

## Valproic Acid

Valproic acid (Depakote), or valproate, is an anticonvulsant and mood-stabilizing drug that works by increasing GABA concentration and blocking  $\text{Na}^+$  channels. It is mainly indicated for epilepsy, bipolar disorder, and migraine prophylaxis. This drug increases levels of the neurotransmitter GABA by inhibiting the enzyme GABA transaminase, which acts to break down GABA. Also, valproic acid decreases repetitive neuronal firing by blocking voltage-gated  $\text{Na}^+$  channels, inactivating them. This medication is known for causing GI distress, as well as being hepatotoxic and sometimes leading to pancreatitis. Valproic acid is contraindicated in pregnant patients, as it is teratogenic and a folate antagonist, and can lead to neural tube defects (spina bifida).



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### Indications

#### First Line Tonic-Clonic Seizure Treatment

[First-place Tonic-clown Caesar](#)

Valproic acid is a first line drug for tonic-clonic seizures and can also be used for absence, myoclonic and partial seizure treatment.

#### Bipolar Disorder

[Bi-polar-bear](#)

In addition to treating seizures, valproic acid can be used as another treatment option for manic episodes found in bipolar disorder.

#### Migraine Prophylaxis

[Mind-rain with Purple-axes](#)

Valproic acid may also be used for prophylaxis of migraine headaches.

### Mechanism of Action

#### Increases GABA Concentration

[Up-arrow GABA-goose](#)

Valproic acid increases GABA concentration by inhibiting GABA transaminase, an enzyme which acts to break down GABA.

#### Blocks Voltage-Gated $\text{Na}^+$ Channels

[Block-guy blocking Electric-gate Salt-shaker Channel](#)

This drug also works by suppressing repetitive neuronal activity through increased  $\text{Na}^+$  channel inactivation; blocking and preventing  $\text{Na}^+$  influx through fast channels.

### Side Effect

#### GI Distress

[GI with Flare-gun](#)

Adverse effects of valproic acid include GI distress, pancreatitis, and hepatotoxicity.

### Contraindication

#### Contraindicated in Pregnancy

[Caution-tape Pregnant-woman](#)

Valproic acid is contraindicated during pregnancy because of its teratogenic properties and association with neural tube defects in the fetus (spina bifida), as it is a folate antagonist.