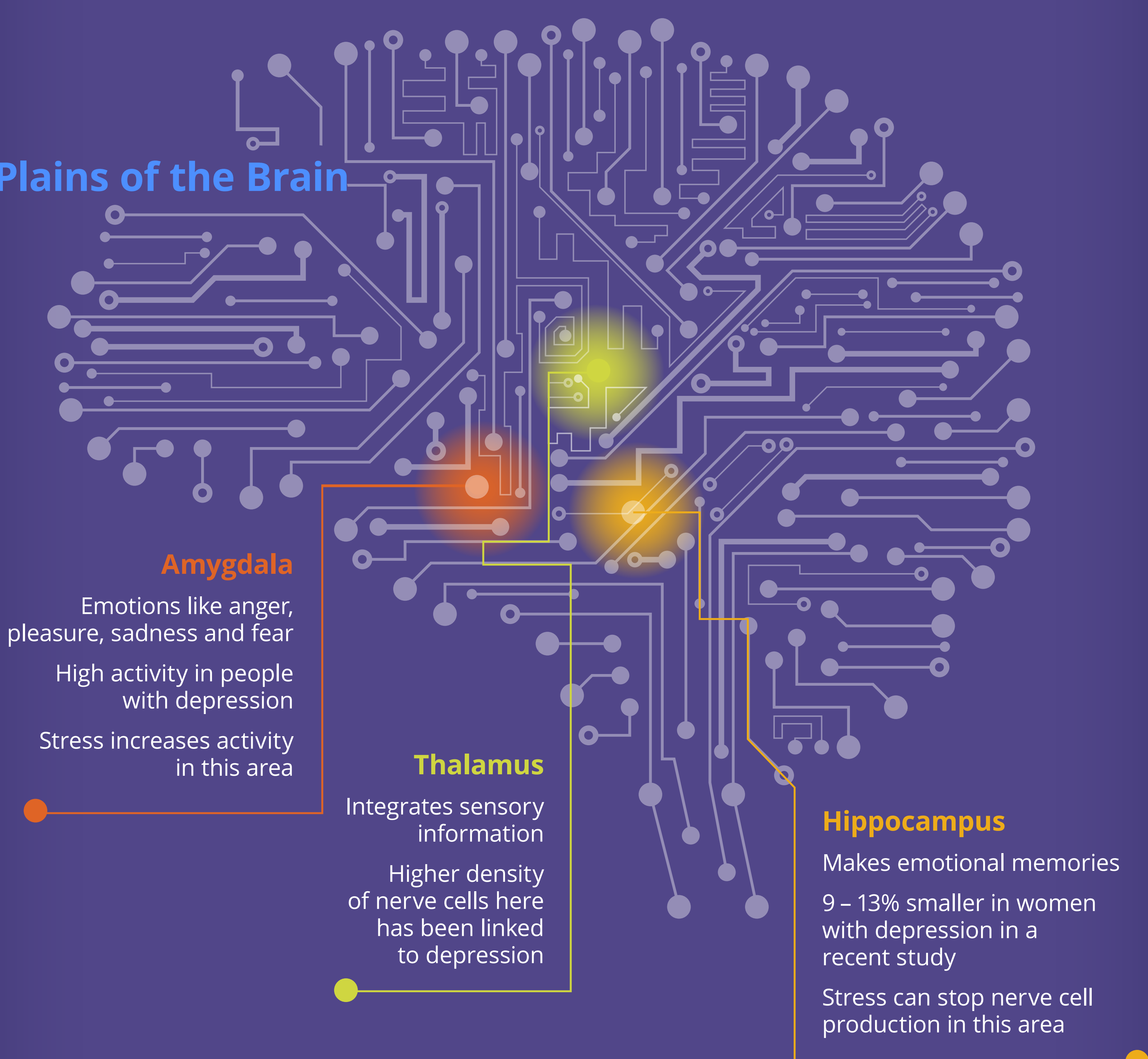


# Science of Depression

Causes of depression are still not well understood, but these factors play a role.

