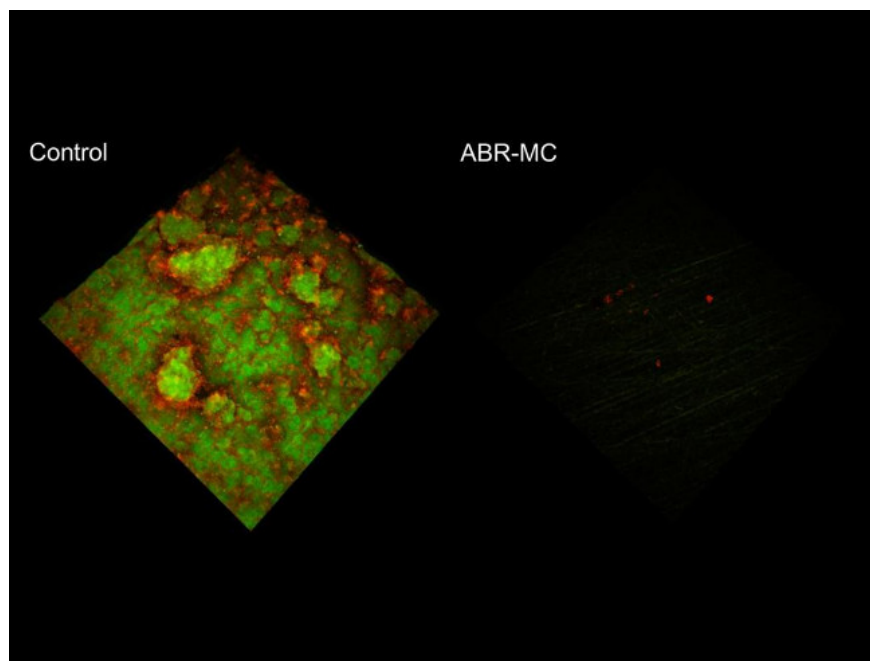


# New dental materials help prevent plaque, kill bacteria

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Before, some dental materials used to cure tooth decay can cause some problems. In it, the sticky membranes of bacteria known as plaque can be easily built on the surface of the enamel; and once there are acid-producing bacteria that can attack yeast, cause some dental health problems. Recently, researchers at the University of Pennsylvania have developed a dental material that they think will overcome some of the drawbacks.



Research groups say previous efforts to create anti-plaque dental materials have focused on incorporating a drug active ingredient into the material, but this may have effects. unwanted side.

The amount of medicine in the material needs to be quite high, and this can damage the cells. Furthermore, combining these compounds into materials can weaken its structure, making the bactericidal function of the material not as effective.

Geelsu Hwang, a researcher at Penn Medical School, who collaborated on the project, said: *"Such biological materials need to achieve two goals. First, they should kill pathogenic bacteria. effective way, and secondly, they need to withstand high, continuous mechanical pressure as we bite and chew . "*

Hwang helped the team follow a different approach. Instead of using a drug, they use an antimicrobial agent, imidazolium, that can be attached to the structure of the material and not removed. Imidazolium kills exposed bacteria, so it is still effective despite the effects of mechanics.

The material used imidazolium attached to polymerized resin through a carbonate bonding group, combined into a mixture of methacrylate (acrylic). During tests, the cell killed the Streptococcus mutans cells that caused plaque, contact and prevented the bacteria from forming a sticky biofilm. Only a small amount of bacteria can stick to the material, and any buildup can be washed away easily.

Hwang said: *"Force equivalent to drinking water can easily remove biofilm from this material. The non-cleaning properties of antimicrobial agents also reduce the ability of bacteria to develop resistance."* he added.

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