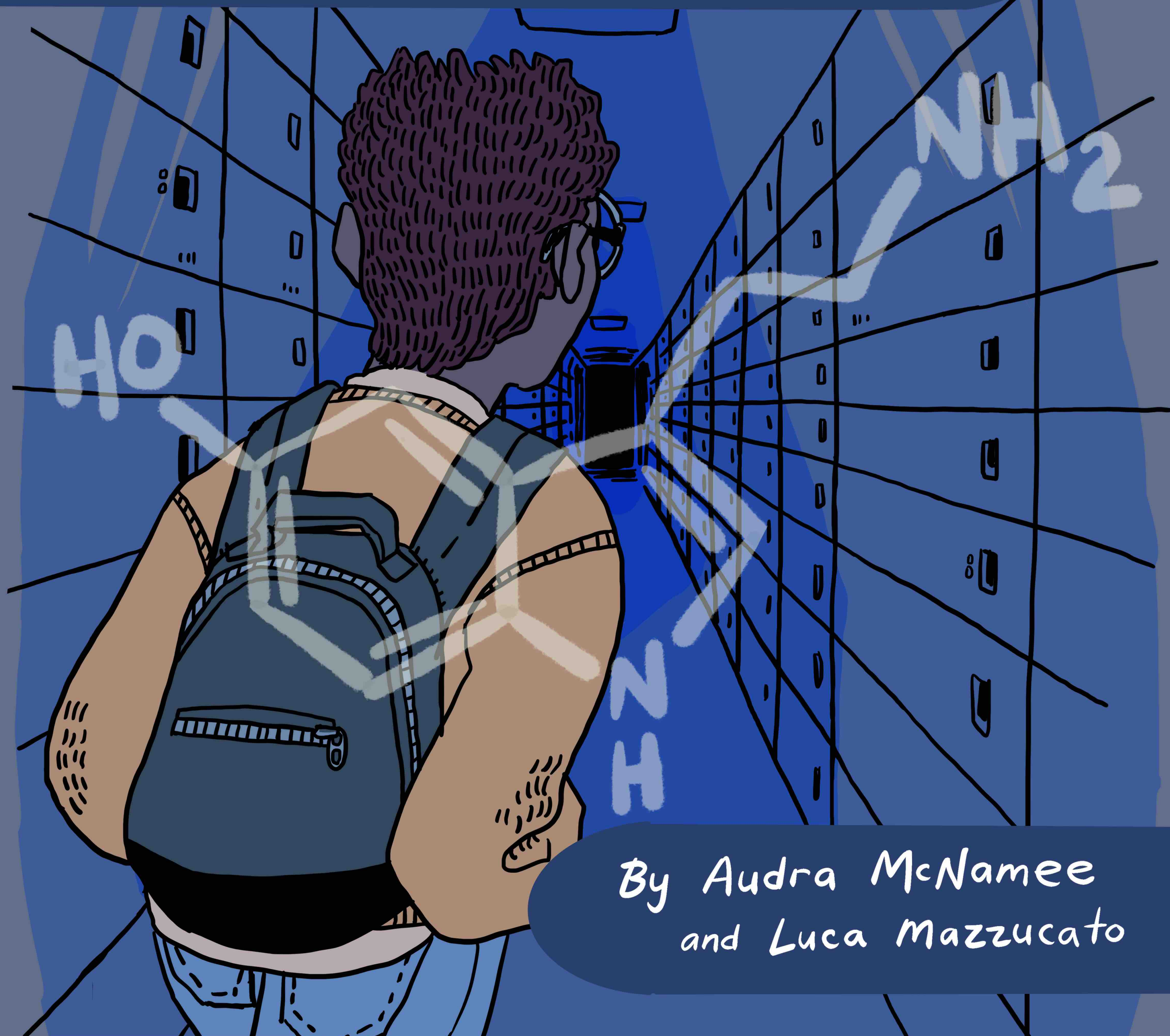


# A trip into Serotonin



By Audra McNamee  
and Luca Mazzucato

Created through the University of Oregon  
