

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

Joe Cubells, MD, PhD

Associate Professor of Human Genetics, and Psychiatry and Behavioral Sciences
Emory University School of Medicine
and
Director of Medical and Adult Services, Emory Autism Center

February 26, 2019

This slide set is for non-profit educational use only and **does not constitute medical advice**. Please do not make copies of images it contains, or distribute beyond the Conference audience without consulting Dr. Cubells.

Behavioral challenges in Autism Spectrum Disorder (ASD)

- 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

- 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

Basic principles of neuro- pharmacology

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

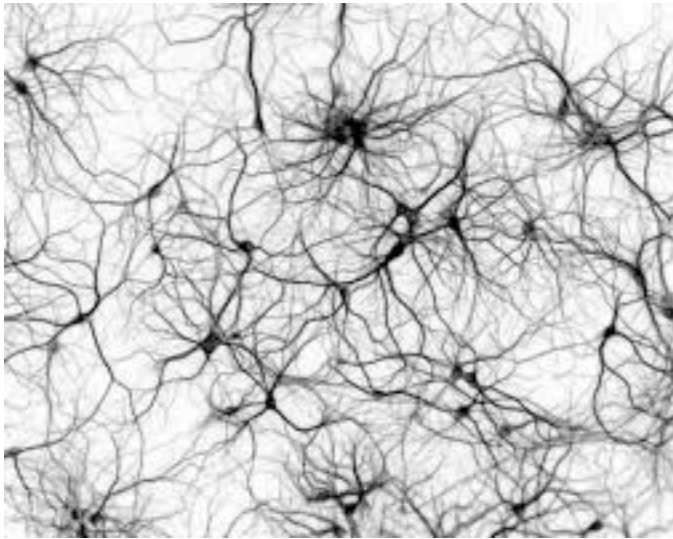


Image from: Mark Humphries,
The Spike.
<https://medium.com/the-spike/the-dark-neuron-problem-47d758d7600b>

