2015

Lamictal

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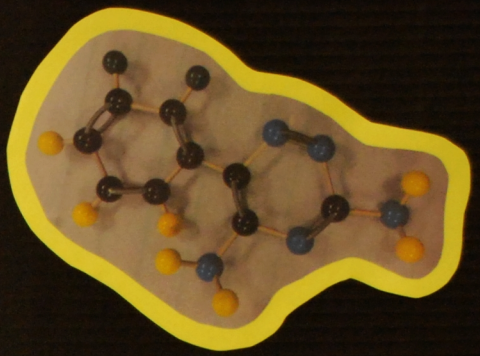
LAMICTAL



How does the body take in the drug?

The body take in this medicine orally. Lamictal is administered in the form of tablets, chewable tablets, and disintegrating tablets. The absorption of Lamictal is in the gastrointestinal tract, where 98% reaches systemic circulation.

(Wilson, Shannon & Shields, 2016, pp. 872-874).

Classification:

Anticonvulsant

(Wilson, Shannon & Shields, 2016, pp. 872-874).

Trade Names:

Lamictal, Lamictal CD, Lamictal XR

(Wilson, Shannon & Shields, 2016, pp. 872-874).

Generic Name:

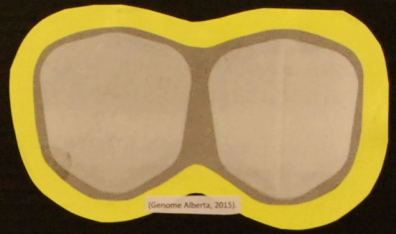
Lamotrigine

(Wilson, Shannon & Shields, 2016, pp. 872-874).

What does the body do once the drug is absorbed?

Once absorbed, Lamictal inhibits the release of glutamate and aspartate, excitatory neurotransmitters at voltage-sensitive sodium channels, resulting in decreased seizure activity in the brain. This reaction stabilizes neuronal membranes.

(Wilson, Shannon & Shields, 2016, pp. 872-874).



(Genome Alberta, 2015).

- Aromatic: *hydrophobic, neutral*
- Halo: *hydrophilic, neutral*
- Imine: *hydrophilic, mildly basic*
- Amine: *hydropholic, basic*
- Azo: *hydrophobic, neutral*

(Drake, 2015, pp. 162-175). (Sonnichsen, 2015, pp. 93-100).

Unlabeled Uses:

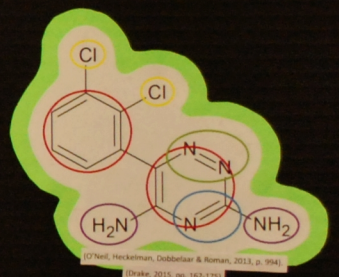
The unlabeled uses for Lamictal are for treatment of absence seizures and the prevention of migraines.

(Wilson, Shannon & Shields, 2016, pp. 872-874).

Labeled Uses:

Lamictal is used as adjunctive therapy for partial seizures, generalized tonic-clonic, grand mal, or myoclonic seizures in adults. This medication is also used for treatment of bipolar disorder.

(Wilson, Shannon & Shields, 2016, pp. 872-874).



(O'Neil, Heckelman, Dobbelaar & Roman, 2013, p. 994). (Drake, 2015, pp. 162-175).

How does the body break down the drug?

Once the body has absorbed the drug and action has taken place, Lamictal is then metabolized in the liver to inactivate the drugs metabolite.

(Wilson, Shannon & Shields, 2016, pp. 872-874).

Chosen Dose: *25 mg tablet*

Molecules per Chosen Dose: *1.2×10^{20} molecules*

Tablets per Chosen Dose: *2 tablets*

Availability

- *Tablets: 25mg, 100mg, 150mg, 200mg*
- *Chewable Tablets: 2mg, 5mg, 25mg*
- *Orally Disintegrating Tablets: 25mg, 50mg, 100mg, 200mg*

(Physicians' Desk Reference, 2015).

Ratio of hydrophilic functional groups to hydrophobic functional groups:

3:2

(Drake, 2015, pp. 162-175).

How does the body eliminate the drug?

Once the drug has been metabolized, Lamictal can induce its own metabolism and is excreted through the patient's urine.

(Wilson, Shannon & Shields, 2016, pp. 872-874).

Literature Value for Molar Mass:

$256.09 g/mol$

(O'Neil, Heckelman, Dobbelaar & Roman, 2013, p. 994).

Chemical Names and Formula:

6-(2,3-Dichlorophenyl)-1,2,4-triazine-3,diamine

3,5-diamino-6-(2,3-dichlorophenyl)-1,2,4-triazine

$C_9H_7Cl_2N_5$

(O'Neil, Heckelman, Dobbelaar & Roman, 2013, p. 994).

Works Cited:

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Molar Mass:

$$9\ mole\ C \times \frac{12.0g}{1\ mole\ C} = 108g/mol$$

$$7\ mole\ H \times \frac{1.0g}{1\ mole\ H} = 7.0g/mol$$

$$2\ mole\ Cl \times \frac{35.5g}{1\ mole\ Cl} = 71.0g/mol$$

$$5\ mole\ N \times \frac{14.0g}{1\ mole\ N} = 70.0g/mol$$

$$\frac{108g}{mol} + \frac{7.0g}{mol} + \frac{71.0g}{mol} + \frac{70.0g}{mol} =$$

$256g/mol$

Solubility in Water:

0.488mg/mL (Insoluble)

(Genome Alberta, 2015).

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