Science Comics Fellowship program

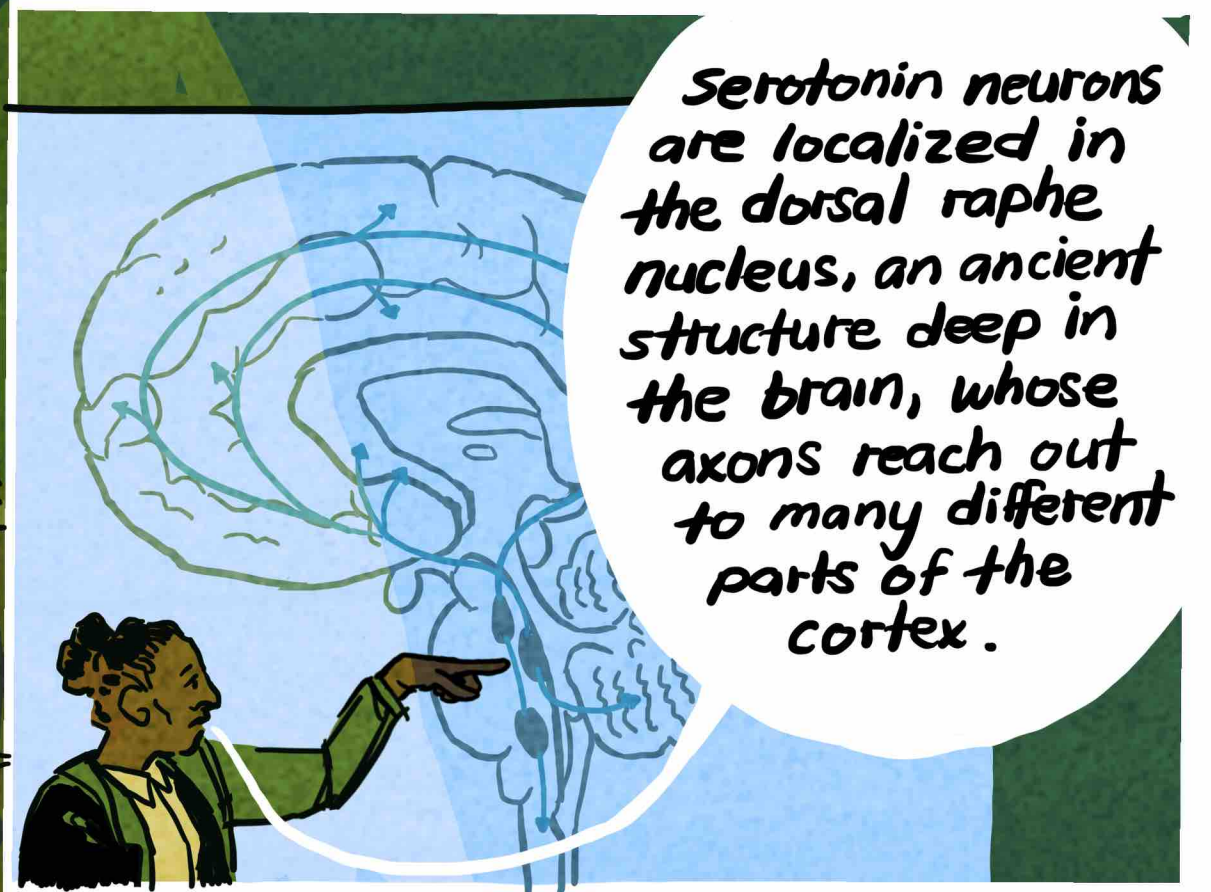
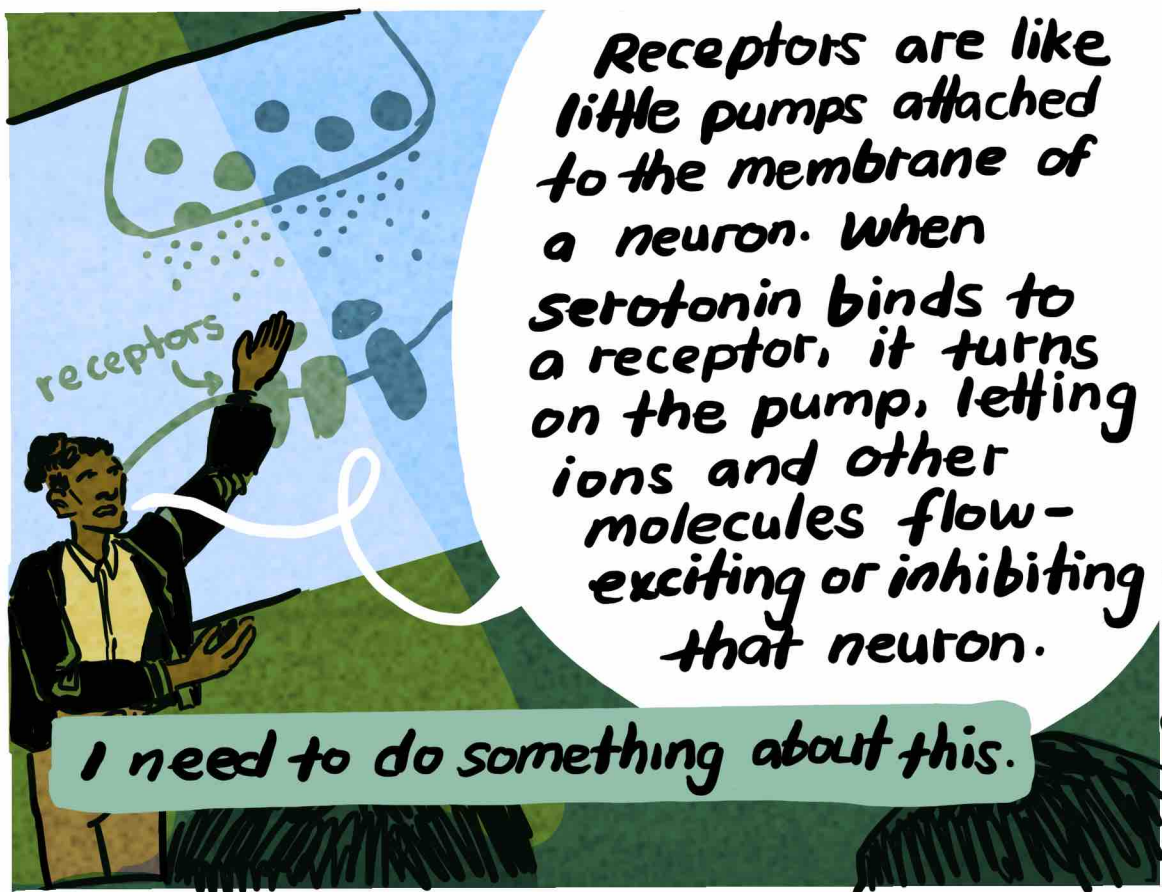
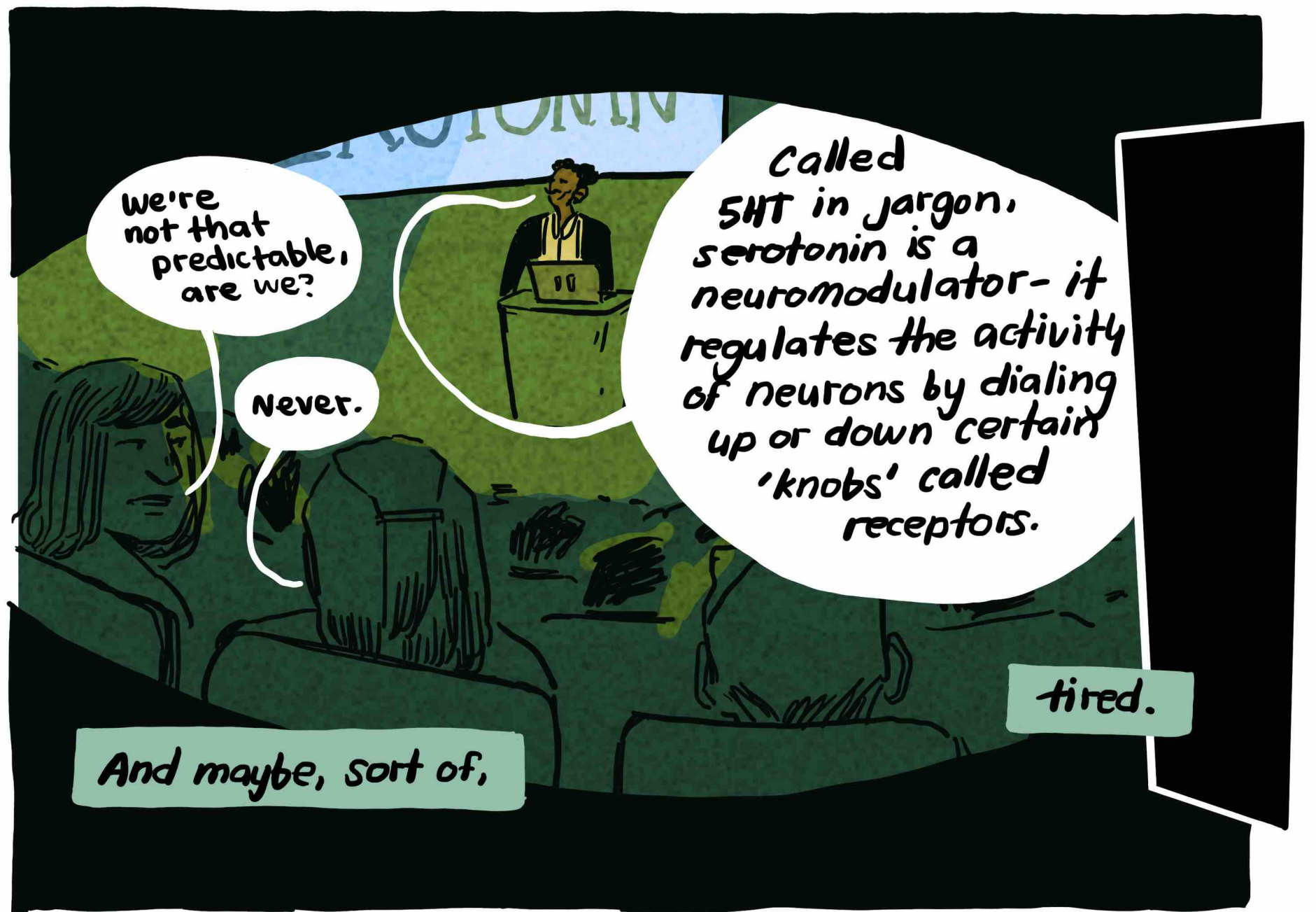




