

2014

Caffeine + L-Theanine: Uses and Effects

Julia Dueease
Parkland College

Recommended Citation

Dueease, Julia, "Caffeine + L-Theanine: Uses and Effects" (2014). *Natural Sciences Poster Sessions*. 62.
<https://spark.parkland.edu/nsps/62>

Open access to this Poster is brought to you by Parkland College's institutional repository, [SPARK: Scholarship at Parkland](#). For more information, please contact spark@parkland.edu.

CAFFEINE + L-THEANINE: USES AND EFFECTS



AUTHOR INFORMATION:

Julia Dueease

Parkland College

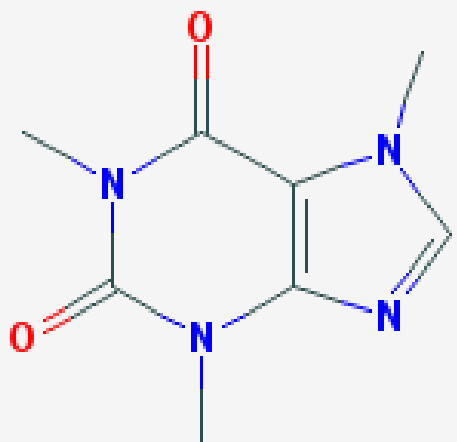
CHE-101-003

Spring 2014

Prof. Britt Carlson



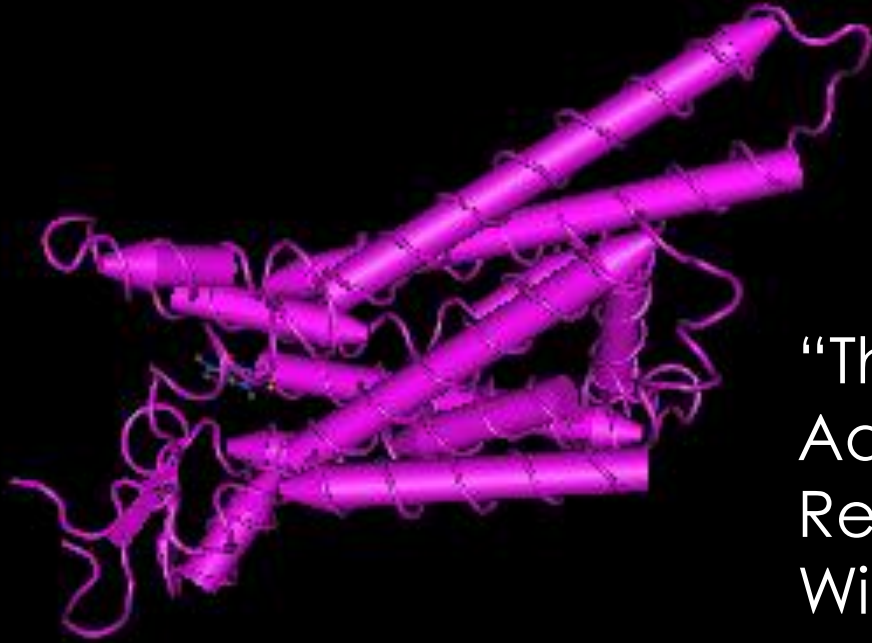
CHEMISTRY OF CAFFEINE



Methylxanthine

("Caffeine")

