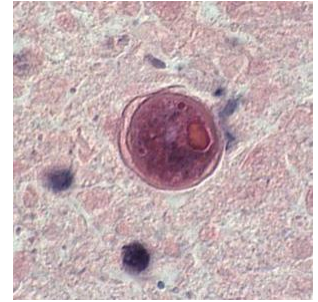


# *Balamuthia mandrillaris*

## Fact Sheet

*Balamuthia mandrillaris* is a free-living amoeba (a single-celled living organism) found in dust and soil in many places around the world. It may also live in water. It is one of the causes of a rare and usually fatal brain infection called **granulomatous amoebic encephalitis (GAE)**.

Researchers believe *Balamuthia* enters the body when soil containing the amoeba comes in contact with skin wounds and cuts, or when dust containing it is inhaled. The *Balamuthia* amoebas then travel to the brain through the bloodstream. More than 90 *Balamuthia* infections have been reported in the United States between 1974 and 2014.



Cyst of *Balamuthia mandrillaris* in brain tissue

### What are the symptoms of *Balamuthia* infection?

*Balamuthia* infection usually begins with symptoms seen with GAE, although infection might begin with a skin wound that doesn't heal quickly. Symptoms may include:

- Headaches
- Nausea and/or vomiting
- Low-grade fever
- Lethargy (tiredness)
- Weight loss
- Behavioral changes
- Seizures
- Partial paralysis
- Difficulty speaking
- Difficulty walking

The disease may appear mild at first, but it becomes more severe over weeks to several months. The disease has killed almost 9 out of 10 (89%) infected people in the United States.

### How is *Balamuthia* infection diagnosed and treated?

Doctors and scientists must use special tests to identify *Balamuthia*. CDC can help with testing, because these tests are not widely available.

Treatment recommendations include a combination of several drugs. However, most *Balamuthia* infections are diagnosed right before death or after the patient has died. This is because the symptoms of the infection look like the symptoms of other types of brain infections, so doctors often do not recognize the infection as being caused by *Balamuthia* until late in the illness. Since most people are diagnosed so late, doctors do not have time to try different drugs for treatment, making it hard to know what may work.

### Can I prevent *Balamuthia* infection?

*Balamuthia* can infect anyone. We do not know how to prevent infection, since it is unclear how and why some people become infected while others do not. The low number of infections make it difficult to show whether any potential preventive measures could be effective. *Balamuthia* does not appear to spread from one person to another except through organ transplantation. For more information, visit [www.cdc.gov/balamuthia](http://www.cdc.gov/balamuthia).



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