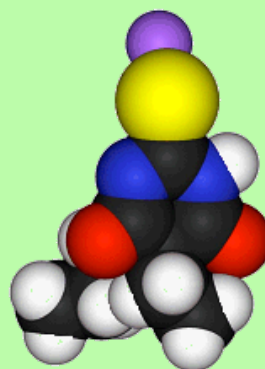


# Sodium Thiopental (Sodium Pentothal)

## The Truth Serum



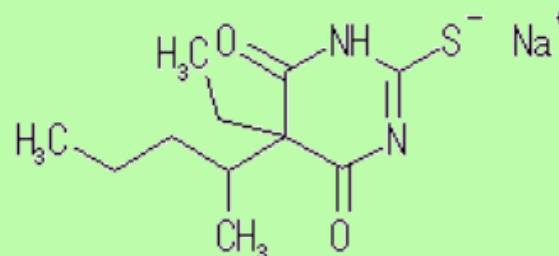
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Molecule of the Month - February 2007

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## Discovery

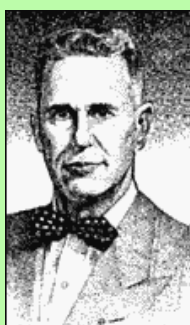
Sodium Thiopental (also called Sodium Pentothal) has the formula:  $C_{11}H_{17}NaO_2S$ . This molecule is a trademark of [Abbott Laboratories](#). Sodium Thiopental was discovered in the 1930s by Ernest H. Volwiler and Donalee L. Tabern while working for Abbott Laboratories. Dr. Ralph M. Waters first used it in human beings on March 8, 1934. The investigation centred on its properties, which were discovered to be short-term anesthesia, but surprisingly little analgesia. Its IUPAC name is Sodium 5-ethyl-6-oxo-5-pentan-2-yl-sulfanyl-pyrimidin-4-olate and it has a molecular weight of 264.32.



Thiopental Sodium



Ernest Volwiler



Donalee Tabern



Ralph Waters

## How it works

Sodium thiopental is a *barbiturate*; these are drugs that act on the gamma-amino butyric acid (GABA<sub>A</sub>) receptor which decrease neuronal activity. Barbiturates enhance the GABA<sub>A</sub> receptors, decreasing drastically neuronal activity. It is because of this that overdoses can be lethal. In fact many famous people have died due to overdose on barbiturate-based drugs: e.g. Elvis Presley, Marilyn Monroe, Jimmy Hendrix, and others. The A.U.M., the Japanese terrorist group that in 1995 released sarin nerve gas in the Tokyo subway, is reported to use sodium thiopental on their members to keep them loyal. It is believed that their chief chemist produced 1.7 kg of sodium thiopental.



## The 'Truth Serum'...

Sodium thiopental is very well known to moviegoers as the "truth serum". Movies such as [Stormbreaker](#), [Meet the Fockers](#), [Kill Bill vol.2](#), are recent examples of Hollywood's poetic license when it comes to the use of this 'truth serum'. However, sodium thiopental was used by the CIA for many years, and was recently used against Al-Qaeda members to find out secrets within the organization. As mentioned above, it isn't actually a 'truth serum' as such, but it reduces neuronal activity making it harder and harder to think. Using the fact that it is harder for the brain



to tell a lie than to tell the truth, sodium thiopental makes the subject dreamily blurt out the truth. But it does not work on people who truly believe in their lies, and therefore is not a reliable source of information.

## ...and Anaesthetic

This drug is also used in the induction phase of general anaesthesia, this is because of how quickly it takes effect. It usually takes less than 30 seconds for the drug to reach the brain and cause unconsciousness. It is not used for prolonged anaesthesia due to the excessive amount of time it takes for the patient to regain consciousness after induction. Instead, inhaled agents are used so that moments after the inhaled agent is removed, the patient regains consciousness.



Sodium thiopental is used in several countries for capital punishment. For example, it is used in 34 states of the U.S.A. as one of the contents of the three syringes used in 'death by lethal injection'. During the process, the criminal is given a mega dose of sodium thiopental which very rapidly places him in a coma. The other two syringes usually contain [pancuronium bromide](#) and [potassium chloride](#), which kill the comatose criminal in a humane way in around 10 minutes. It is said that the barbiturate alone would kill the criminal in approximately 45 minutes. In Holland they use sodium thiopental for their euthanasia program, because it induces the patient into a coma so he does not feel any pain.




## Bibliography

- <http://www.eipico.com.eg/PRODUCT.ASP?id1=1&id2=1%20&id4=1>
- <http://www.wikipedia.org>
- [Chemistry on the Screen](#)



"Two coffees Miss Jones, one with sodium pentothal."

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