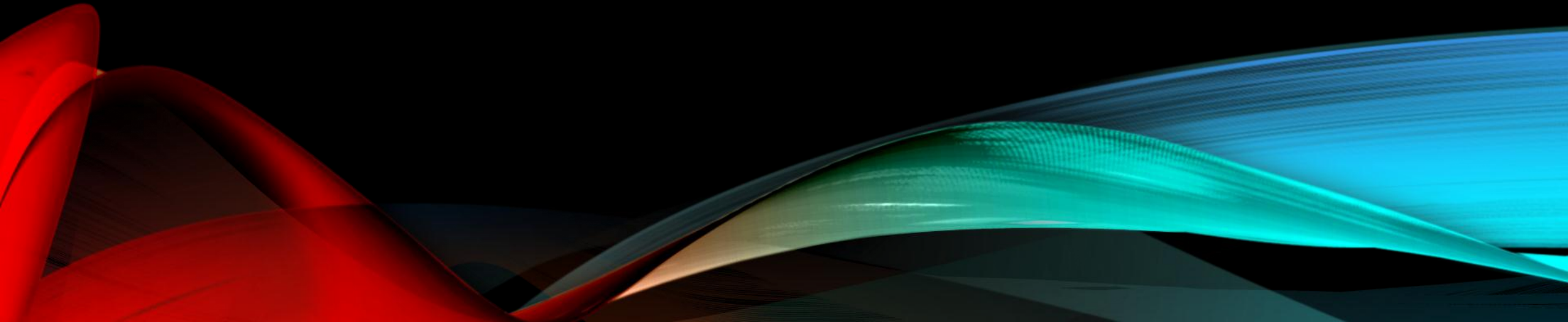
3D EXAMPLE OF CAFFEINE EFFECT IN THE BODY



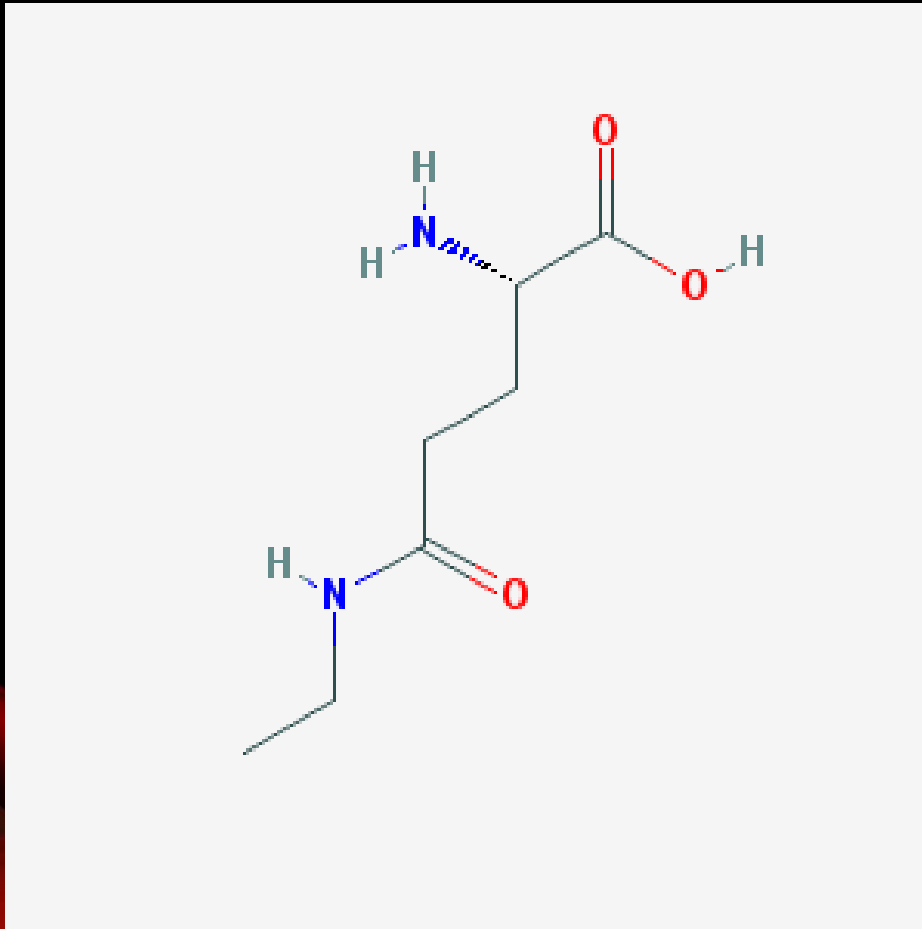
“Thermostabilised Adenosine A2a Receptor In Complex With Caffeine[Signaling Protein]” (“Xanthine Derivatives”).

