

# Psychiatric medications for people living with Autism: A community discussion.

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# Behavioral challenges in Autism Spectrum Disorder (ASD)

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- Challenging behaviors and psychiatric symptoms **degrade quality of life** for:
  - Individuals diagnosed with ASD.
  - Family members
  - Other community members (teachers, other helping professionals, et al.)
- They also lead to fear and stigma among those unfamiliar with ASD.

# Multiple approaches can help address challenging behaviors

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- Applied Behavior Analysis (ABA)
  - Learning strategies targeting specific behavioral issues
- Social Skills Training and other practical interventions
- Family therapy and support strategies
- Medications
  - Best combined with other approaches

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# **Basic principles of neuro- pharmacology**

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# The synapse is the basic “relay” in the circuitry of the brain

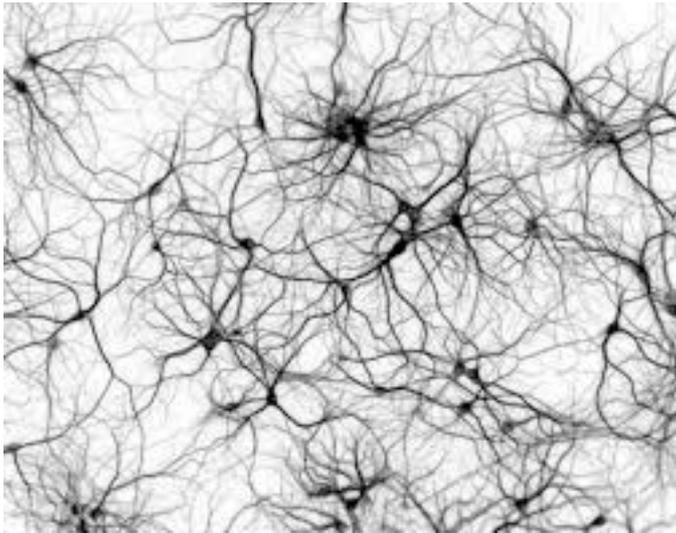


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*The Spike*.  
<https://medium.com/the-spike/the-dark-neuron-problem-47d758d7600b>

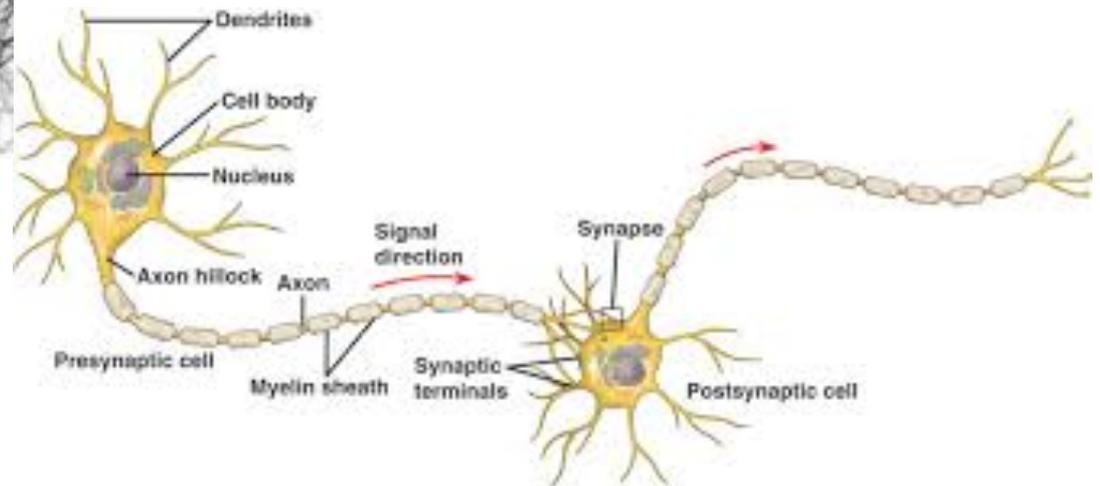


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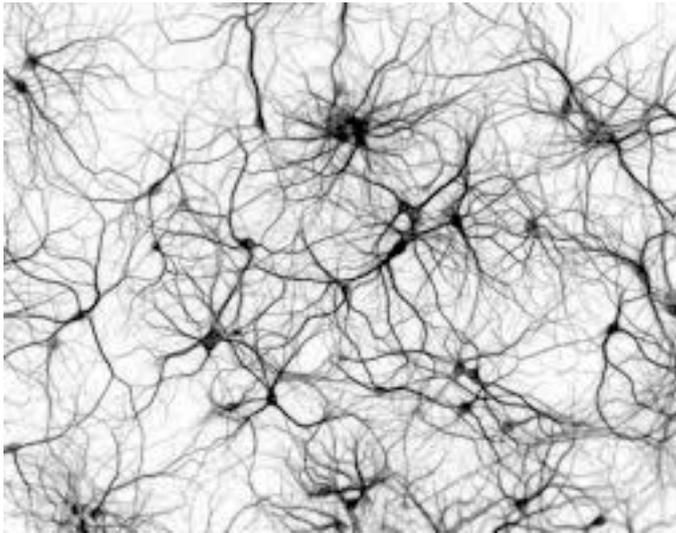


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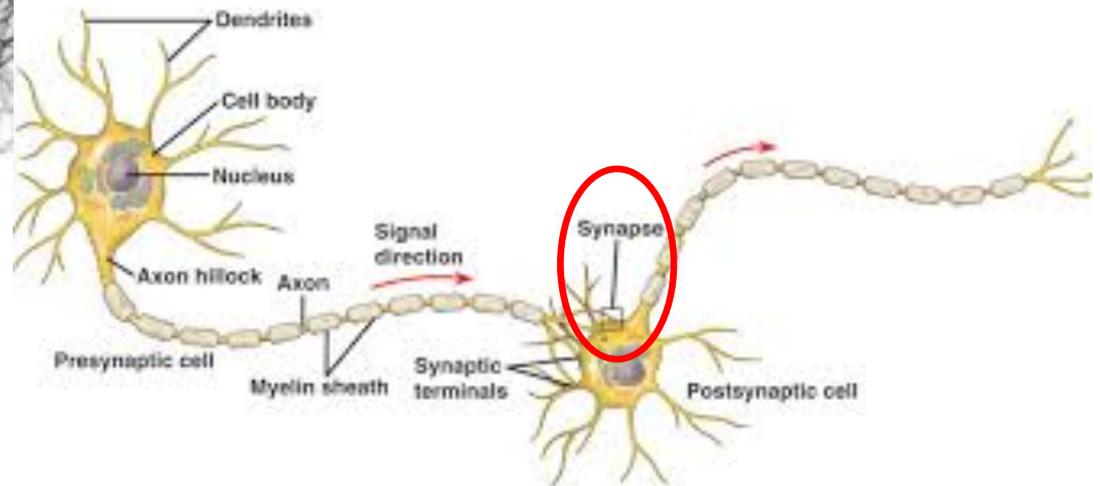
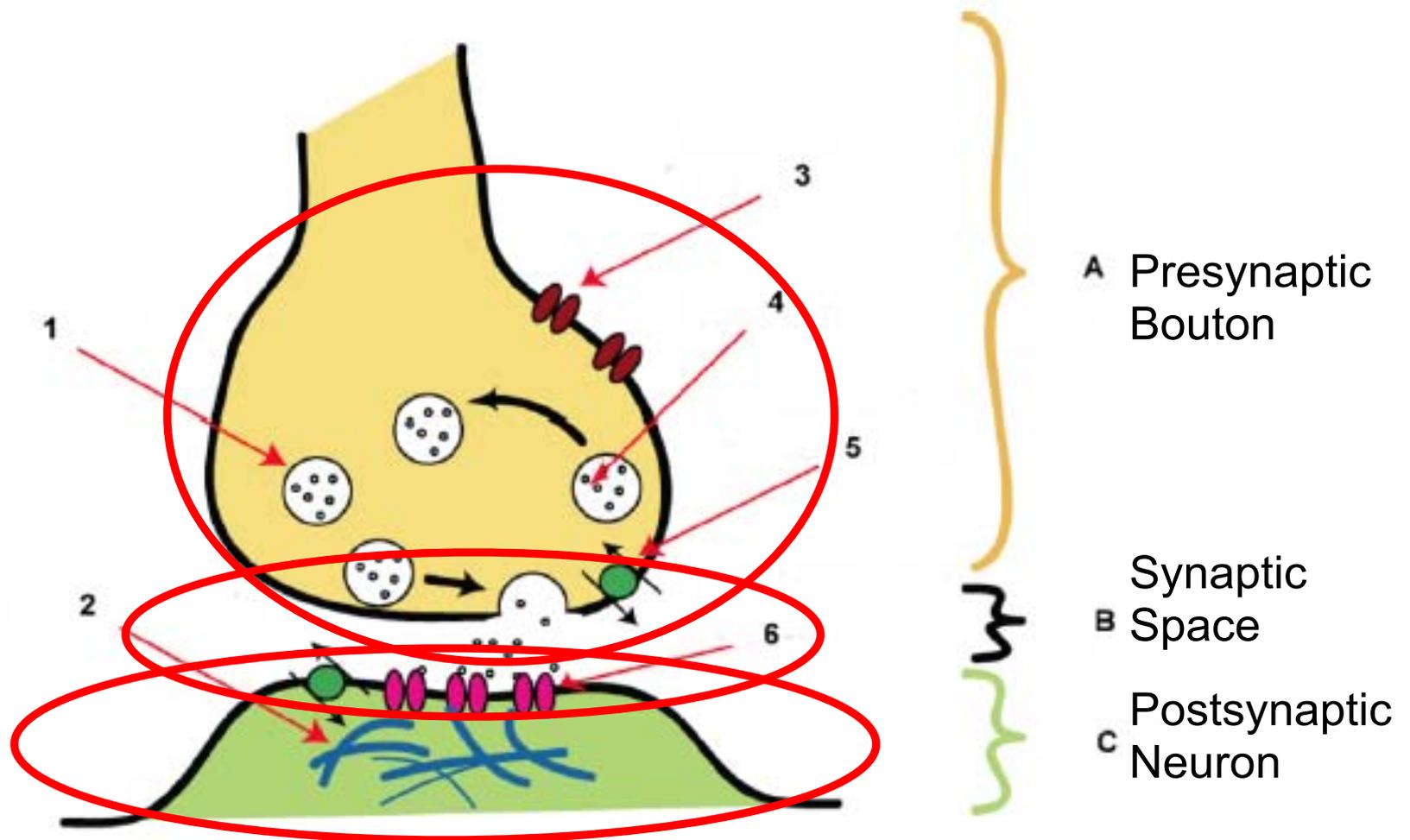


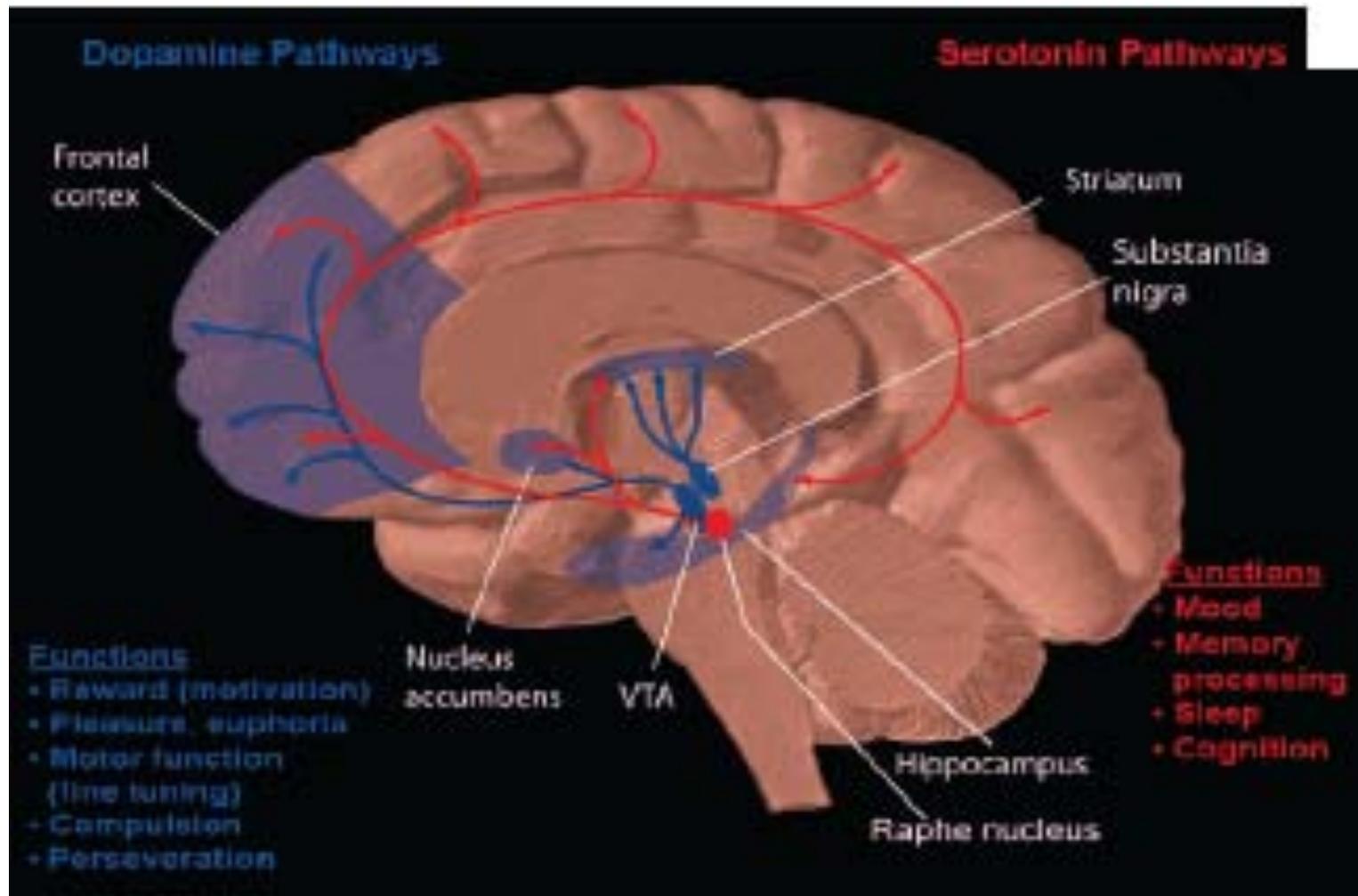
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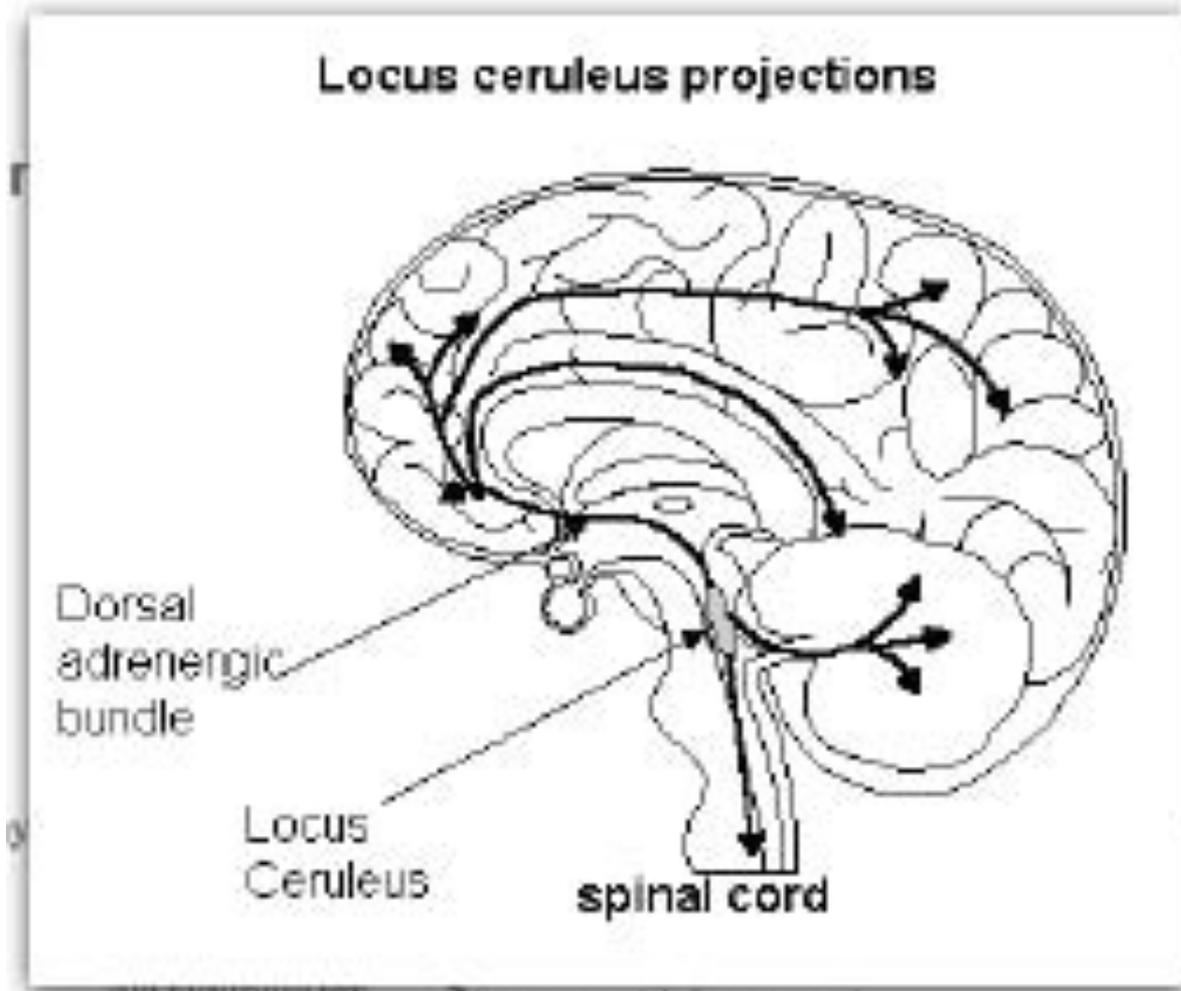


# Dopamine and Serotonin



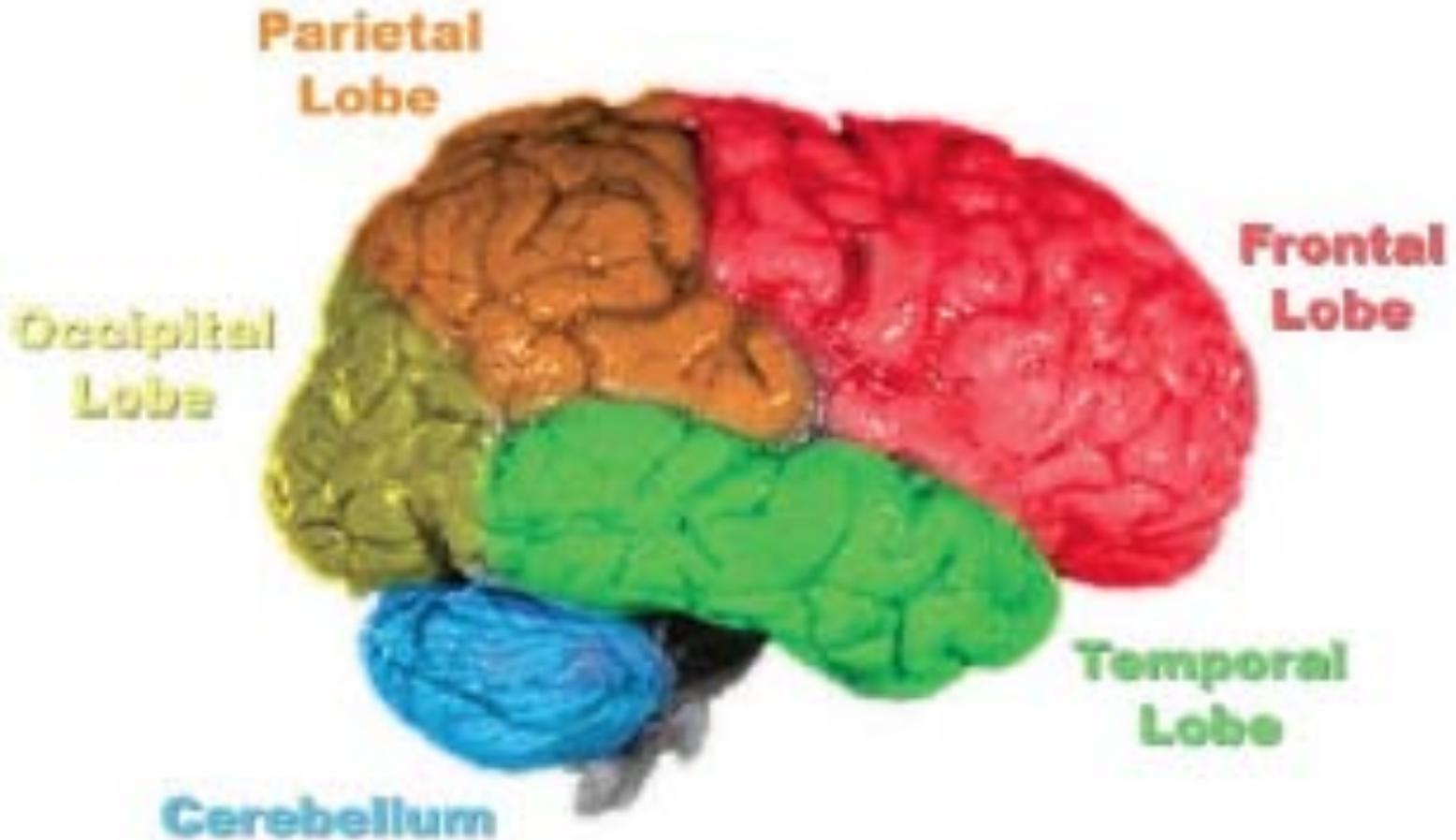
# Norepinephrine

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# GABA and glutamate function *locally* throughout the brain

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# Comprehensive list of medications developed for treatment of ASD:

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**Given the lack of medications “for autism,” *how do we use medications to help people with ASD?***

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# ***TARGET SYMPTOMS***



# People with ASD often exhibit **symptoms and behaviors** that worsen their difficulties

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- Anxiety
- Depression
- Challenging behaviors (e.g. aggression, “melt-downs,” SIB, agitation)
- Obsessions and compulsions
- Psychosis
- Disturbances of sleep
- Attention difficulties

# Taking Aim at Target Symptoms

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- **Anxiety**

- enhance serotonin: SSRIs (Prozac-like medications, others)
- enhance GABA: benzodiazepines (Valium-like medications)

- **Depression**

- enhance serotonin: SSRIs, MAO inhibitors
- enhance norepinephrine: Tricyclics (imipramine and others), SNRIs (Cymbalta and others)

# Taking Aim at Target Symptoms

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- **Challenging Behaviors**

- evaluate for other issues (e.g. anxiety, GI problems) and treat those first!

- **block dopamine:**

- first-generation antipsychotics (Haldol and others)

- second-generation antipsychotics (Risperdal and others)

- **enhance GABA:**

- benzodiazepines (Valium-like medications)

- anti-convulsants (Depakote, Tegretol and others)

# Taking Aim at Target Symptoms

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- **Obsessions and Compulsions**

- enhance serotonin: SSRIs (Prozac-like medications)
- block dopamine (1st and 2nd-generation APMs)

- **Sleep**

- enhance GABA, NE, or serotonin
- enhance melatonin
- block histamine (e.g., Benedryl)

# Taking Aim at Target Symptoms

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- **Attention difficulties**

- enhance dopamine + norepinephrine:
  - psychostimulants (Ritalin and others)
  - Atomoxetine (Strattera)
  - Guanfacine (Tenex)

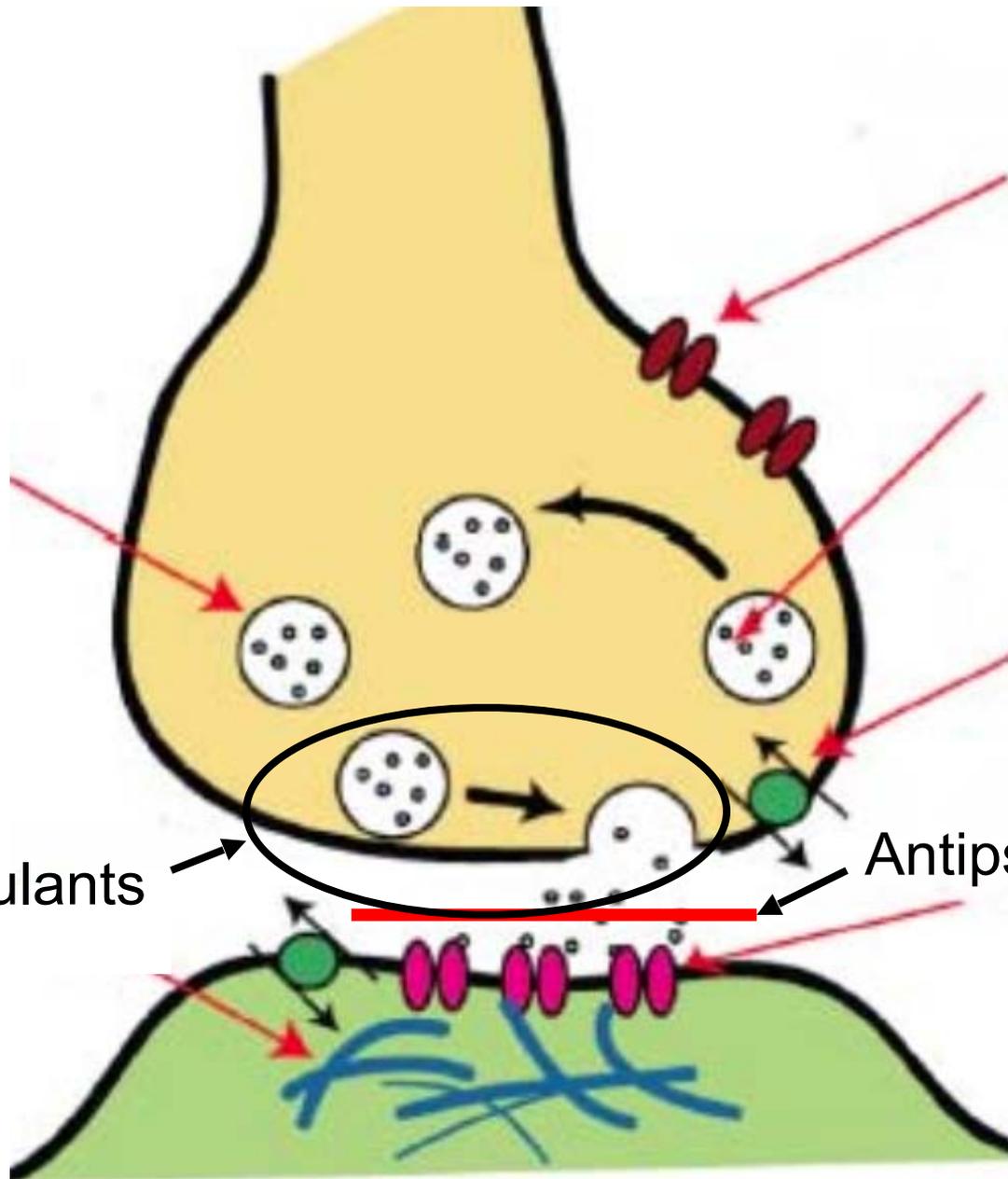
- **Psychosis**

- block dopamine (1st and 2nd-generation APMs)

# Psychotropic medications targeting Dopamine (DA)

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- **Dopamine (DA)**
  - attention
  - organization and focus
  - psychosis, agitation, aggression
- **Anti-psychotic medications** (Haldol, Risperdal, Seroquel, etc): block DA receptors
  - lessen aggression (but akathisia can complicate this)
  - improve organization and focus (sometimes)
- **Psychostimulants** (Ritalin, Concerta, etc): enhance DA release and increase action of DA at receptors.
  - improve attention, organization, and focus
  - lessen aggression (sometimes, but sometimes worsens aggression).



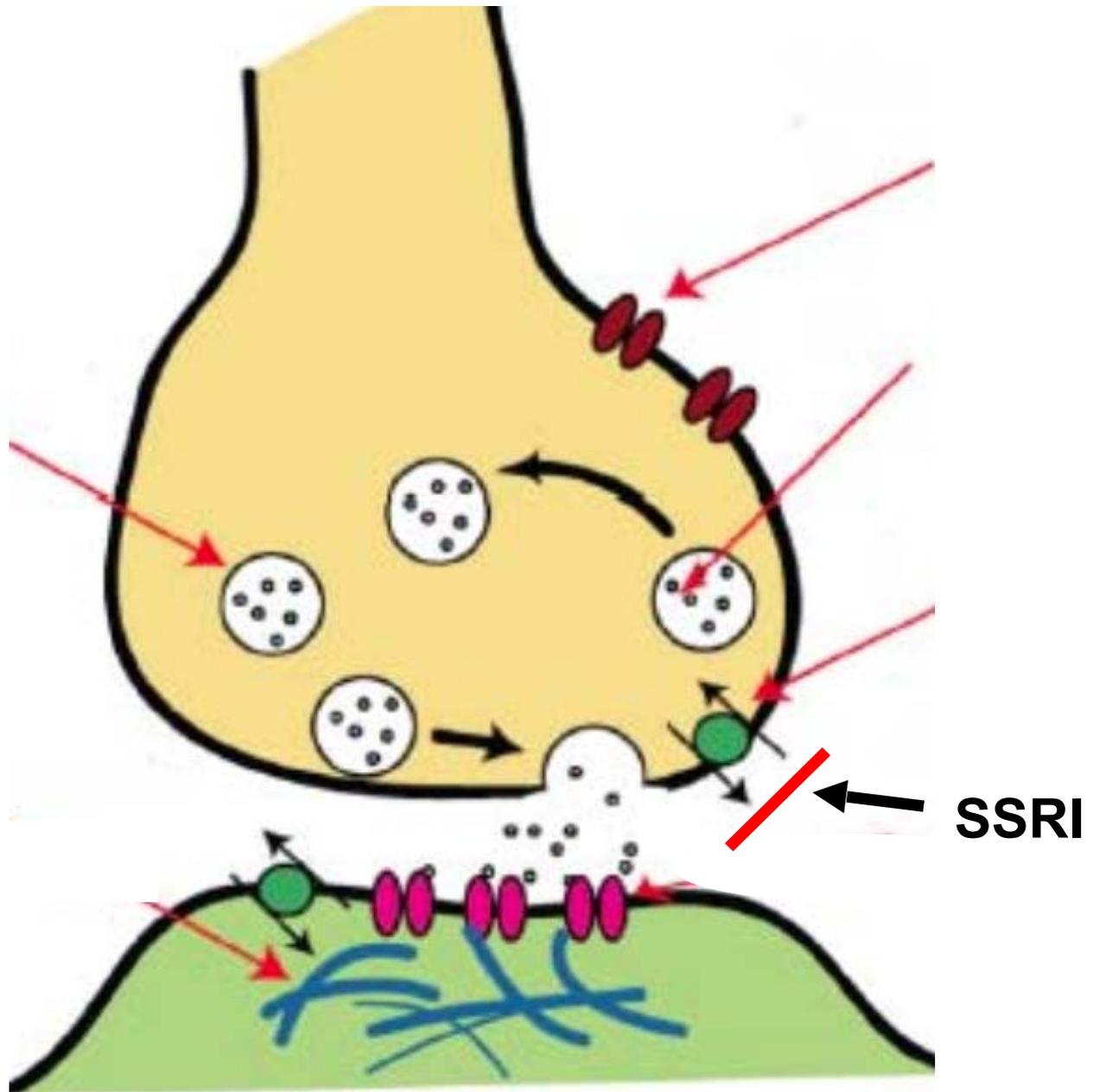
Psychostimulants

Antipsychotics

# Psychotropic medications targeting Serotonin (5-HT)

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- **Serotonin (5-HT)**
  - mood
  - anxiety
  - sleep
- **Selective Serotonin Reuptake Inhibitors (Prozac, Paxil, Zoloft, Celexa, etc)**



# Future Prospects

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- New agents for traditional targets
- Research on genetic syndromes underlying NDD and ASD.
- Neuropeptides:
  - Oxytocin and small molecules that affect oxytocin
  - Vasopressin and others
- Cannabidiol or other MJ-based compounds???
- Emerging NIH interest in supporting specific clinical trials in ASD.

# Talking to your doctor about medications

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- Ask about expected helpful effects.
- Ask about possible negative effects.
- ***Don't be afraid to ask any other questions you have!***
- Remember that medications will not solve all problems.

# Adjusting Medications Takes Time and Patience!

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- Make one change at a time if at all possible.
- Engage teachers, family and other caretakers in monitoring effects.
- Sometimes *discontinuing* medications is more helpful than adding them!
- Medication effects change over time, and with advancing brain development.
  - Example: stimulants in children vs. adults.

# Summary

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- Currently no medications specifically developed for ASD.
- A rational approach to using medications for ASD is to focus on *target symptoms*.
- Complex medication regimens are sometimes necessary, but sometimes create more trouble than they solve.
- There is hope for future medication development, as a better understanding of ASD evolves.
- **Medications are only PART of the answer!** Best combined with behavioral approaches.