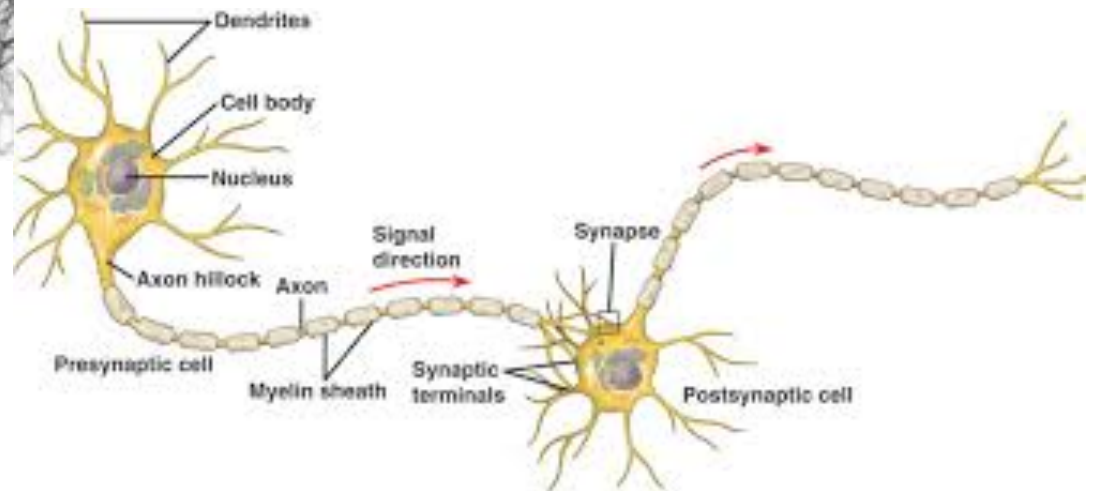


Image from: www.biomedicalengineering.yolasite.com

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

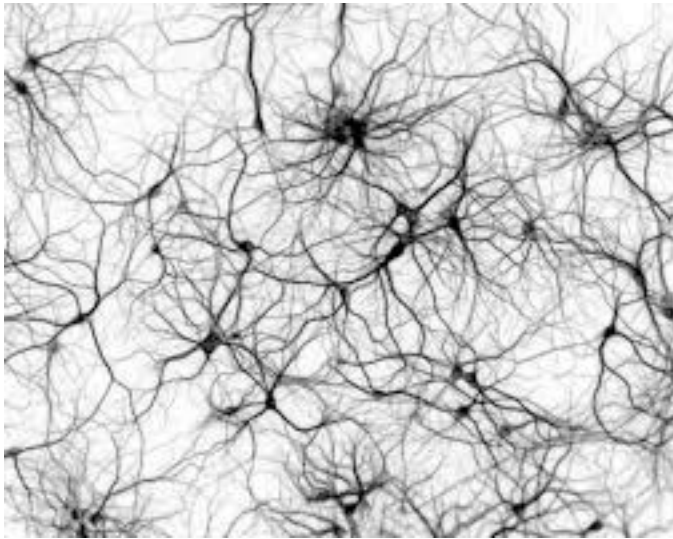


Image from: Mark Humphries,
The Spike.
<https://medium.com/the-spike/the-dark-neuron-problem-47d758d7600b>

