

# Colorado River Toad



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# The Case

- Rainy summer evening
- Dog playing in backyard
- Look out to find they have something in their mouth...



# Deterioration of Animal

- Profuse salivation within 30 minutes
- Vomiting
- Excessive panting
- Disorientation



# While at Vet ER

- Seizures ensued
- Irregular heartbeat
- Passed away from respiratory arrest



# What Happened?

- Absorption of toxins from toad's skin through mucous membranes
- Varied symptoms resulting from numerous toxic compounds
- No immediate action taken to reduce potential exposure

# Colorado River Toad

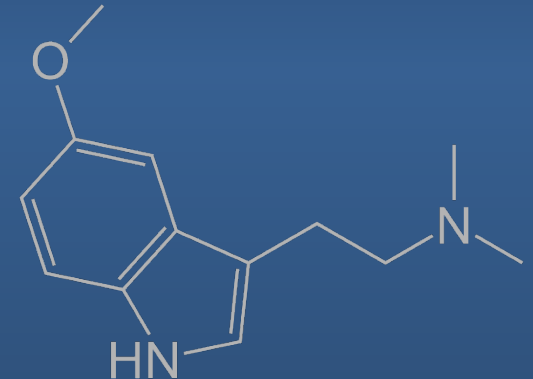
- *Incilius alvarius* (formerly *Bufo alvarius*)
- Also known as the Sonoran Desert Toad
- Toxins secreted from parotoid and tibial glands
- Nocturnal and most active from May-September

# Up Close and Personal



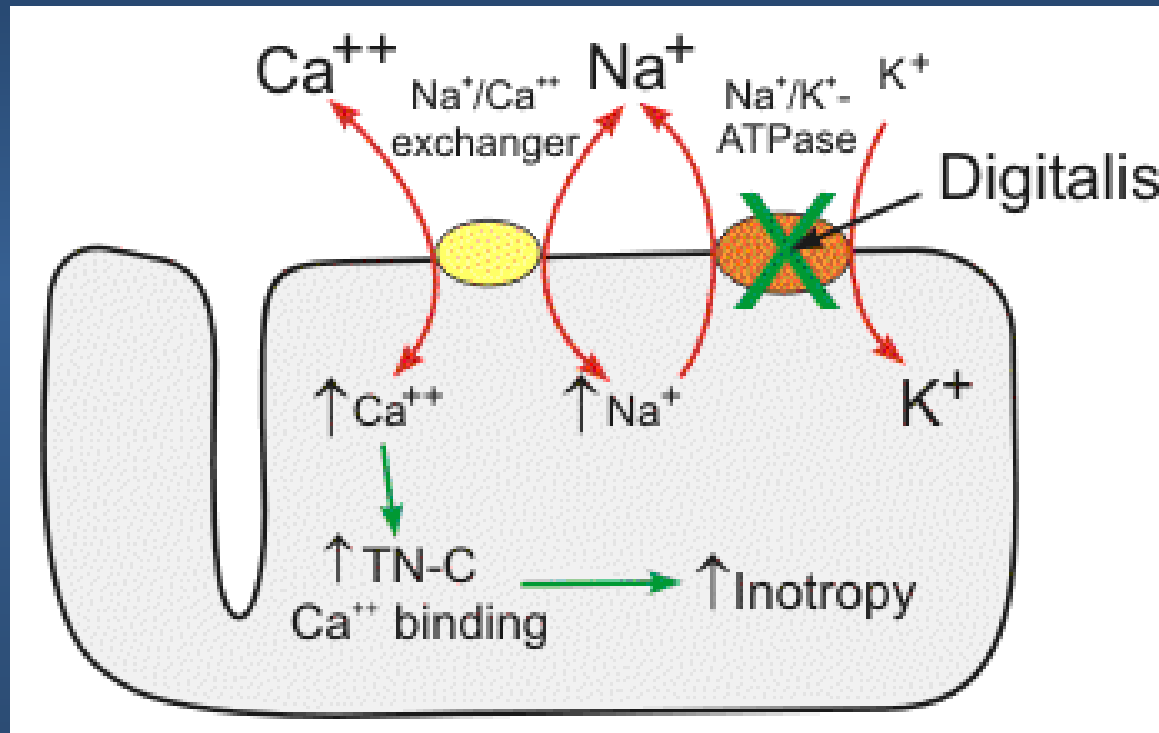
# *I. alvarius* Secretions

- Epinephrine, norepinephrine, dopamine
- Serotonin
- Bufogenins, bufotenine
- 5-MeO-DMT
  - Unique to *I. alvarius*



