

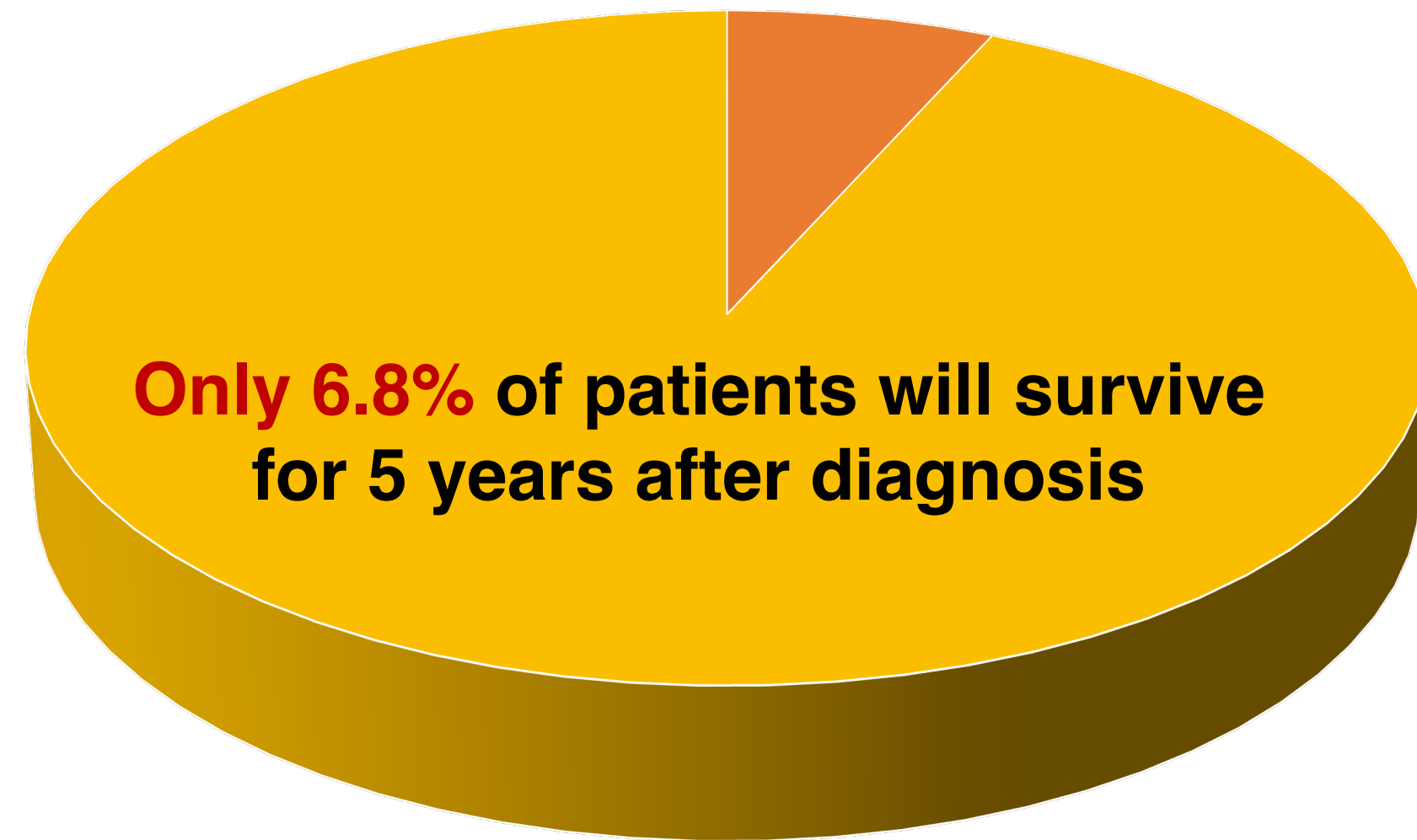
# Using Novel Vanadium-Based Solutions to Treat Aggressive Forms of Brain Cancer

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**Problem:** Aggressive forms of brain cancer present a significant healthcare challenge