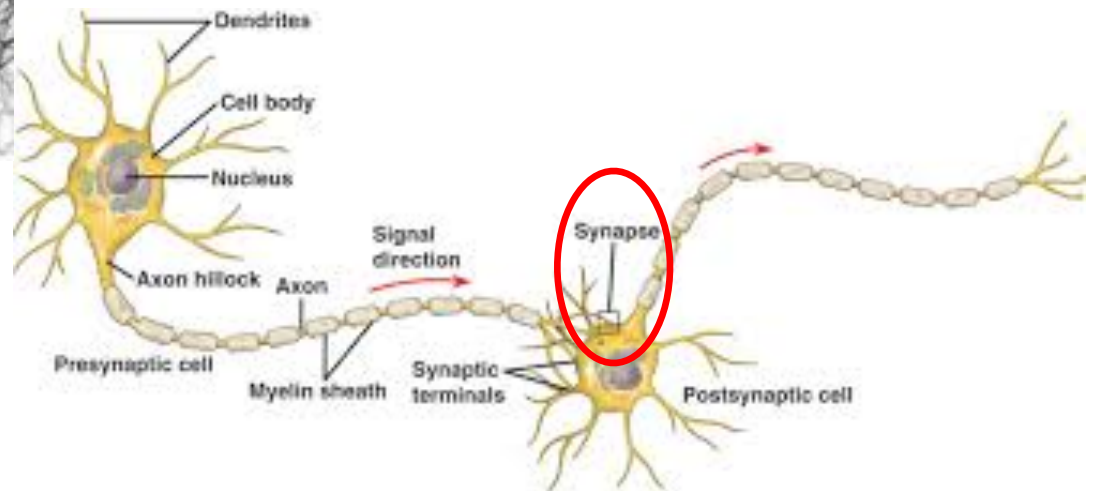
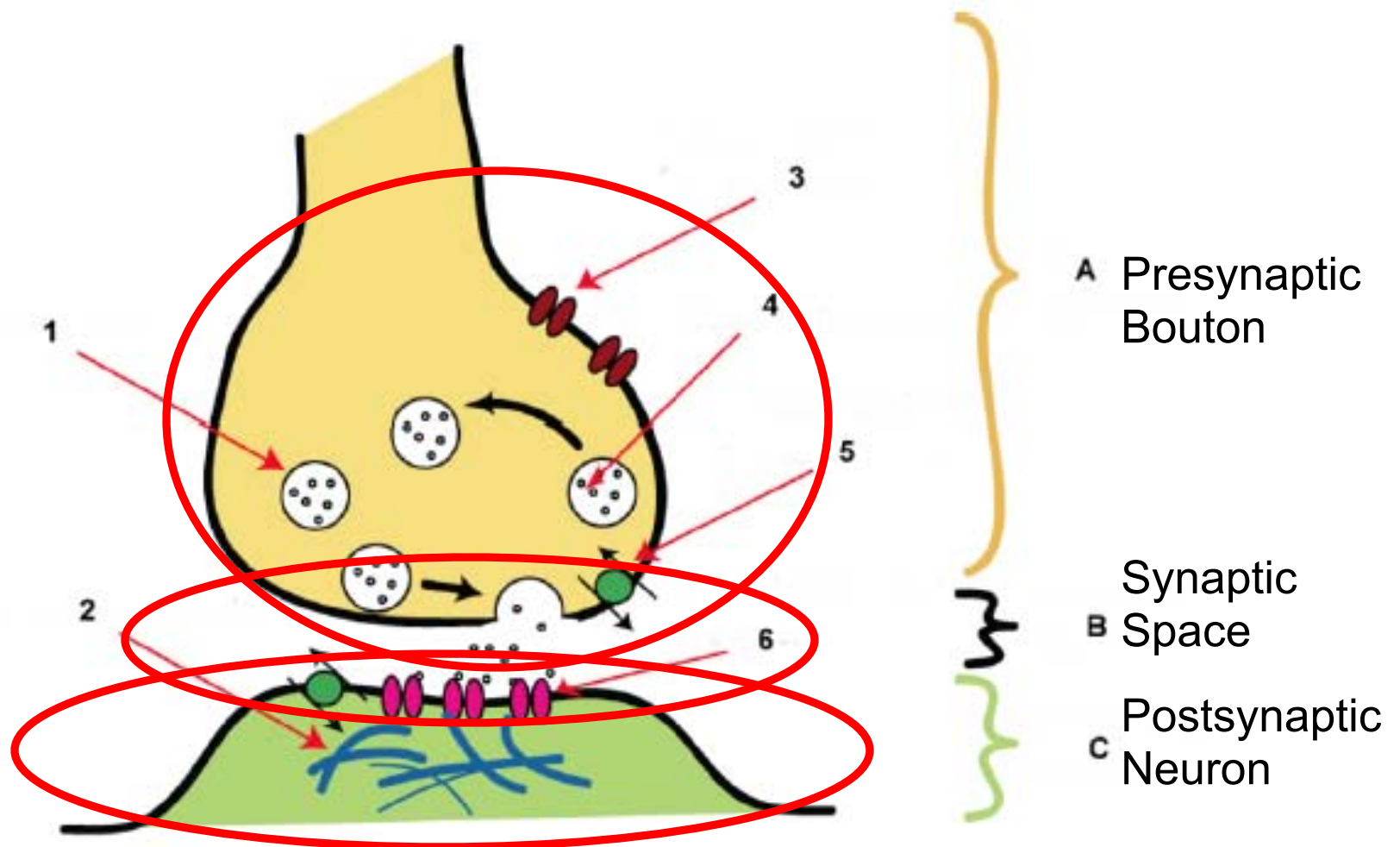
