Umami taste is imparted predominantly by monosodium glutamate (MSG) and 5′-ribonucleotides. Recently, several different classes of hydrophobic umami-imparting compounds, the structures of which are quite different from MSG, have been reported. To obtain a novel umami-imparting compound, *N*-cinnamoyl phenethylamine was chosen as the lead compound, and a rational structure-optimization study was conducted on the basis of the pharmacophore model of previously reported compounds. The extremely potent umami-imparting compound 2-[[[2-[(1*E*)-2-(1,3-benzodioxol-5-yl)ethenyl]-4-oxazolyle]methoxy]methyl]pyridine, which exhibits 27,000 times the umami taste of MSG, was found. Its terminal pyridine residue and linear structure are suggested to be responsible for its strong activity. The time taken to reach maximum taste intensity exhibited by it, as determined by the time-intensity method, is 22.0 s, whereas the maximum taste intensity of MSG occurs immediately. This distinct difference in the time-course taste profile may be due to the hydrophobicity and strong receptor affinity of the new compound.

Intense umami-imparting molecule **11** was discovered by structural optimization of natural umami-imparting substance; rubenamine**9** and rubescenamine **10**.