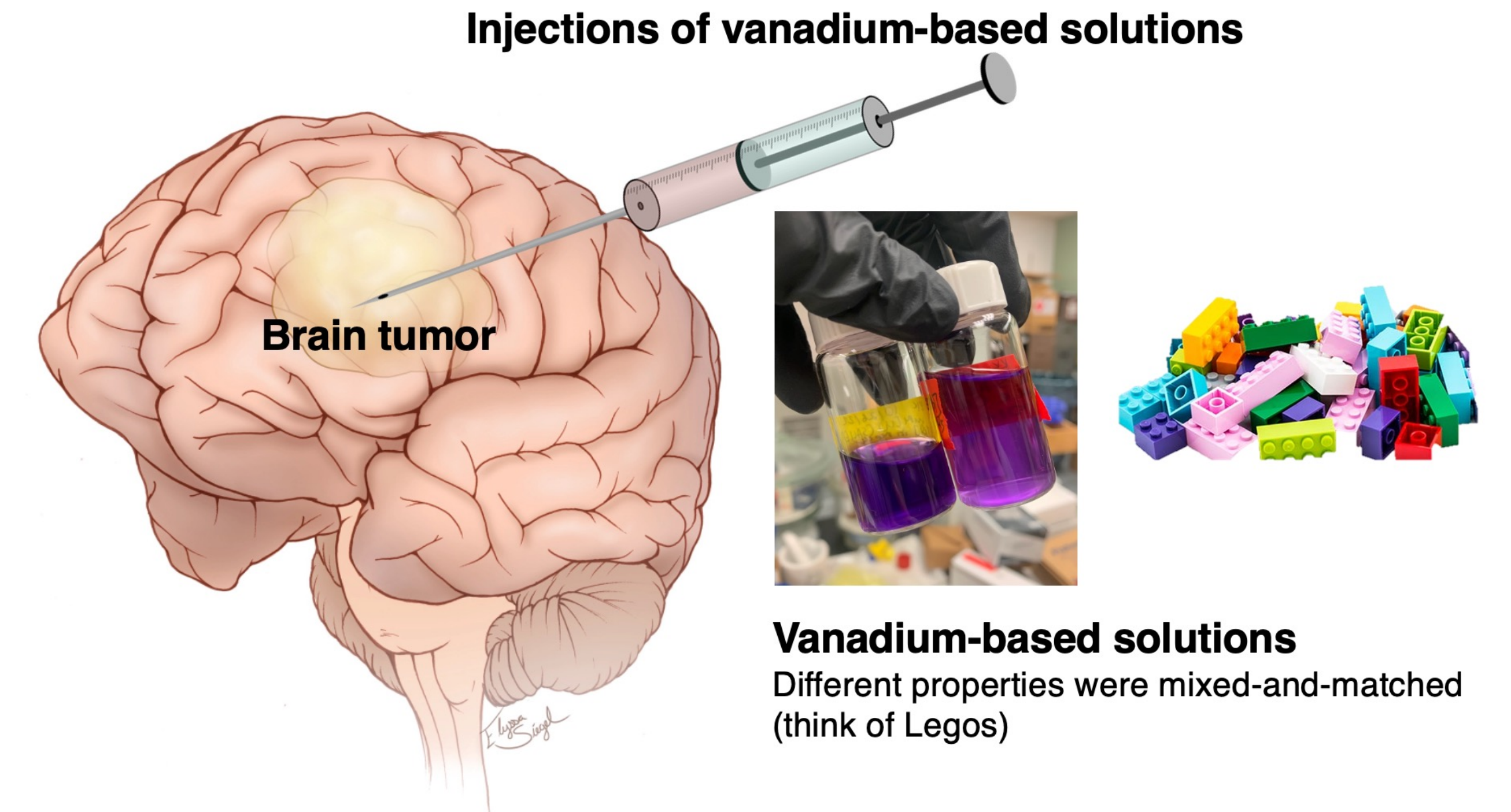


**High mortality rates**



**No existing cure**  
**Damage to patients' health**  
(surgery and chemotherapy)

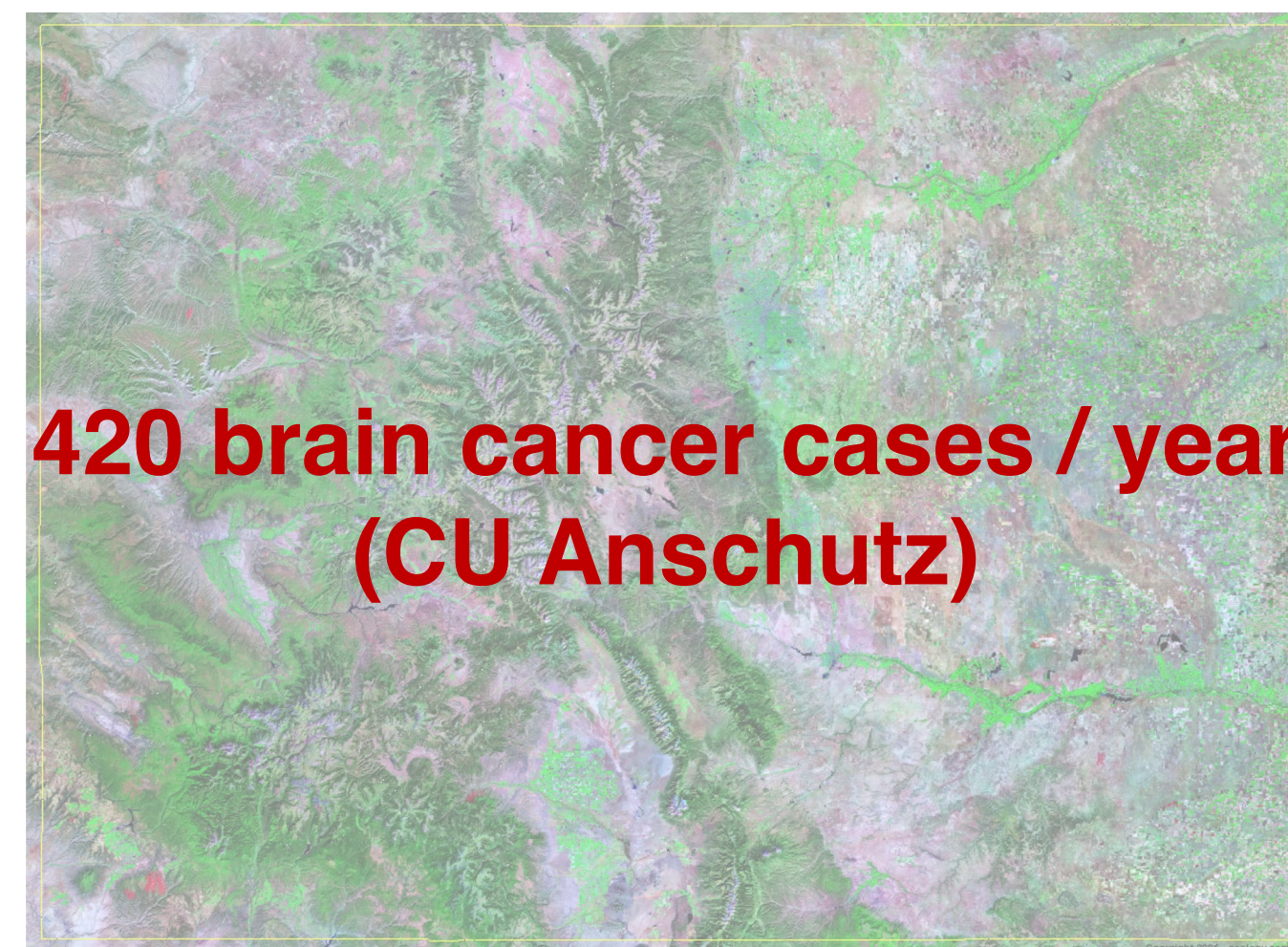
**Solution:** Direct Injections of Potential Vanadium-Based Drugs Into Brain Tumors



- Developed over 100 novel drugs
- Tested the compounds at the University of Sydney
- Currently filing a U.S. patent on the novel compounds
- **New treatments are potentially up to 12 times more effective than current metal-based treatments**
- Injections will be monitored by image-guided biopsy

## Potential Impact of My Research on Colorado

- Extended life expectancy of brain cancer patients
- Minimal damage to patients' health
- The treatments could also be used to treat lung and kidney cancer



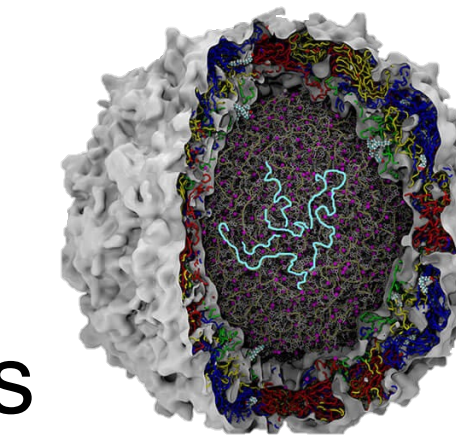
## Solution: Unique Properties of Vanadium to Treat Cancer

Why: vanadium is a metal used for many biological applications



### Antidiabetic properties

- Lowers blood glucose levels
- Vanadium antidiabetic drugs made it to **Phase II** clinical trials



### Anticancer properties

- **Selectively infects and kills cancer cells**
- Findings are confirmed by testing vanadium treatments in mice



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