CAFFEINE AND THE HUMAN BODY

- Caffeine can be quickly distributed into body tissues causing it to rapidly cross the placenta and blood-brain barrier (“Caffeine”).
- After it is distributed, it increases stimulation in the brain which includes enhanced cognition and alertness. It can also cause anxiety and increased heart rates (Smith).



CHEMISTRY OF L-THEANINE



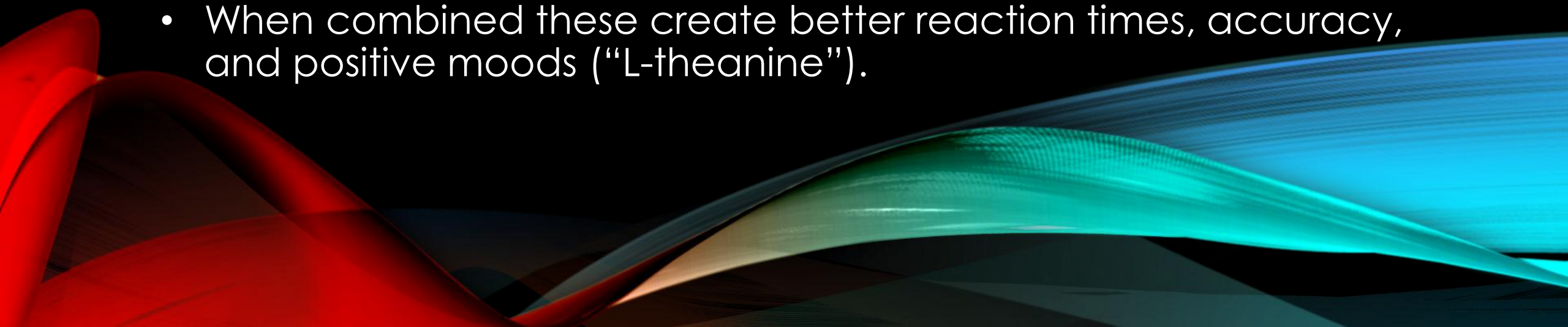
L-gamma-Glutamylethylamide

("L-theanine")

L-THEANINE AND THE HUMAN BODY

- L-theanine, non-proteinic amino acid, appears to have a direct influence on brain activity, including the reduction of stress at high doses (“EBSCO”).
- Doses are usually higher than 20mg, which is the natural dose found in tea.
- A study that measured a type of activity in the brain, called alpha activity, showed that participants had a general state of mental alertness, but no anxiety and tiredness included. (“L-theanine”)

PSYCHOLOGICAL EFFECTS

- Caffeine and L-theanine are two prominent chemical ingredients found in tea (Smith).
 - Tea is a healthy alternative for coffee since it has natural L-theanine (Smith).
 - Caffeine is known to increase stimulation and cognition. L-theanine is used to decrease the anxiety and increased heart rate from the initial caffeine intake (Smith).
 - When combined these create better reaction times, accuracy, and positive moods (“L-theanine”).
- 

WORK CITED

- "Caffeine - PubChem." *Pubchem.ncbi.nlm.nih.gov*, 2004. Web. 2 Apr 2014.
- "Xanthine Derivatives." *Livertox.nlm.nih.gov*, 2014. Web. 3 Apr 2014.
- "Theanine - PubChem." *Pubchem.ncbi.nlm.nih.gov*, 2004. Web. 3 Apr 2014.
- "EBSCO." *Therapy.epnet.com*, 2010. Web. 3 Apr 2014.
- Smith, Jessica E., and Peter J. Rogers. "Time for tea: mood, blood pressure and cognitive performance effects of caffeine and theanine administered alone and together." *Psychopharmacology*. Springer science and Business Media, 2008. 195: 569–577. Web. 3 Apr. 2014.