

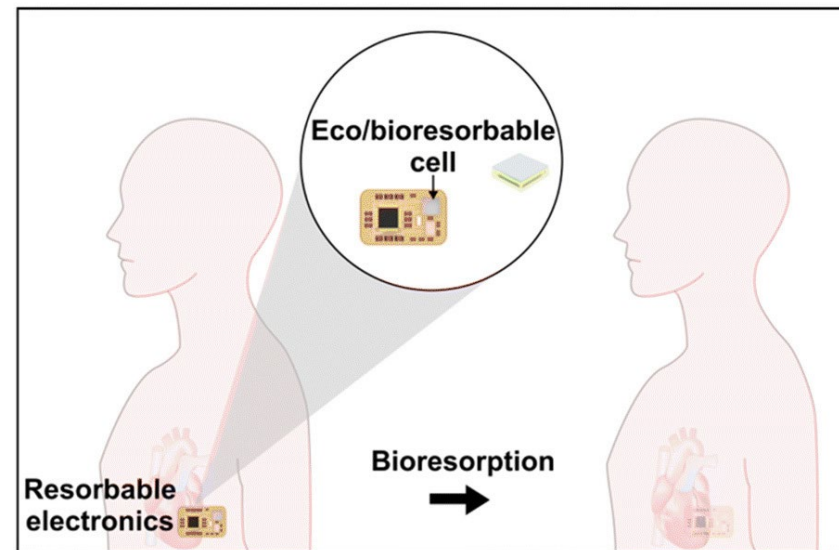
Biodegradable batteries

Written by Neil Goalby. Available from rsc.li/3sBfU7N

Scientists have developed batteries that can be absorbed by the environment after they have worked for a short amount of time.

The team used magnesium and iodine electrodes, which are biodegradable. They found that putting all the components in one vessel like a traditional battery led to low performance. The magnesium got surrounded by hydrogen bubbles and the iodine quickly polluted the system.

To solve this problem, they separated the electrodes, putting the magnesium anode outside the battery pouch. They used a viscous ionic electrolyte to slow the iodine leaching and ensure the hydrogen bubbles produced on the anode were freely dispersed. The batteries could be used to power temporary cardiac pacemakers.



© John Rogers/Northwestern University

The battery could dissolve after powering a temporary cardiac pacemaker

Questions

1. Suggest why the battery could be useful.
2. Explain why the electrolyte needs to be ionic.
3. Write a half equation to show magnesium metal oxidising to form magnesium ions.