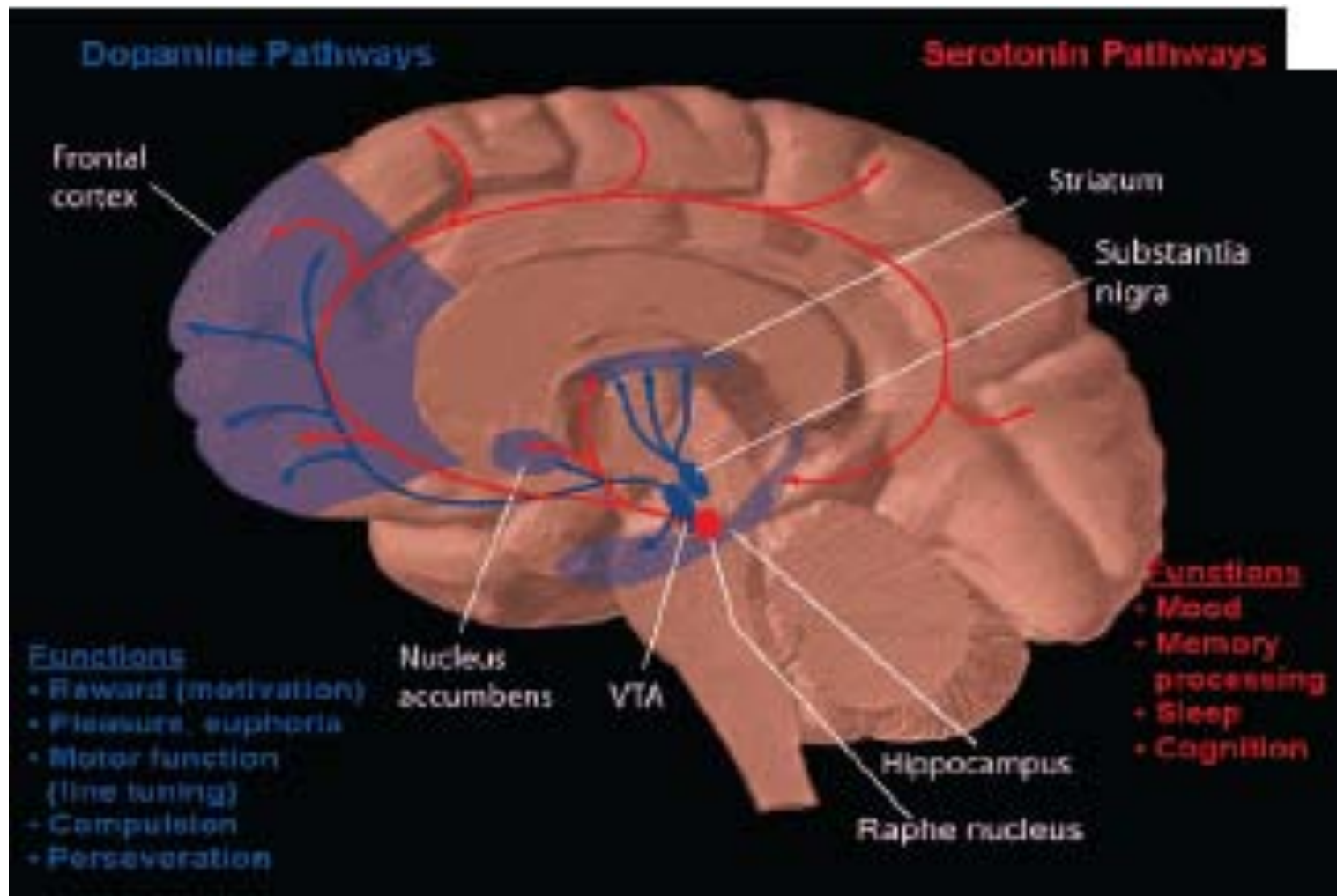


