

Joint Event

12th International Conference on
Mental Health and Human Resilience

June 13-14, 2024

9th International Conference on
Mental Health and Psychiatry

Rome, Italy

Marziyeh Zarei
University of Pavia, Italy

Motivational salience-coding dopamine (DA) neurons, being excited by both rewarding and aversive events with weaker responses to neutral events, offer a suitable instructive signal for neural circuits to learn to detect, predict, and respond to situations of high importance. In this regard, DA neurons play a crucial role in motivating efforts to attain high-value goals and in translating awareness of task demands into consistent motor performance. In the ventromedial substantia nigra pars compacta (SNc) and ventral tegmental area (VTA), signals are sent to the ventromedial prefrontal cortex and orbitofrontal cortex (OFC), influencing choice assessment and updating outcome expectations. The nucleus accumbens (NAc) shell receives phasic DA signals encoding motivational value, while the dorsal striatum processes both motivational value and salience signals. These signals guide value learning in striatal circuitry, with bursting facilitating reward learning and pausing facilitating avoidance learning. Similarly, in the dorsolateral midbrain, DA neurons play a role in coding motivational salience and project to the dorsal and lateral frontal cortex, impacting cognitive functions such as attention, working memory, etc.