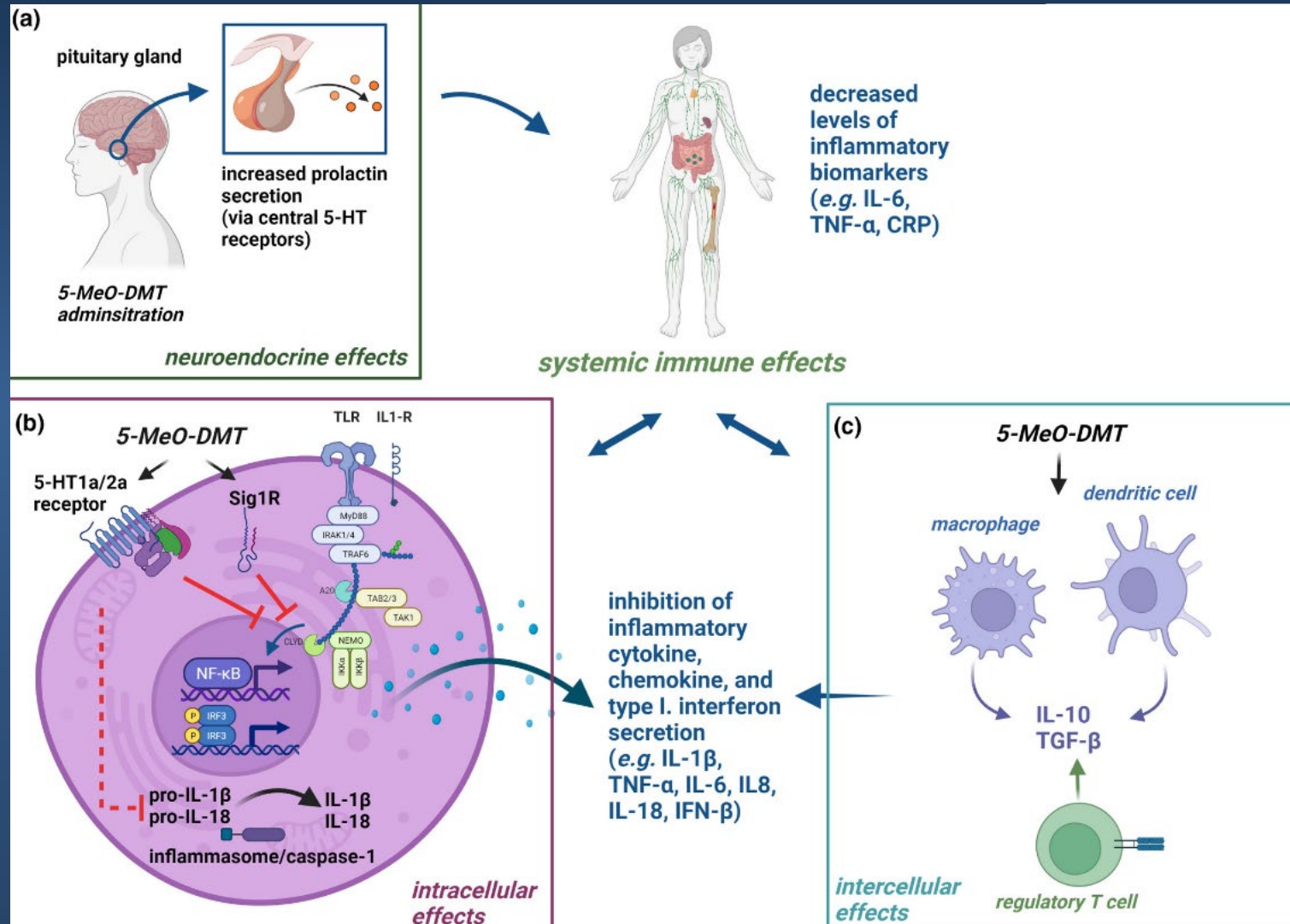


# Probable Bufalin Mechanism?



Unknown. Untitled. *Cardiac Glycosides (Digoxin)*, <<https://cvpharmacology.com/cardiostimulatory/digitalis>>.

# 5-MeO-DMT Mechanism



Reckweg JT, Uthaug MV, Szabo A et al. The clinical pharmacology and potential therapeutic applications of 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT). *J Neurochem.* 2022;162(1):128-46. Figure 3.

# Recreational/Medicinal Use?



Journal of Ethnopharmacology 41 (1994) 1–8

Journal of  
ETHNO-  
PHARMACOLOGY

## *Bufo alvarius*: a potent hallucinogen of animal origin

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# What Can Be Done?



# Managing Signs/Symptoms

- Salivation
  - Atropine (pending cardiac assessment)
- Arrhythmias
  - Tachyarrhythmias
    - Propranolol
    - Lidocaine
    - Phenytoin
    - Procainamide
  - Bradyarrhythmias
    - Dopamine
    - Atropine
- Seizures
  - Benzodiazepines
  - Barbiturates
- Severe arrhythmias
  - Digoxin-specific Fab

# Epidemiology

- No widespread data available regarding frequency
- Pet exposures may be more prevalent than expected
- Some human deaths attributed to accidental/recreational use

# Conclusion

- Widespread potential for *I. alvarius* exposure in the Sonoran desert
- Signs/symptoms may vary depending on animal, exposure
- Reducing absorption of toxin mainstay of immediate management
- Basic supportive and symptomatic care as needed