

There's a gene named after Sonic the Hedgehog

SEGA'S SONIC THE HEDGEHOG is one of the world's most recognisable video game characters, alongside Nintendo's Mario, Namco's Pac-Man and Eidos Interactive's Lara Croft, of the *Tomb Raider* series. Ever since his first appearance in 1991, the little blue creature has been battling Dr Eggman (also known as Dr Robotnik), in numerous games such as *Sonic the Hedgehog*, *Sonic Adventure*, *Sonic Heroes*, *Sonic Advance* and *Sonic and the Secret Rings*, as well as appearing in various related titles such as *Sonic Riders*, *Sonic Shuffle* and *Sonic Pinball Party*, and his multimedia empire encompasses comics and animated TV series. When not busy shuffling and partying, he's also apparently running around in your body, because there is a gene called Sonic Hedgehog (symbol: SHH).

The frivolous-sounding name does not mean that SHH is some obscure protein that geneticists don't really bother with; on the contrary, it has been widely studied and plays an important role in human tissue development.

Sonic Hedgehog is one of three homologues (equivalent genes in mammals) of an original Hedgehog gene that was first identified in fruit flies during the 1970s by Christiane Nüsslein-Volhard and Eric F. Wieschaus, who were later awarded the Nobel Prize in Physiology or Medicine for their work. The original protein was so named because of the fact that mutations in the gene caused some fruit fly larvae to be stubby in shape and covered in a solid patch of spiky denticles (rather than being long and thin, with regular bands of denticles).

As researchers sought equivalent genes to help explain how the human embryo develops, they first identified two homologues which they named after species of hedgehog: Desert Hedgehog (DHH) and Indian Hedgehog (IHH). When a third homologue was discovered by Cliff Tabin's team at Harvard Medical School in the 1990s, it was originally to be called the Common European Hedgehog. However, Tabin's colleague Robert Riddle, who had first cloned the gene, asked for it to be named after the video game character, apparently after seeing it in his daughter's copy of the British *Sonic the Comic* magazine. Those wacky scientists – the next thing you know, they'll be wearing Daffy Duck socks!

VERDICT: TRUE

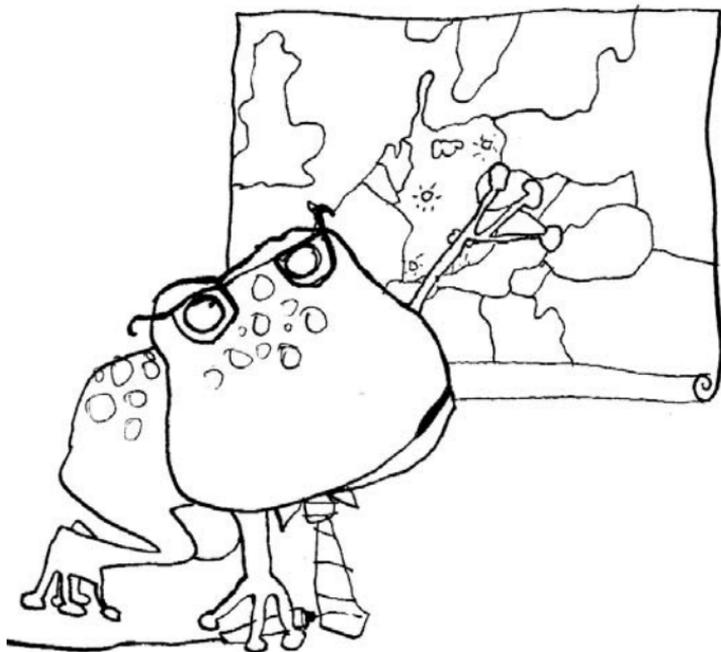
The video game character got his name because he can run faster than the speed of sound and because, er, he's a hedgehog (albeit one who wears gloves and doesn't look anything like a hedgehog).

In Germany they used to predict the weather with frogs

WHO CARES WHAT THE WEATHER'S going to be like? Yes, in the longer term, future weather trends over years and decades are of interest, and some of the predictions about global warming are more than a little alarming, but when it comes to what it's going to be like later on today and tomorrow, really, who cares? It's going to rain. Well, you still have to go to work. It's going to be sunny. It doesn't change the fact that you have to drive over to Aunt Patricia's to pick up that camera she borrowed while you

were away on business. Yes, the weather forecast might affect whether you take an umbrella or your sunglasses, but seriously, does that justify the five minutes of insufferable blather about occluded fronts that seems to round off every news bulletin?

Not to mention the sponsorship. Yeah, sponsor the weather, great idea. And use a slogan, any slogan, as long as it ends in the unimaginative 'whatever the weather'. 'Acme Toasters: brightening your breakfast, whatever the weather'; or 'Acme Cars: comfort and safety, whatever the weather.' We get the idea. *Think up something else, you lazy advertisers, just for once.* The sponsorship



takes up as much time – and is as irritating and useless as – the weather itself.

Admittedly, if you're a farmer, sailor or gardener or you live in a hurricane zone, you may feel rather differently. In which case, when they do finally scrap weather forecasts, you might turn to any number of animals that can predict changes in the weather, especially if you live in Florida, where hurricanes are obviously quite a concern. In 2004 scientists at the University of Florida in Gainesville noticed butterflies taking shelter several hours before Hurricane Jeanne hit the city. As Tropical Storm Gabrielle approached the Florida coastline in 2001, scientists at Mote Marine Laboratory observed that all thirteen blacktip sharks they were monitoring in Terra Ceia Bay abruptly headed out to the open waters to avoid the storm's path. When Hurricane Andrew struck a power plant in Miami-Dade County in 1992, all the crocodiles living in the plant's cooling canals survived – but biologists don't know how. Alligators, on the other hand, aren't quite so smart: after a hurricane passed over Lake Okeechobee in 2004, a large number of dead alligators were found washed up on the shore – probably because they were hiding in trees (see p. 31).

Scientists believe that some animals' apparent ability to sense imminent changes in the weather is the result of detecting variations in air pressure: a drop in pressure usually signals bad weather, so the animal takes some kind of action to keep out of trouble, whether that's fleeing, hiding or (in the case of some bird species) delaying migration to a particular area. With dolphins and other sea creatures, in addition to the knock-on effect of decreasing air pressure affecting water pressure, changes in the

ocean's salt levels and disturbance caused by distant heavy rainfall may also play a role.

So what about frogs? At least two centuries after Evangelista Torricelli's 1643 invention of the mercury barometer should have made them redundant, frogs really were still being used as early-warning systems in various countries, because certain species start croaking furiously, climbing downwards or burrowing underground when the air pressure drops. The use of frogs was particularly widespread in Germany, where the word *Wetterfrosch* ('weather frog') emerged specifically to denote a type of barometer in which a tree-frog would climb up and down a small wooden ladder in a glass jar: the higher up the ladder the frog was, the better the weather was going to be. The word *Wetterfrosch* is used in Germany to this day as an alternative word for *Laubfrosch* (the European tree-frog), as well as an informal term for a weatherman.

VERDICT: TRUE

At the 1851 Great Exhibition in London, the improbably named George Merryweather displayed his Tempest Prognosticator, a bizarre device in which a 'jury' of twelve leeches were placed into water-filled glass jars; when the air pressure dropped, one or more leeches would climb out of their jars, thereby knocking pieces of whalebone out of position, which in turn caused hammers to strike a bell.