

Serge Luquet

Université Paris-Diderot

*Motivational and rewarding aspect of feeding:
learning from mice models*

Abstract:

The reinforcing and motivational aspects of food are closely tied to the release of the neurotransmitter dopamine, which is stimulated by high-fat/high-sugar foods as well as by most other objects of desire (e.g., sex, drugs). In particular, the projection of midbrain dopamine (DA) neurons in the ventral tegmental area (VTA) to the nucleus accumbens (NAc) and other limbic brain regions is a crucial neural substrate upon which drugs of abuse (e.g., cocaine, nicotine, morphine) exert their effect; and thus this projection is often referred to as the brain 'reward circuit'. But 'reward' is also the psychological process underlying reinforced behaviors. Rewards are objects or goals that produce 1) pleasure or hedonia 'liking' 2) approach or consummatory behavior 'wanting' and 3) reinforcement – the strengthening of the association between an unconditioned (primary reward, like food) and a conditioned stimulus (anything that predicts that reward, like the smell of food) that results when the two are presented together. We will discuss how experimental models using mice genetics have helped to decipher the different component of reward and the possible distinction between learning, wanting and liking.