

Each year, 12,000  in the  are diagnosed with *glioblastoma multiforme*—the most **common** and **aggressive** type of  cancer. Of these , less than  survive **2 years** after diagnosis.

# WHY IS GLIOBLASTOMA SO DEADLY?

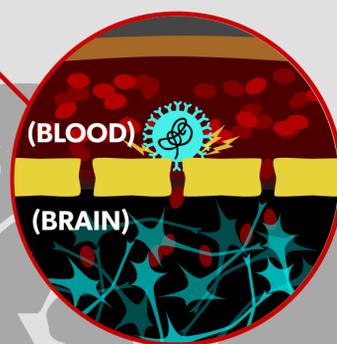
## 1 SURGERY IS VERY COMPLICATED.

Neurosurgeons must be careful to remove the tumor and not healthy brain tissue. Some parts of the brain cannot be reached via surgery.



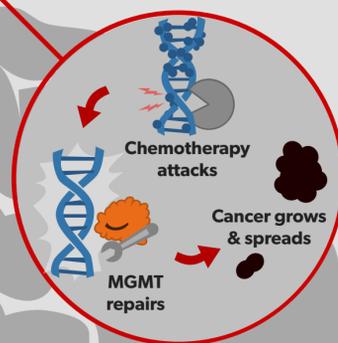
## 2 DRUGS HAVE TO PASS THROUGH THE BLOOD-BRAIN BARRIER.

Drugs and therapies must be able to get past the tightly packed cells that form the barrier between the blood stream and the brain.

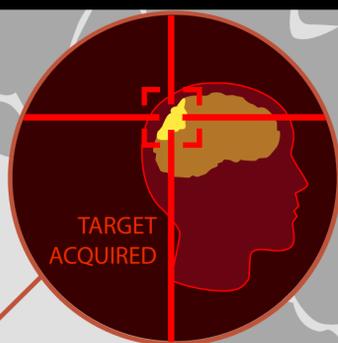


## 3 MORE THAN 2/3 OF PATIENTS DO NOT RESPOND TO TODAY'S APPROVED CHEMOTHERAPIES.

Today's drugs work by damaging the DNA of cancer cells. Many patients have an enzyme called MGMT, which repairs this DNA damage, causing chemotherapy resistance.

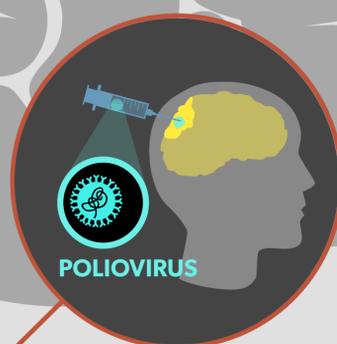


## HOW DO WE BETTER FIGHT GLIOBLASTOMA?



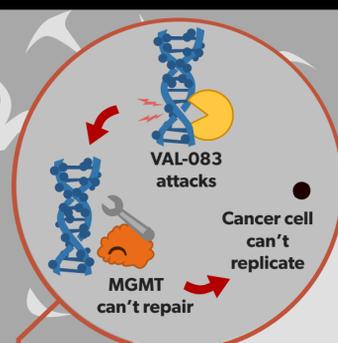
## 1 NEW IMAGING AND SURGERY TECHNOLOGIES

More accurate brain scans and precision radiation procedures, like the "gamma knife," can help us better pinpoint and target tumors.



## 2 NEW IMMUNE-BASED THERAPEUTIC APPROACHES

Cancer vaccines, gene therapies and viral therapies, such as modified polioviruses, are being evaluated in clinical trials. Each of these approaches are combined with a chemotherapy, so more effective drugs will be essential.



## 3 NEW DRUGS THAT OVERCOME RESISTANCE

One new drug, **VAL-083**, currently in clinical trials, is not affected by MGMT, and could become a new treatment for patients who do not respond to today's chemotherapies.

**More research and new treatment options will MAKE A DIFFERENCE.**

For more information about brain tumors, visit

[www.abta.org](http://www.abta.org)

American Brain Tumor Association

To learn more about new treatments, visit

[delmarpharma.com/btam](http://delmarpharma.com/btam)

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**SHARE TO HELP RAISE AWARENESS FOR BRAIN CANCER RESEARCH.**