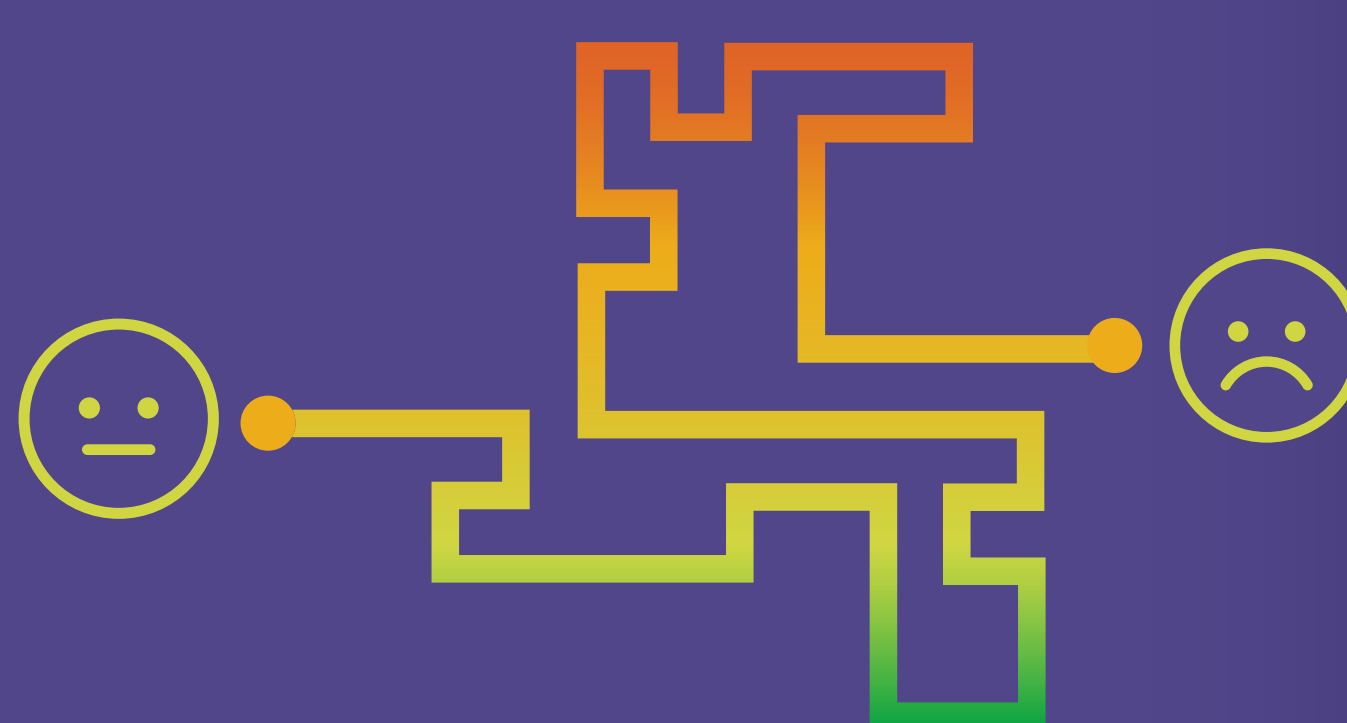
## Plains of the Brain



## Mixed Signals

Neurotransmitters are chemicals in the brain that send messages.

Sometimes the brain can send out too much or not enough of them, affecting mood. Changes in neurotransmitter receptors can also affect mood.



### Main neurotransmitters linked to depression:

#### Dopamine

- Controls movement, experience of reward, gratification and positive reinforcement
- Plays role in substance use disorders
- Abnormal activity levels linked to depression

#### Norepinephrine

- Controls wakefulness, attention, performance, stress and anxiety
- Changes in activity linked to lack of focus and interest, two signs of depression

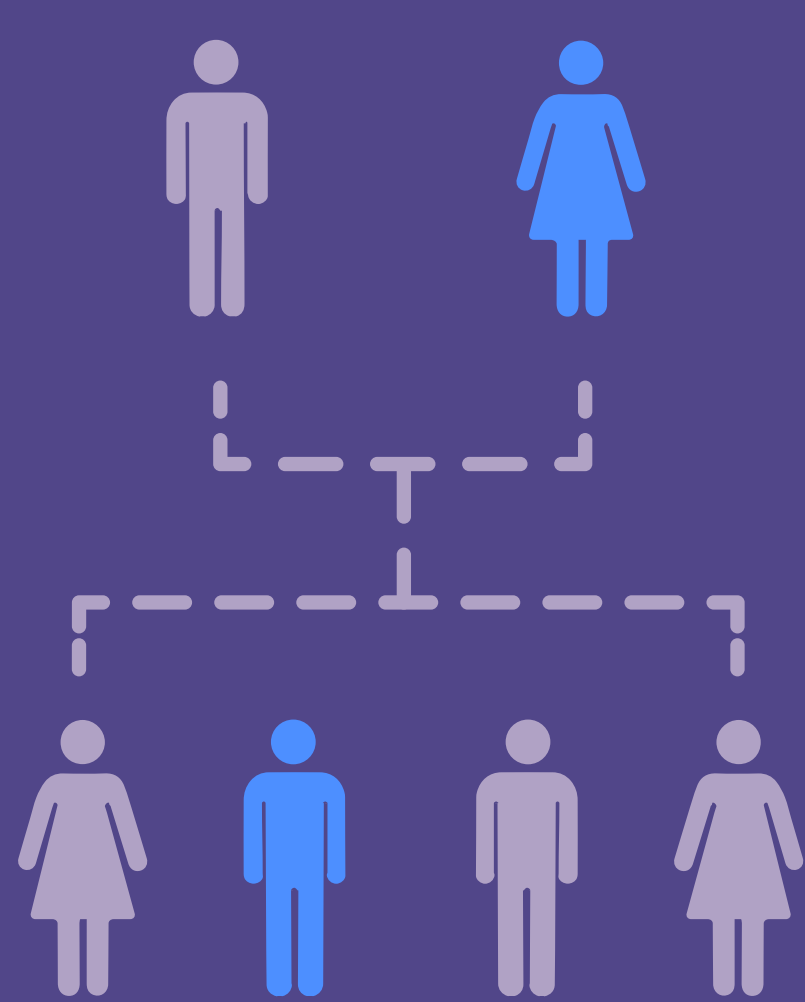
#### Serotonin

- Controls sleep, appetite, mood and pain
- Changes in signaling, receptor activity and neurotransmitter activity linked to suicide, but not sole cause of depression as once thought

## Medically Melancholy

Medical conditions, such as heart disease, cancer and postpartum changes, and medications may be the cause of

**10% to 15% of depression cases in the U.S.**



## Blue Genes

People with parents or siblings with depression are **2 to 3 times more likely** to develop depression.

No “depression gene” has been discovered, but certain genes can cause medical conditions linked to depression.

## Stress Switch

Chronic stress and trauma, like life-altering accidents or events, are linked to depression.

People who have depression typically have higher levels of corticotropin-releasing hormone (CRH), which triggers the stress response.



## Get Help

If you suspect you have depression, consult a healthcare provider. If you or someone you know is having thoughts of suicide, call the National Suicide Prevention Lifeline at 800.273.8255 or seek help at the nearest Emergency Department.

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