This space will provide QR codes to sources and further reading for the enthusiastic reader







More on:

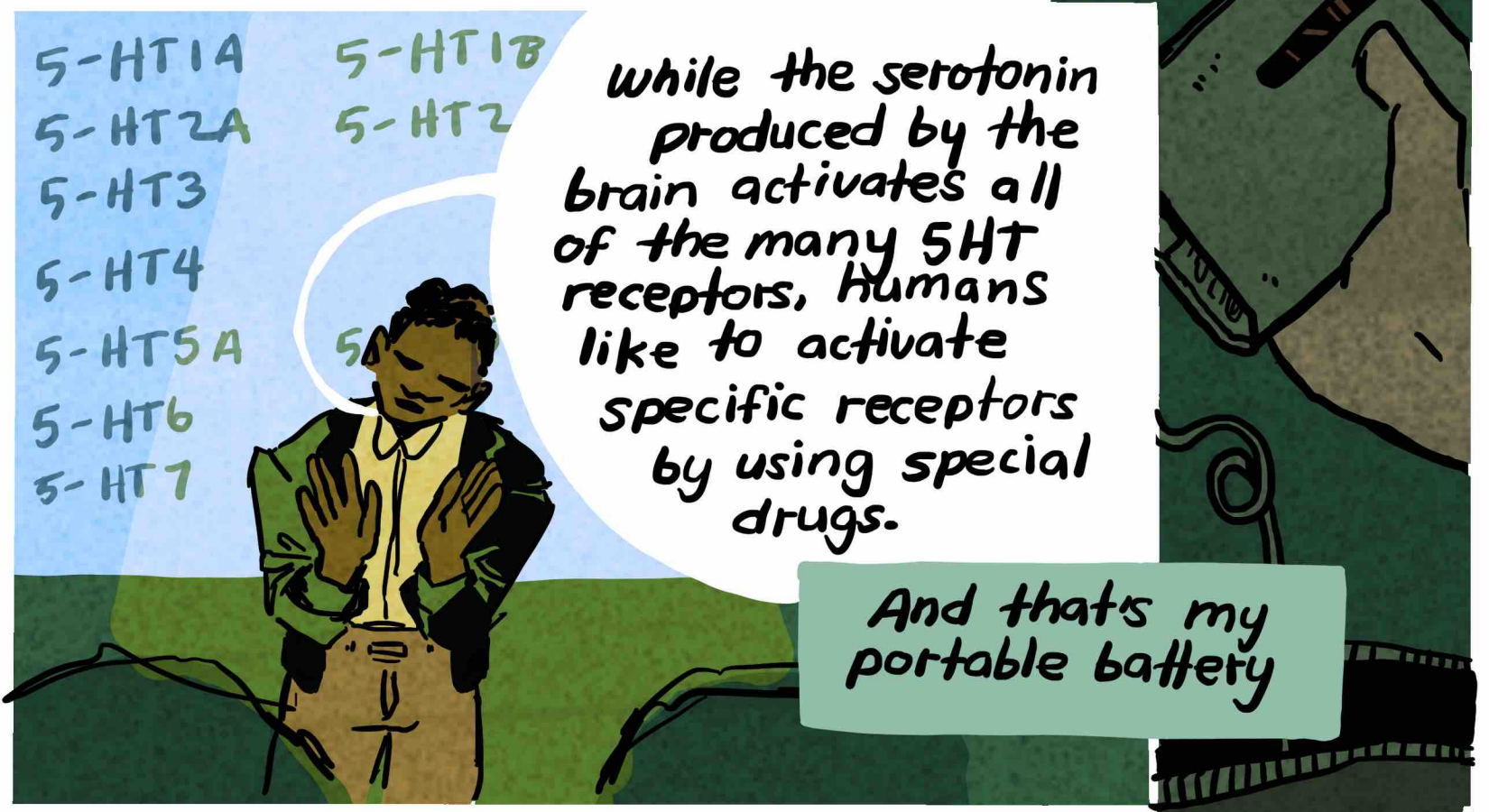
Neuromodulation of brain states:



Map of serotonin receptors in the human brain:







Check Out:

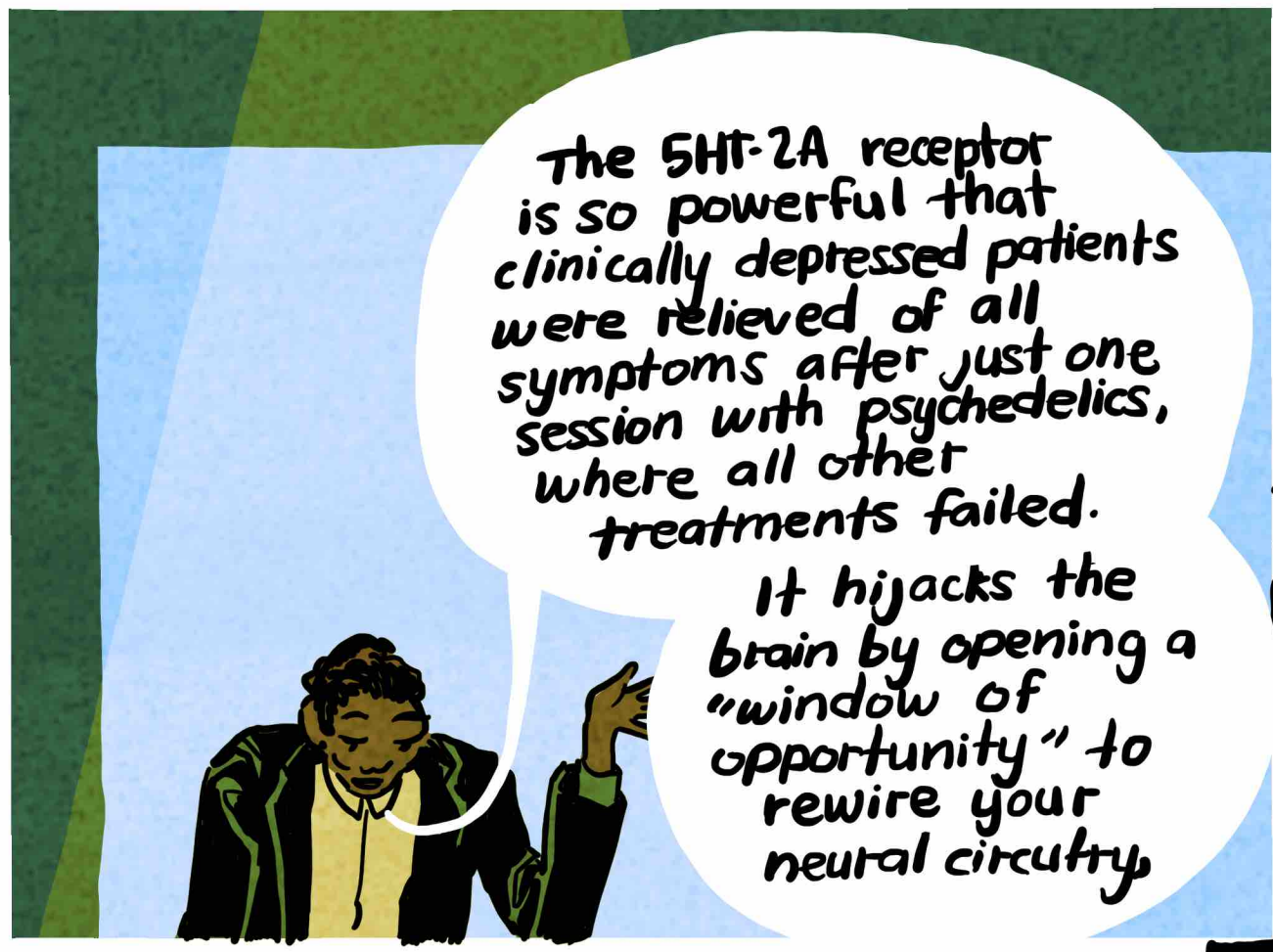
The many faces of serotonin receptors:



The neuroscience of psychedelic drugs and 5HT-2A:



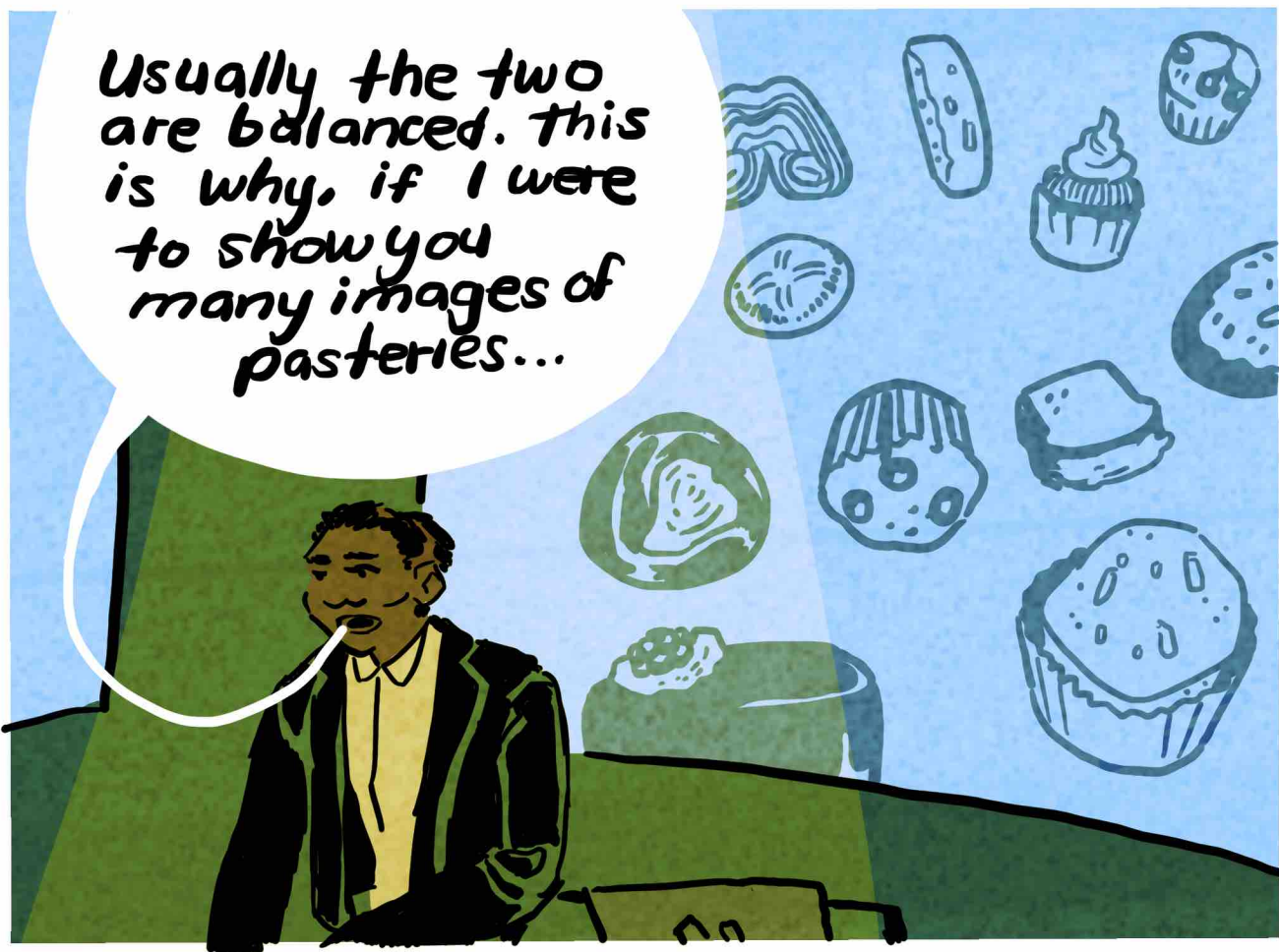
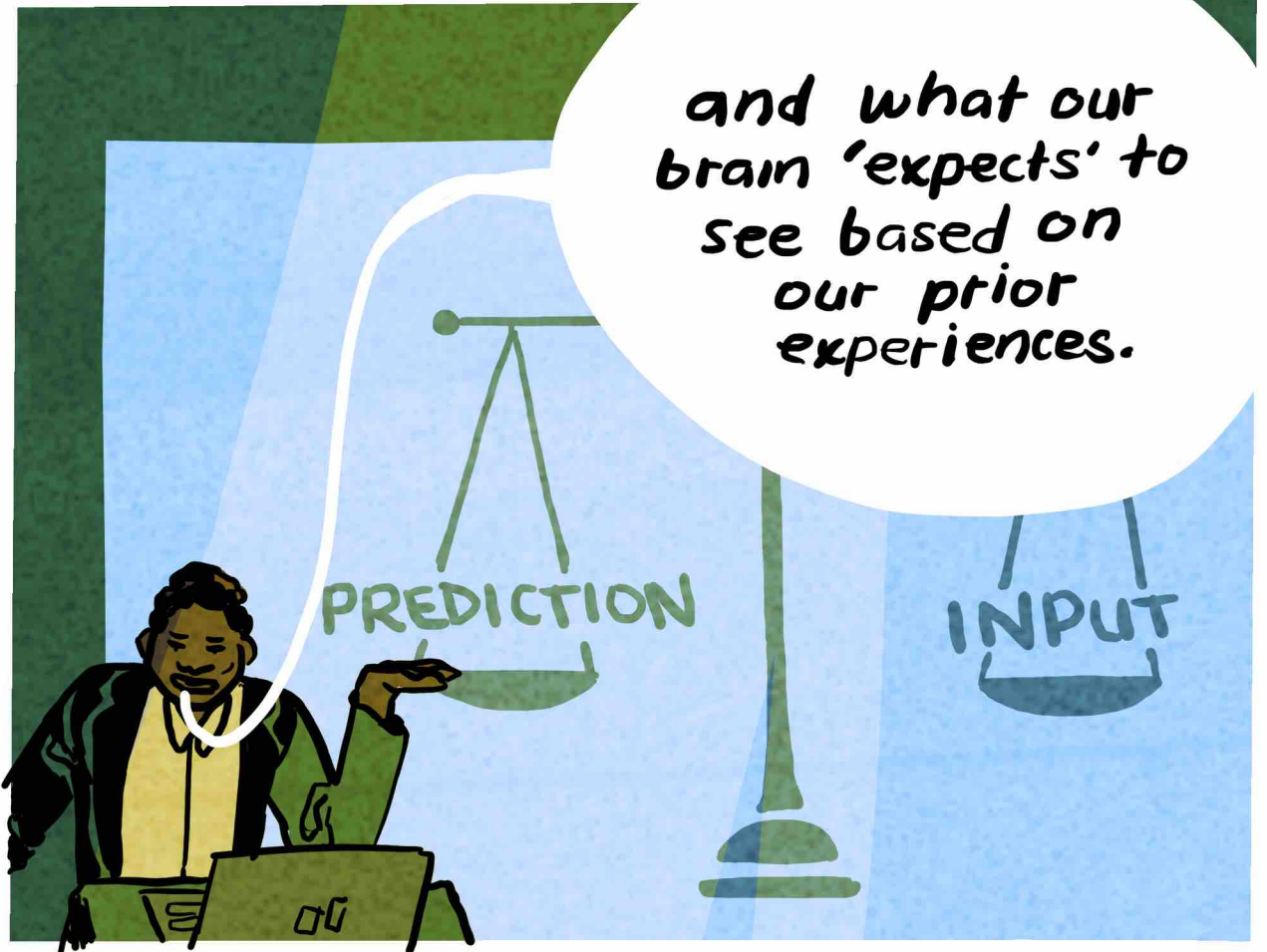




I think that I found it...



