





Table 2. Rat behavioral operational classifiers

Classifier	Description	Start Frame	Duration of behavior	End Frame
Attack	 <p>Clear physical antagonistic interaction initiated by the Resident rat. Pauses in movement can occur if the Resident rat remains oriented or moving toward the Intruder.</p>	First frame when the Resident rat makes movement towards the Intruder that ends in a physical attack. A physical attack is typically characterized by outstretched Resident forepaw(s) contacting the Intruder, while the Resident has an open mouth to initiate a bite. Can also be characterized by a quick threatening movement resulting in the rearing up of both rats.	Attacks can include tussling, biting, pinning, boxing, and corralling as part of the attack bout. Breaks in movement may be present in attack behavior. This typically occurs after boxing where both rats are reared up and Resident is oriented towards the Intruder. Breaks in movement can also occur when the Resident has the Intruder pinned in a submissive posture.	First frame when Resident rat orients away from Intruder. Typically this is a slight turning of the head to look in a different direction, followed by a relaxation of the body and moving away from the Intruder.
Submission	 <p>The Intruder rat is in a supine posture and is pinned down by the Resident rat. The Intruder can be pinned in a corner or against a wall, but the back of the Intruder close-to horizontal with the bottom of the cage.</p>	First frame when the Intruder rat assumes a supine posture and continuous to be pinned down for at least 1 second.	Struggling usually occurs at the beginning of the submissive posture and is typically followed by breaks in movement with the Resident rat still on top of the Intruder. More bouts of struggling typically happen, and in some cases, may result in the moving of the interaction to a different location during which a submissive posture is still assumed by the Intruder.	First frame when the Intruder rat is no longer in a supine position. Typically characterized by moving upright onto its hind paws or on its side.
Lateral threat	 <p>Resident rat is in proximity (typically less than one body length away from the Intruder) to face of Intruder with back arched and side displayed toward Intruder. Ears are often pinned with shoulder and side of face nearest to Intruder rat tilted slightly toward ceiling.</p>	First frame when Resident rat initiates the movement to orient towards the side of the Intruder, arches back, and tilts front of body toward Intruder.	Resident will often move toward the Intruder or move front half side to side in front of Intruder, feigning attacks prior to actual attack. Can also occur without initiation of an attack upon approach of the Intruder rat as a defensive behavior.	First frame when lateral threat posture is dropped. Animal will shift head away to look at other target or will begin an attack. If animal does not attack, the back posture will relax. Can occur by the Intruder rat increasing proximity to Resident.
Anogenital sniffing	 <p>Either rat is sniffing the anogenital region of the other. The rat must be sniffing around the base of tail rather than the back or legs.</p>	First frame when either rat is clearly sniffing the other's anogenital region near the base of the tail. In addition to what is pictured, anogenital sniffing can occur when one rat approaches from the front or side and crawls under the other to investigate.	Uninterrupted sniffing of anogenital region.	First frame when the rat moves head away from anogenital region, usually either to move away from Intruder or sniff non-anogenital region.