## UMAMI



A representative selection of raw ingredients and processed food products that contain umami taste substances, ranging from very small quantities (on the left) to an abundance (on the right). The products on the top have basal umami (from glutamate), while those on the bottom have synergistic umami (from the nucleotides IMP, GMP, and AMP). Note that the horizontal axes are not linear and the position of a given product on the axis does not correspond to its absolute content of umami substances. However, the individual products on each axis are placed in the correct relationship to each other.

Synergistic umami. Nucleotides (IMP+GMP+AMP).

## Basal umami

1: cow's milk, 2: apple, 3: carrots, 4: egg, 5: pork, 6: Worcestershire sauce, 7: mackerel, 8: chicken, 9: green asparagus, 10: caviar, 11: green peas, 12: oysters, 13: potatoes, 14: ketchup, 15: air-dried ham, 16: miso paste, 17: sun-dried tomatoes, 18: walnuts, 19: soy sauce, 20: dried shiitake mushrooms, 21: anchovies in brine, 22: blue cheese, 23: Parmesan cheese, 24: fish sauce, 25: Marmite, 26: dried seaweeds (konbu).

## Synergistic umami

1: green asparagus, 2: oyster mushrooms, 3: sun-ripened tomatoes, 4: crab, 5: beef, 6: lobster, 7: dried shiitake mushrooms, 8: scallop, 9: shrimp, 10: pork, 11: chicken, 12: mackerel, 13: anchovy paste, 14: katsuobushi

## Umami: Unlocking the Secrets of the Fifth Taste

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