Yes!



### Observe:

FDA hail Psilocybin as 'breakthrough therapy' for major depression:



Talk on mysterious link between serotonin, behavior, and neural plasticity:



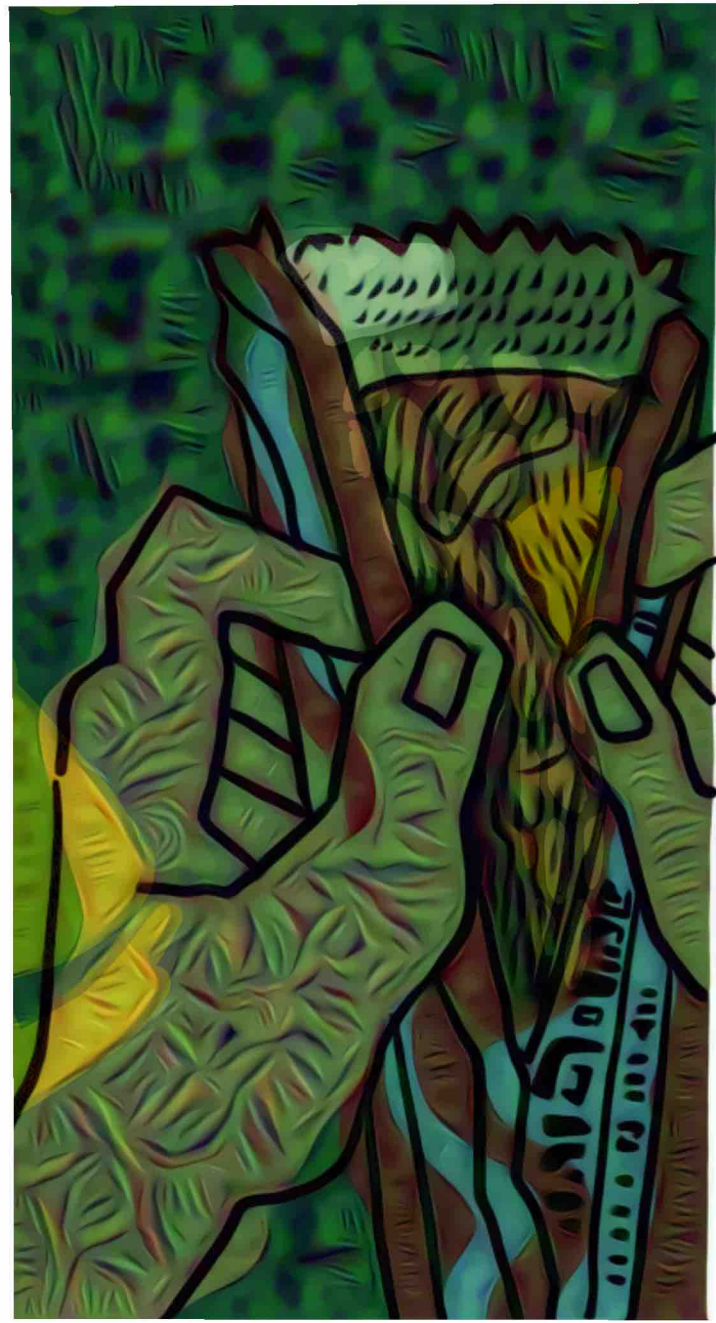
Psychedelic therapy:



Puppies or Pasteries?:







**Consider:**  
A theory of hallucination:



The REBUS of psychedelics:



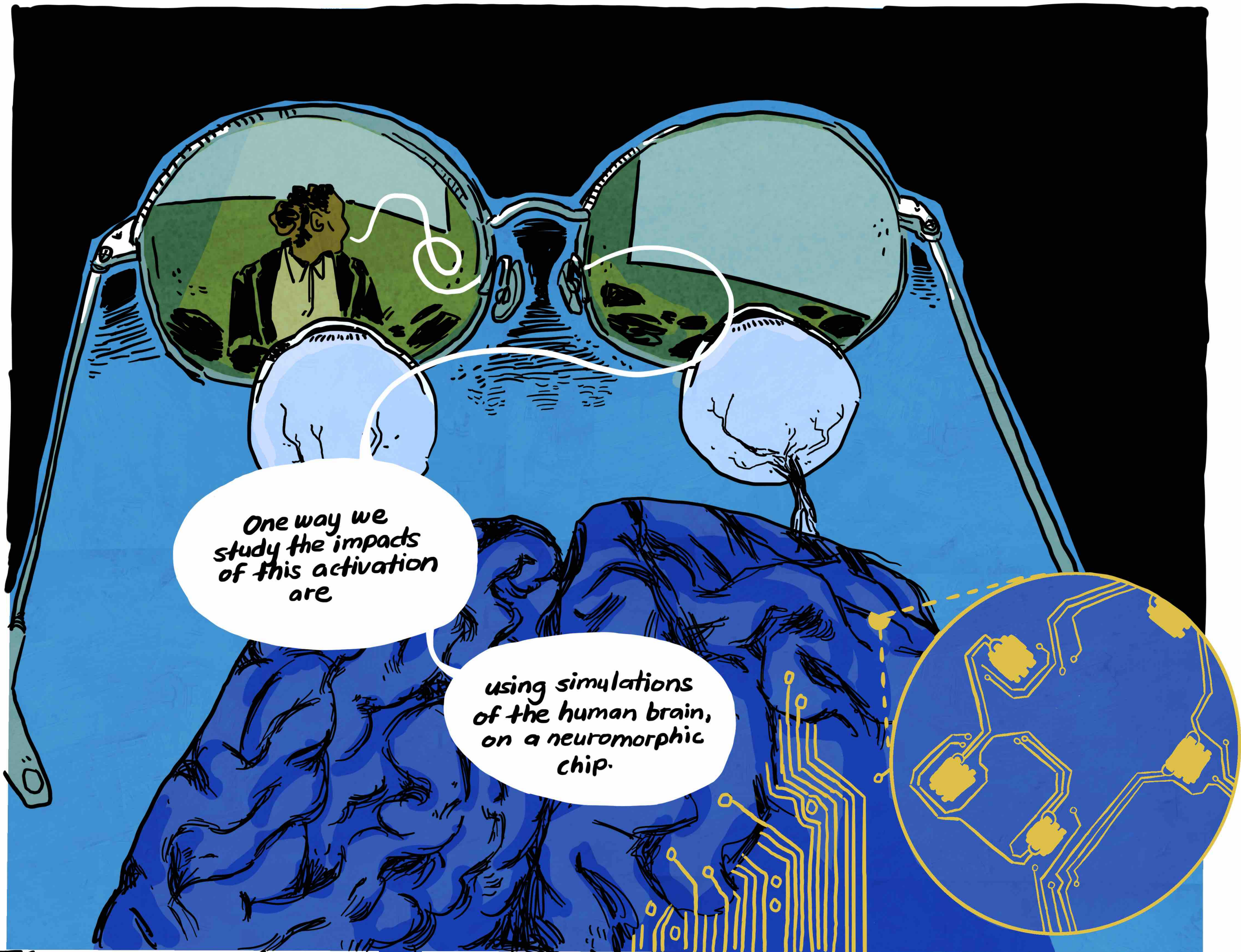
Visual responses in mice:



Subjective accounts of psychedelic experiences:

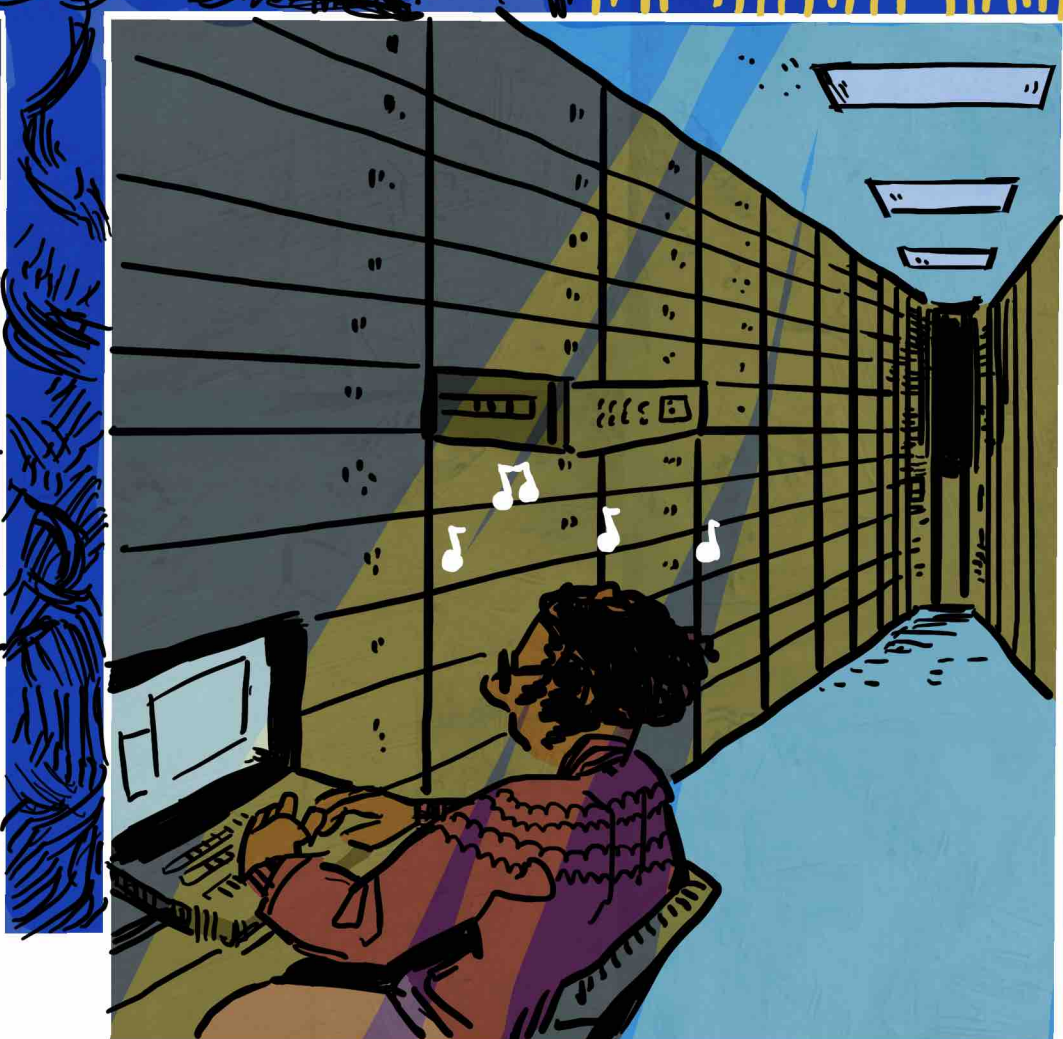
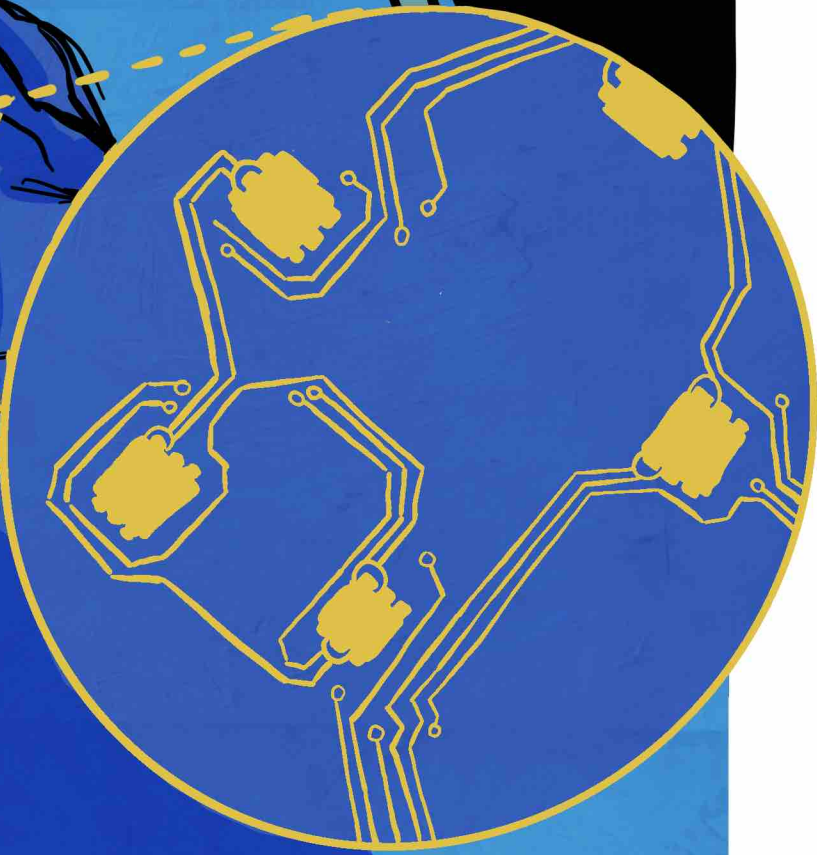