Image from: www.biomedicalengineering.yolasite.com

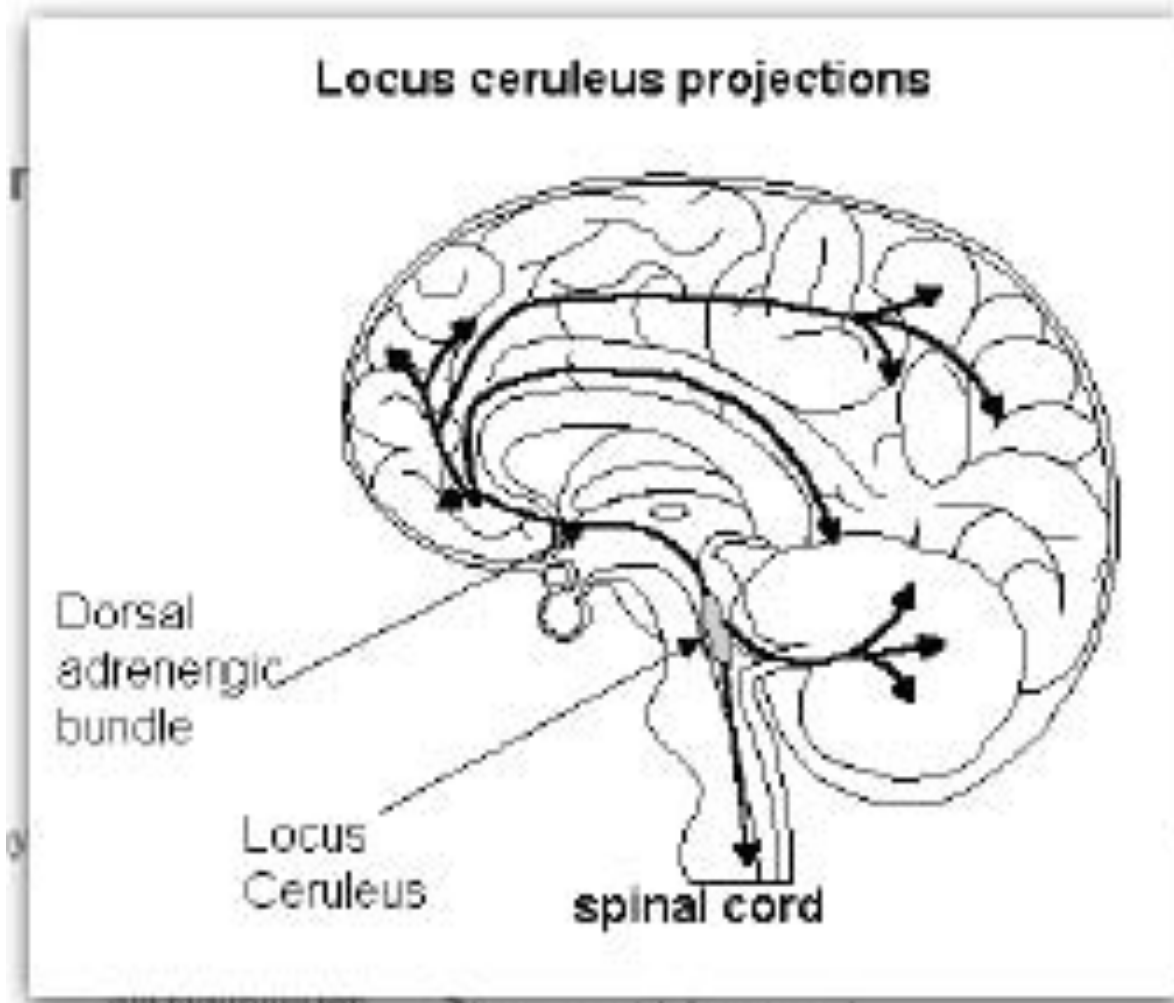
The synapse is the basic “relay” in the circuitry of the brain



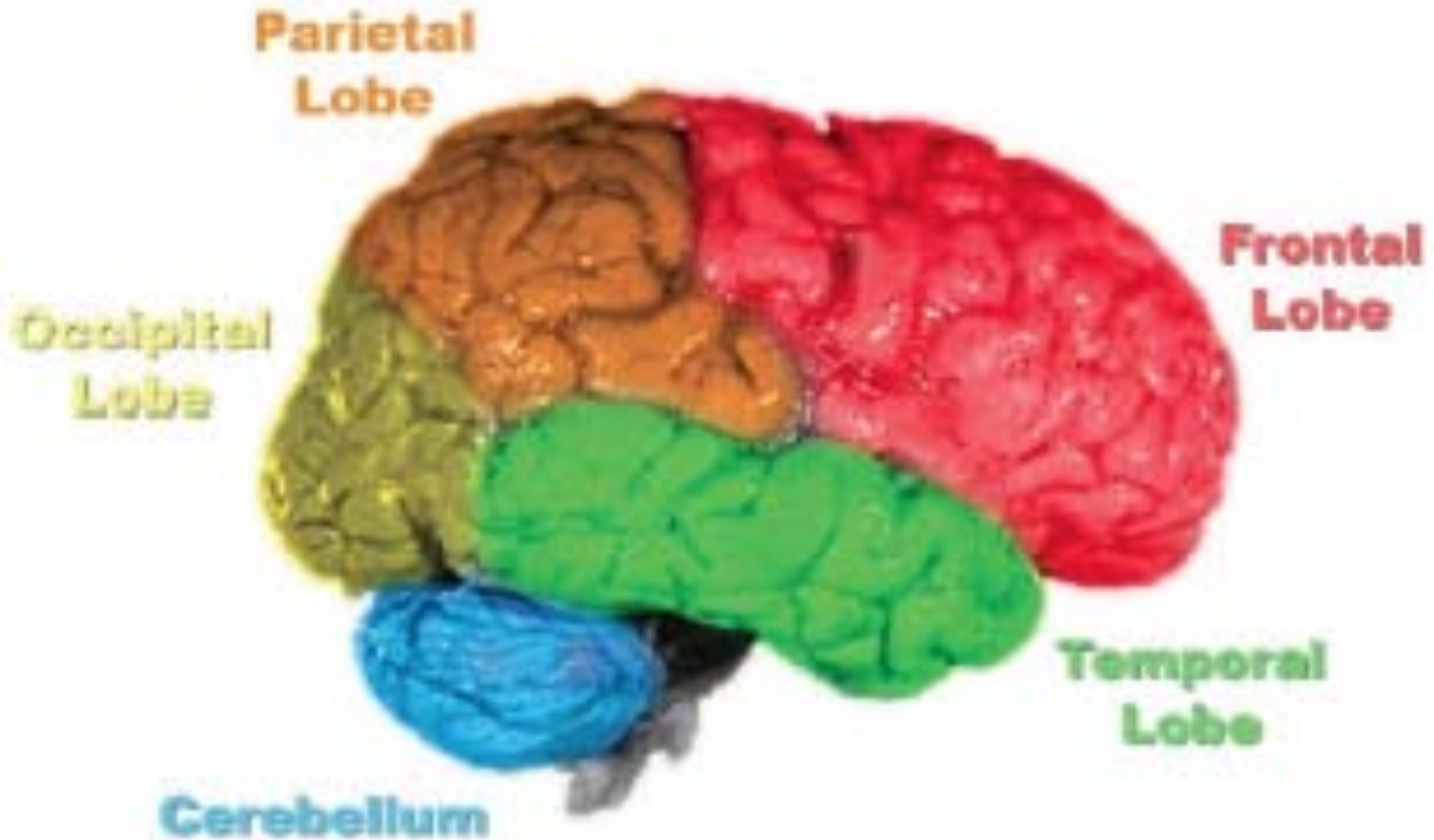
Dopamine and Serotonin



Norepinephrine



GABA and glutamate function *locally* throughout the brain



Comprehensive list of medications developed for treatment of ASD:



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

TARGET SYMPTOMS



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

- 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

- **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

- **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

- **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

- **Attention difficulties**

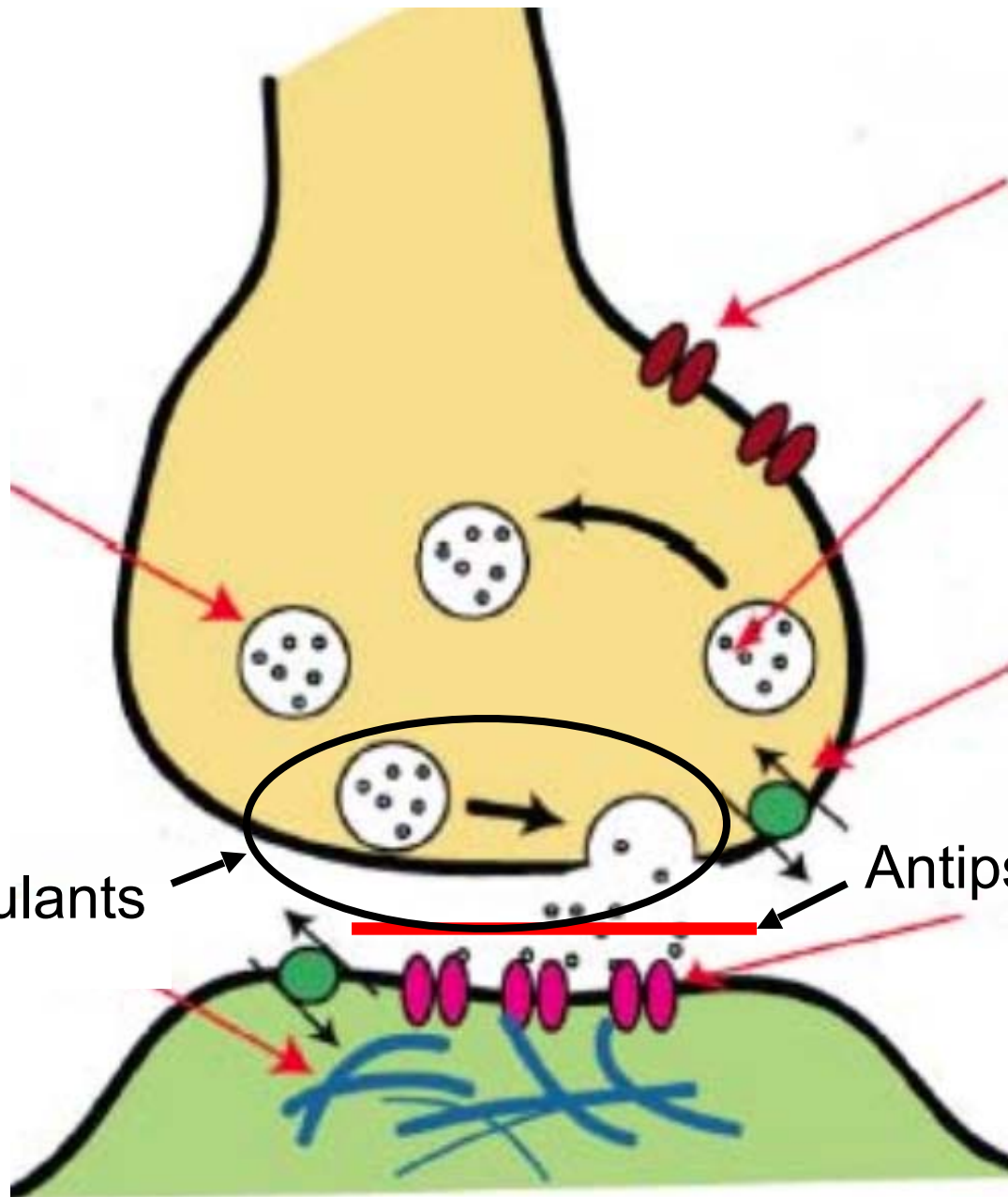
- enhance dopamine + norepinephrine:
 - psychostimulants (Ritalin and others)
 - Atomoxetine (Strattera)
 - Guanfacine (Tenex)

- **Psychosis**

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

Psychotropic medications targeting Dopamine (DA)

- **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).

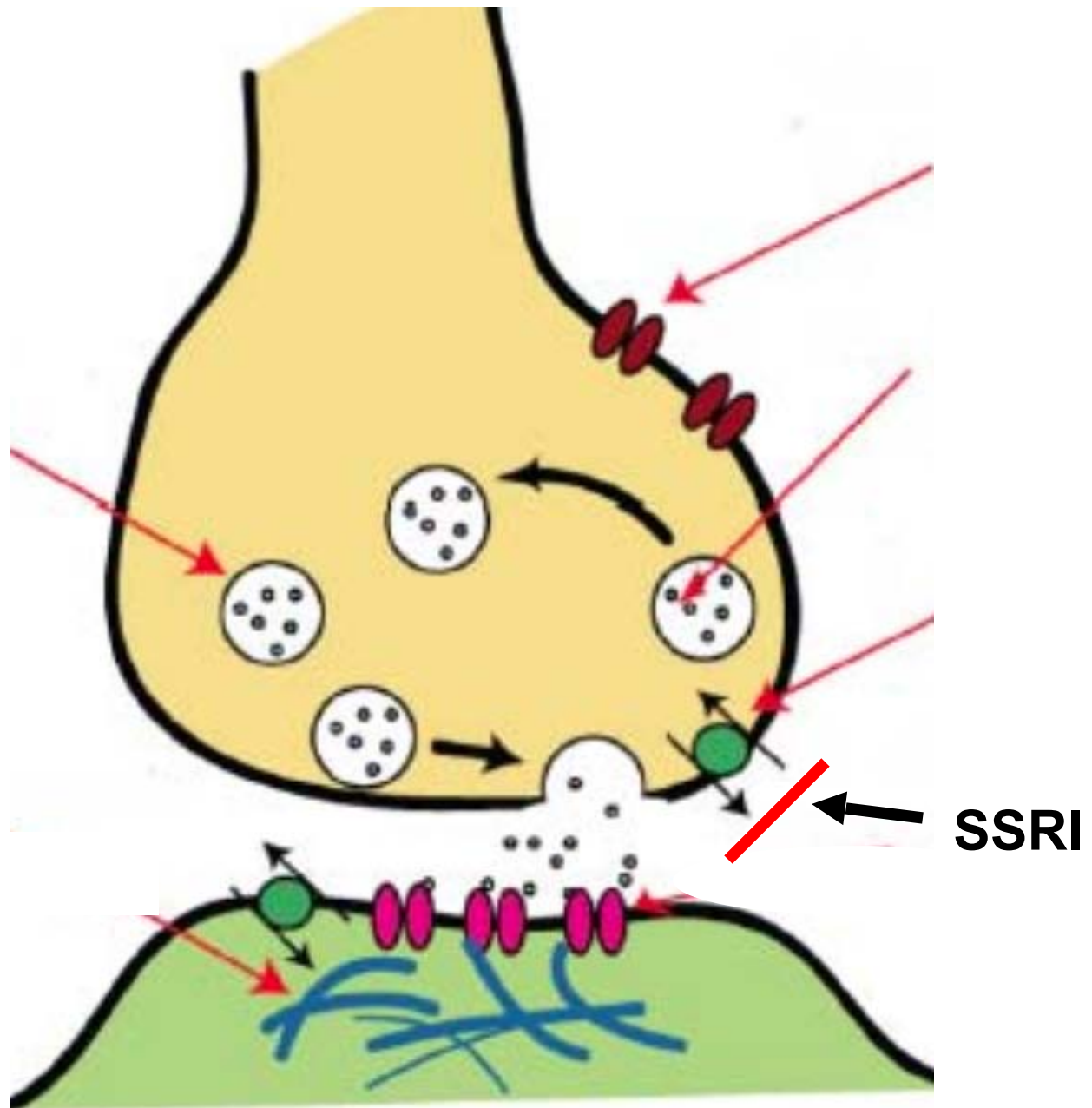


Psychostimulants

Antipsychotics

Psychotropic medications targeting Serotonin (5-HT)

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



Future Prospects

- 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

- 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!

- 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

- 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.