

Edible circuits: Food-fueled batteries could be safely used inside the body to power the future

Researchers have started crafting edible circuits and sensors that can be used in the body. But such devices need a power source to be effective. Now, a new rechargeable battery gets its juice from food (*Adv. Mater.* 2023, DOI: [10.1002/adma.202211400](https://doi.org/10.1002/adma.202211400)).

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Such electronics could safely sense inside our bodies, for instance, tracking pH or temperature in the gut, says Mario Caironi, an electronics engineer at the Istituto Italiano di Tecnologia. "You don't have to worry about the fate of this device," he says. An entirely edible device could degrade in the body or be digested. That's in contrast to [ingestible electronics](#) that contain potentially harmful components and need to be recovered before becoming electronic waste.

Caironi and his team used grocery items for several of their cell's ingredients, including sushi seaweed and edible gold foil. For the battery's energy-generating reactions, they looked to food-derived redox cofactors, such as the food additive indigo carmine. Redox cofactors are molecules that play roles in organisms' biochemical energy generation, says Ivan K. Ilic, a chemist who was part of the work while at Istituto Italiano di Tecnologia.

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