One way we study the impacts of this activation are

using simulations of the human brain, on a neuromorphic chip.



interested?  
**try:**

Neuromorphic engineering in science:



And fiction!







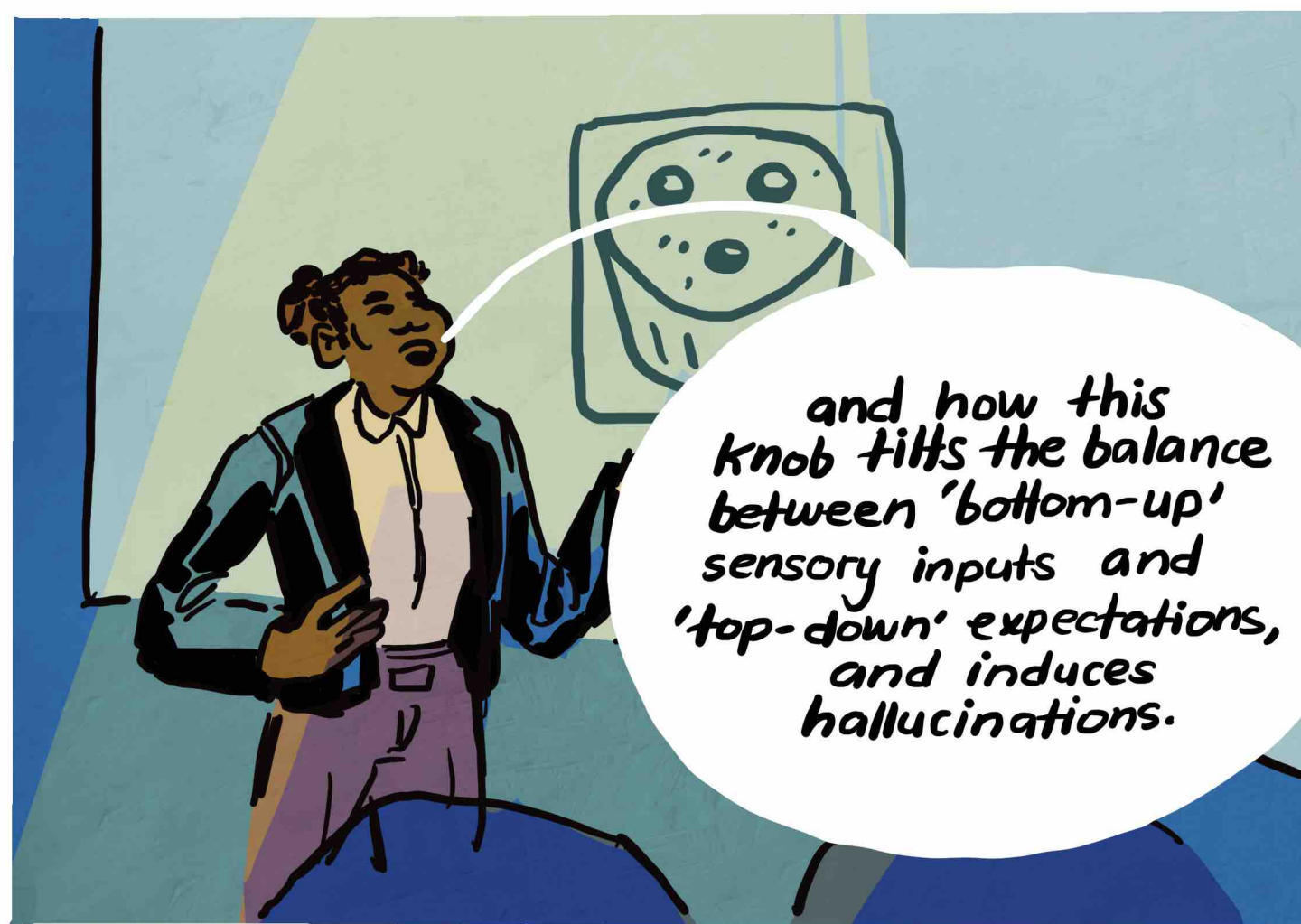
While we simulate a human 'mind' and record its perceptions, we can dial up or down any receptor in its neural network, including serotonin receptors. Our friend 5HT-2A is the knob shown here:



By dialing up the activation of 5HT-2A in the network simulation, we can study how psychedelic drugs hijack neural activity,



how this change in brain activity leads to altered perceptions



and how this knob tilts the balance between 'bottom-up' sensory inputs and 'top-down' expectations, and induces hallucinations.



This allows us to study both the internal and external experiences of dialing up the 5HT-2A receptor.

got questions?

Neural network simulation of your brain on LSD:



Controlling the speed of perception in neural networks:







meet the authors

Audra's work:



Luca's research:

