ALAMY

ONE GENE BETWEEN DOGS BIG AND SMALL?
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Kudos, not cash, is the real X-factor

Since the success of the initial Ansari X Prize competition to create a reusable private spacecraft, technology competitions are popping up everywhere, offering millions of dollars in prizes. So can such financial incentives really revolutionize a field? Supporters say they can, but forget about the money — the real prize is publicity.

This week's X Prize Cup, scheduled to begin on 20 October, is the latest instalment. The two-day festival in the New Mexico desert will feature three competitions, including a NASA-sponsored lunar-lander contest and more than US$2.5 million in prize money.

NASA has issued a series of challenges to improve everything from elements of the proposed space elevator to the gloves that astronauts wear in space. And the US House of Representatives recently passed a bill to create the H Prize, complete with a $10-million reward, to encourage the development of technology for hydrogen-powered vehicles. "We were directly inspired by the X prize," says Congressman Bob Inglis (Republican, South Carolina), who sponsored the H Prize bill.

Meanwhile, the X Prize Foundation has announced its own latest challenge, offering $10 million to the first private team to sequence 100 human genomes in 10 days. The Archon X Prize for Genomics, launched on 4 October, is meant to stimulate technology that will bring down the cost and time of sequencing, accelerating the development of personalized medicine tailored to individual genomic attributes.

As with the first X prize, those chasing the genomics award will probably invest much more than $10 million. The true pot of gold is not cash, but publicity and a head start at grabbing a slice of a growing market.

"The prize is really not the X prize," says Steve Lombardi, senior vice-president of marketing at Helicos BioSciences, a sequencing company based in Cambridge, Massachusetts. "It's that this is going to put these sorts of ideas in front of the general public." Inglis agrees, adding that he hopes private contributions will boost his H prize to $50 million: "I think having a more substantial prize makes it more interesting to the public."

The details of the latest X prize diverge somewhat from the model established by the first competition. That was created to fill a clear hole in the private sector, but personalized medicine has been receiving media attention for years. The genome-sequencing industry is littered with companies large and small, and venture capital has already shown an interest in advanced sequencing technology. For the past two years, the US National Institutes of Health (NIH) has been funding 'revolutionary' sequencing programmes with the aim of one day developing technology to sequence individual genomes for only $1,000.

A. WONG/GETTY/NEWSCOM

X marks the spot: the first private team to sequence 100 human genomes in 10 days will win $10 million.

Geniuses and mavericks

Kathleen Wiltsey, executive director of the Archon X prize, acknowledges that a sequencing industry already exists, but says it still needs the stimulation the prize would bring: "Given the scale of the task and all the directions this can take, the industry is really underscaled for the demand."

The prize will also capture the interest of people who weren't necessarily thinking about sequencing before, she adds. "The idea of the prize draws a lot of attention. It draws geniuses and mavericks out of the woodwork."

George Church, director of the Lipper Center for Computational Genetics at Harvard Medical School in Boston, Massachusetts, who is on the advisory board for the Archon prize, thinks the winner will probably be someone from an established company that has deep pockets. "Everybody who's serious about it is already getting NIH money or venture capital," he says.

But some are more optimistic about attracting attention. "I think it will encourage people to enter this field," says Amit Meller, a bioengineer at Boston University who has been trying for nine years to use nanotechnology to speed up sequencing. "There are many others out there who are working quietly, and now they may start to be more aggressive."

One point everyone agrees on is the power of the X-prize model to focus public attention on the social and political issues surrounding a field. For the H prize, that means energy policy, says Inglis; for the latest X prize, it's how to interpret and protect genomic information.

Francis Collins, director of the US National Human Genome Research Institute, has seized this opportunity to voice his concerns about protecting the privacy of genomic information. Genomics entrepreneur Craig Venter, on the other hand, has used his time in the spotlight to talk about the need to educate the public about the fallacy of genetic determinism.

Church adds that other industries will also start thinking about how to capitalize on the coming flood of genomic sequences. "This will make downstream users start thinking about it ahead of time," says Church. "It's like having a contest for Internet browsers back in 1992." ■

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