

We have the right stuff to sense magnetic fields

Sea turtles, pigeons and honeybees are among the animals that have an incredibly useful skill we don't possess – they can sense the Earth's magnetic fields with their bodies. But perhaps our magnetovision is just latent – when a light-sensitive protein was transferred from humans to fruit flies, the insects adopted the protein for their own magnetovision.

[Steven Reppert](#) of the University of Massachusetts in Worcester and his colleagues study cryptochromes – light-sensitive proteins that regulate the circadian clocks of many creatures. Reppert knew that cryptochromes also help fruit flies and birds sense the Earth's magnetic fields, and he wanted to see whether human cryptochromes could do the same thing. To find out Reppert replaced those found in fruit flies with a human version, hCRY2, which is found in the retina.

The mutant flies were trained to associate a sugar reward with a magnetic field. When given the option to fly down either a magnetised or non-magnetised arm of a maze they opted for the magnetised one. Flies genetically engineered to lack cryptochrome altogether were indifferent to the magnetic field in one arm and were evenly distributed down both arms of the maze. Apparently, fruit flies have no problem using human cryptochrome to sense magnetic fields, which implies humans have the hardware to do the same, but for some reason do not activate the ability, says Reppert.

[Klaus Schulten](#) of the University of Illinois at Urbana-Champaign, who was not involved in the study, is surprised by the results. But he does not expect future research to reveal we have a hidden superpower. "If we could sense the Earth's magnetic field we probably would know about it by now," he says.

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