

PRODUCT CODE- TYMT02145

Taj Pharmaceuticals Ltd.

Tyramine

CAS No. 51-67-2



5577 TM 2145 62131 792

Tyramine Identifiers

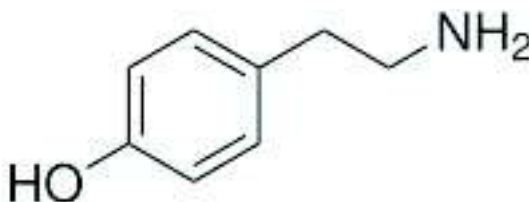
CAS number : 51-67-2

PubChem : 5610

MeSH Tyramine : C1=CC(=CC=C1CCN)O

Molecular formula : C8H11NO

Molar Weight : 137.179 g/mol



Tyramine is a naturally-occurring monoamine compound and trace amine derived from the amino acid tyrosine. Tyramine acts as a catecholamine (dopamine, norepinephrine (noradrenaline), epinephrine (adrenaline)) releasing agent. Notably, however, it is unable to cross the blood-brain-barrier (BBB), resulting in only non-psychoactive peripheral sympathomimetic effects. When ingested unintentionally from certain foods in conjunction with a monoamine oxidase inhibitor (MAOI), tyramine is responsible for the so-called "cheese effect" often seen with their use.

Occurrence

Tyramine occurs widely in plants and animals and is metabolized by the enzyme monoamine oxidase. In foods, it is often produced by the decarboxylation of tyrosine during fermentation or decay. Foods containing considerable amounts of tyramine include meats that are potentially spoiled or pickled, aged, smoked, fermented, or marinated (some fish, poultry, and beef); most pork (except cured ham); chocolate; alcoholic beverages; and fermented foods, such as most cheeses (except ricotta, cottage cheese, cream cheese), sour cream, yogurt, shrimp paste, soy sauce, soy bean condiments, teriyaki sauce, tofu, tempeh, miso soup, sauerkraut; broad (fava) beans, green bean pods, Italian flat (Romano) beans, Chinese (snow) pea pods, avocados, bananas, pineapple, eggplants, figs, red plums, raspberries, peanuts, Brazil nuts, coconuts, processed meat, yeast, and an array of cacti.

Metabolism

In humans, if monoamine metabolism is compromised by the use of monoamine oxidase inhibitors (MAOIs) and foods high in tyramine are ingested, a hypertensive crisis can result as tyramine can cause the release of stored monoamines, such as dopamine, norepinephrine, epinephrine. The first signs of this were discovered by a neurologist who noticed his wife, who at the time was on MAOI medication, had severe headaches when eating cheese. For this reason, the crisis is still called the "cheese syndrome," even though other foods can cause the same problem.

Foods containing tyramine

This is a list of foods containing tyramine. Tyramine is an amine which causes elevated blood pressure and tachycardia by displacing norepinephrine from storage vesicles. Tyramine is generally produced by decarboxylation of the amino acid tyrosine during fermentation of food products. All protein-rich foods which have been matured will contain more tyramine depending on the temperature and how long they have been stored. Properly refrigerated foods will not be affected.



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The amount required to cause a 30 mmHg (4.0 kPa) increase in systolic blood pressure is referred to as TYR30, and generally averages around 500 mg in an unmedicated, healthy individual. A class of antidepressants called MAOIs (monoamine oxidase inhibitors), and particularly MAOIs that inhibit the isozyme MAO-A, can increase the sensitivity to tyramine if taken orally. If sufficient quantities of tyramine are ingested after MAO-A inhibition, hypertensive crises may occur, potentially causing stroke or cardiac arrhythmia. There is significant evidence that tyramine may trigger migraines in sensitive individuals.

This list is for informational purposes only; it is neither all-inclusive nor does it go into any particular depth. If you plan to avoid tyramine in your diet, you are urged to seek professional guidance. Note that the exact increase in sensitivity will depend on the MAOI used, and its dose.

- * 1 Cheeses
- * 2 Fruit
- * 3 Processed foods
- * 4 Meat and fish
- * 5 Soy
- * 6 Nuts and chocolate

Tyramine is a vaso-active amino acid found in foods. It precipitates headaches in some sufferers. It is an intermediate product in the conversion of tyrosine (an amino acid present in many proteins) to epinephrine (an active hormone produced by the inner portion of the adrenal gland).

Foods that contain tyramine may trigger headaches in migraineurs by facilitating a chain reaction which results in selective cerebral vasoconstriction followed by rebound dilation of the cranial vessels (the most common cause of the throbbing headache pain). This sequence of events is implicated in migraine headache.

Some of the foods containing tyramine are aged cheese, nuts, herring, and chicken livers. A more complete diet listing is available to members of the Foundation. Foods with high concentration of tyramine are contraindicated with MAO1-type antidepressants.

This document plus the full buyer / prescribing information, prepared for health professionals can be found at:

<http://www.tajapi.com>

or by contacting the sponsor, Taj Pharmaceuticals Limited., at:
91 022 30601000.

This leaflet was prepared by
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