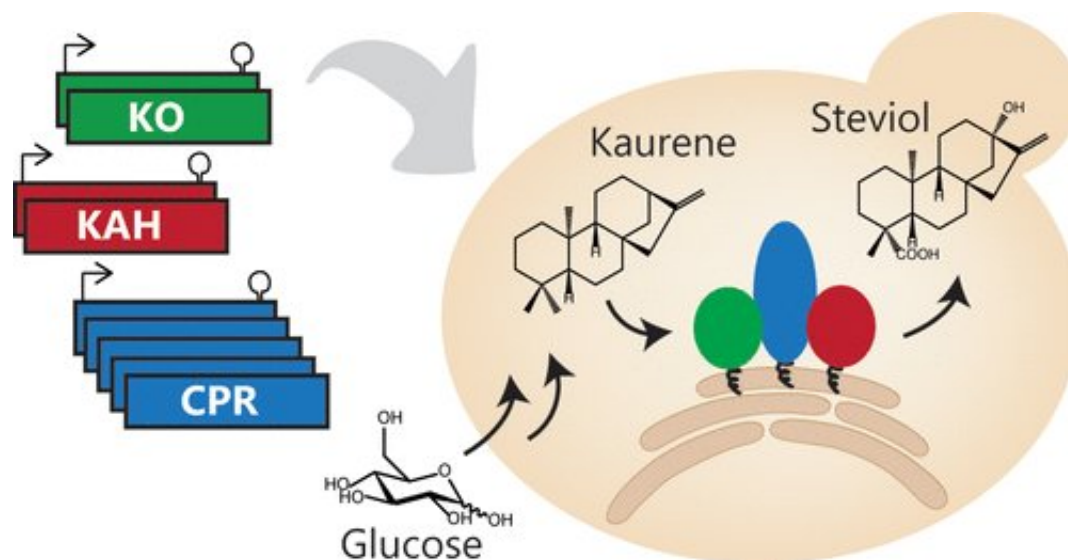


Getting yeast to make artificial sweets

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Credit: American Chemical Society

The holiday season can be a time of excess, but low- or no-calorie sweeteners could help merry-makers stay trim. Stevia is a zero-calorie sweetener that is sometimes called "natural" because it is extracted from the leaves of a South American plant. Now, a report in *ACS Synthetic Biology* describes a way to prepare large quantities of stevia using yeast, which would cut out the plant middleman and could lead to a better tasting product.

In the stevia plant, a series of enzymes turn glucose into molecules called glucosides that retain sugary sweetness without the calories. The plant produces a variety of glucosides, but some have a bitter aftertaste.

Others are minor glucosides in the plant, but because of their pleasant properties, they could be developed into next-generation sweeteners. So, to make a sweeter sweetener and to make lots of it, Vincent J.J. Martin and colleagues wanted to take the glucoside-making machinery out of the plant and into yeast, where they could more easily tweak enzymes to optimize stevia production.

The researchers created a platform for testing [enzyme](#) combinations to see which mixture produced the highest yield of stevia molecules in yeast. They started with the enzymes from the [stevia](#) plant, but also used some related enzymes from a plant in the mustard family, which improved yield. The authors say that their results represent a step toward the commercial production of a new generation of better-tasting no-calorie sweeteners.

More information: Nicholas D. Gold et al, A Combinatorial Approach To Study Cytochrome P450 Enzymes for De Novo Production of Steviol Glucosides in Baker's Yeast, *ACS Synthetic Biology* (2018). [DOI: 10.1021/acssynbio.8b00470](https://doi.org/10.1021/acssynbio.8b00470)

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