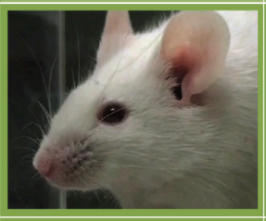
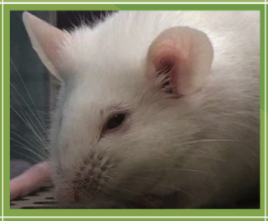
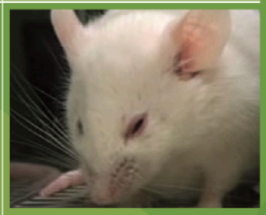
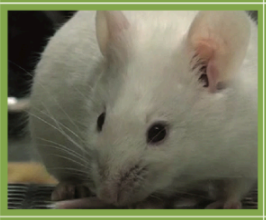
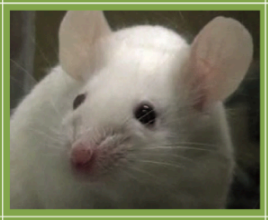
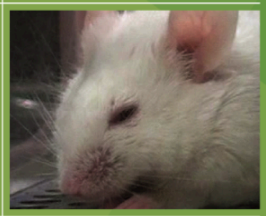
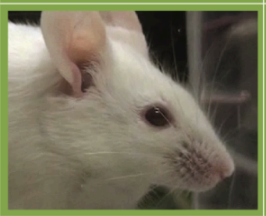
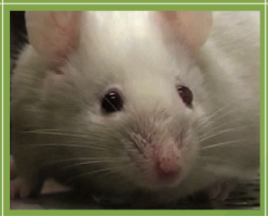
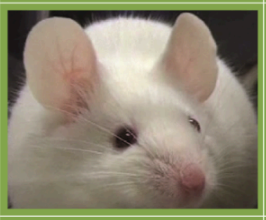
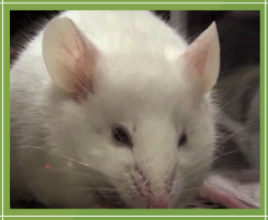
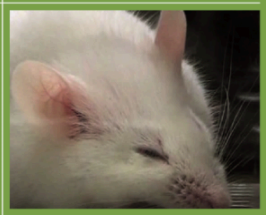
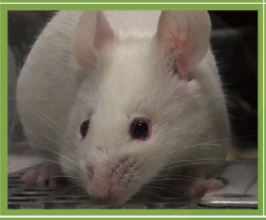
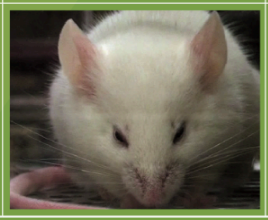
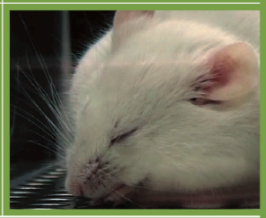
National Centre
for the Replacement
Refinement & Reduction
of Animals in Research

The Mouse Grimace Scale

Research has demonstrated that changes in facial expression provide a means of assessing pain in mice.

The specific facial action units shown below have been used to generate the Mouse Grimace Scale. These action units increase in intensity in response to post-procedural pain and can be used as part of a clinical assessment.

The action units should only be used in awake animals. Each animal should be observed for a short period of time to avoid scoring brief changes in facial expression that are unrelated to the animal's welfare.

	Not present "0"	Moderately present "1"	Obviously present "2"
Orbital tightening ▪ Closing of the eyelid (narrowing of orbital area) ▪ A wrinkle may be visible around the eye			
Nose bulge ▪ Bulging on the bridge of the nose ▪ Vertical wrinkles on the side of the nose			
Cheek bulge ▪ Bulging of the cheeks			
Ear position ▪ Ears rotate outwards and/or backwards, away from the face ▪ Ears may fold to form a 'pointed' shape ▪ Space between the ears increases			
Whisker change ▪ Whiskers are either pulled back against the cheek, or pulled forward to 'stand on end' ▪ Whiskers may clump together ▪ Whiskers lose their natural 'downward' curve			

Read the original paper:
Langford DJ, Bailey AL, Chanda ML, Clarke SE, Drummond TE, Echols S, Glick S, Ingrao J, Klassen-Ross T, LaCroix-Fralish ML, Matsumiya L, Sorge RE, Sotocinal SG, Tabaka JM, Wong D, van den Maagdenberg AMJM, Ferrari MD, Craig KD, Mogil JS. 2010. Coding of facial expressions of pain in the laboratory mouse. Nature Methods 7(6): 447-449. doi:10.1038/nmeth.1455

For guidance on using the Mouse Grimace Scale, research papers that underpin this technique, and for grimace scales in other species, visit: www.nc3rs.org.uk/grimacescales
To request copies of this poster, please email: enquiries@nc3rs.org.uk
The NC3Rs provides a range of 3Rs resources at: www.nc3rs.org.uk/resources

Images kindly provided by Dr Jeffrey Mogil, McGill University