which intervention can most reduce contamination, says food scientist Don Schaffner of Rutgers University, New Jersey. "Obviously we haven't studied it enough to solve the problem." ■

Helen Pearson



S. GSCHMEISSNER/SPL

Fellow travellers: the European Union will fund studies of humans' vast microbial flora.

PLANS FOR 2007?
Share your thoughts and plans for the new year.
http://blogs.nature.com/news/blog/2006/12/plans_for_2007.html

Open-access journal will publish first, judge later

A radical project from the Public Library of Science (PLoS), the most prominent publisher in the open-access movement, is setting out to challenge academia's obsession with journal status and impact factors.

The online-only *PLoS One*, which launched on 20 December, will publish any paper that is methodologically sound. Supporters say the approach will remove some of the inefficiencies associated with current peer-review systems — but critics question whether a journal that eschews impact factors will manage to attract papers.

Among the 90 or so papers in *PLoS One* at its launch are reports on the meaning of wild gibbon songs and a mathematical model of rabies control. The authors of both papers say they chose *PLoS One* because they support open access, and because they wanted to be part of something new. "I think we're seeing one of the future directions of scientific publishing," says Colin Russell, a zoologist at the University of Cambridge, UK, and an author of the rabies paper.

> "We're trying to make a journal where papers are not the end point, they are the start of a discussion."

Every paper submitted to the journal is reviewed by at least one member of *PLoS One*'s editorial board of over 200 researchers, but only to check for serious flaws in the way the experiment was conducted and analysed. In contrast to almost all other journals, referees ignore the significance of the result. Notable papers will instead be highlighted by the attention they attract after publication.

Visitors to the *PLoS One* website can, for example, attach comments to specific parts of a paper and rate the paper as a whole. Data from those systems, as well as download and citation statistics, will then allow *PLoS One*'s editors to identify and promote the papers that researchers are talking about. "We're trying to make a journal where papers are not the end point, they are the start of a discussion," says *PLoS One* managing editor Chris Surridge, based in Cambridge, UK.

The journal will initially publish 10–15 papers a week, but this could reach a few hundred each month, says Surridge. The system makes sense, he says, because a single review process avoids the time wasted when papers are rejected from high-ranking journals and reviewed again elsewhere. Others add that the journal's decision to accept papers from all areas of science could benefit authors of interdisciplinary studies, whose work is often rejected by subject-specific journals.

But *PLoS One* faces some significant challenges. Many new journals struggle to attract papers until they are given an impact factor (a measure of the citations its papers receive), but a journal that accepts everything can't usefully be classified in this way. Critics also point out that referees may be reluctant to review potentially trivial papers, and that existing journals have had little luck persuading readers to comment on papers after publication.

Yet Surridge is bullish about his journal's chances. He thinks referees will appreciate the approach, as it will cut the number of reviews that scientists as a whole have to make. He adds that existing attempts to encourage comments don't reflect the way scientists actually read papers — something he aims to remedy by allowing visitors to highlight and annotate different sections of text. Surridge also says that other systems offered little reward to researchers; *PLoS One* will allow comments to be rated by others, letting users establish status accordingly.

Rival publishers have suggested that *PLoS One* is an attempt to prop up PLoS's finances (see *Nature* 441, 914; 2006). At present, PLoS relies on annual philanthropic donations of several million dollars to break even. The only similar open-access publishing venture — the online-only journals run by BioMed Central — is only now close to breaking even, six years after launch. But Surridge shrugs off the criticism, saying that *PLoS One* is designed to meet PLoS's aim of making scientific literature freely available. ■

Jim Giles