

### Snail-inspired superglue

By Charlotte Edwards

- 1 A new type of superglue has been invented by scientists who were inspired by sticky snail mucus. The researchers have demonstrated how the super strong product can hold the weight of an average male with only two postage stamp-sized squares of the substance. The new glue has overcome problems that have stumped scientists for decades as glue has either been weak and reversible or strong and irreversible for such a long time that a substance being strong and reversible seemed almost impossible.
- 2 Scientists at the University of Pennsylvania realised that mollusc creatures like snails seem to have the answer as they can securely attach themselves to surfaces even in the harshest conditions and then release themselves when they need to move. Snails can change the mucus that they naturally produce from a solid to a liquid very quickly and that's why they are the perfect example.
- 3 The snail-inspired superglue was created from a hydrogel that contains a lot of liquid water, which has a runny wet state and a solid dry state. To soften the new superglue all you need to do is add water so that it becomes hydrated again. The researchers have even demonstrated how the glue can be applied and then gently removed from butterfly wings without harming any wing tissue. The substance dries naturally in the air and will dry quicker if it's heated. Unfortunately, the nature of the glue means it can only be used in dry environments but the scientists are now looking for new strong substances that can be softened without water but with things like electrical pulses or specific chemicals.
- 4 Reversible superglue would make life much easier for people prone to DIY mistakes and for medical staff who have to get people out of sticky superglue situations on a regular basis.



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