

F. No. 25/3/2017 - CPCSEA  
 Government of India  
 Ministry of Environment, Forest & Climate Change  
 Animal Welfare Division  
 O/o Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA)  
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12/02/2019

To

All establishments registered with CPCSEA

**Subject: Alternatives to animal experimentation - regarding.**

Sir/ Madam,

As per the clause (bb) of Rule 9 of Breeding of and Experiments on Animals (Control & Supervision) Rules, 1998” (amended in 2001 & 2006), “animals lowest on the phylogenetic scale which may give scientifically valid results should be first considered for any experimental procedure and the experiment should be designed using minimum number of animals to give statistically valid results at 95% degree of confidence:

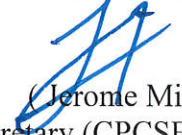
Provided that replacement alternatives not involving experiments on animals should be given due and full consideration and sound justification must be provided in case alternatives, though available, are not used”

2. The matter regarding use of validated alternatives to animal experimentation was discussed in the National Conference organised by CPCSEA on 9<sup>th</sup> January, 2018. The deliberations of the experts led to listing of few alternatives which may be used in biomedical science. The establishments conducting experiments on animals may use the following alternatives wherever possible in various fields of biology:

S. No.	Model Organism	Biological Name	Uses	References
1	Zebrafish	<i>Danio rerio</i>	Developmental Biology, Drug Assessment and discovery, Neurobiology, Toxicological study	1. Xi Y, Noble S & Ekker M. Curr Neurol Neurosci Rep 11(3): 272-282, 2011. 2. Lieschke GJ & Durrie PD. Nat Rev Genet 8: 353-367, 2007.
2	Worm	<i>Caenorhabditis elegans</i>	Developmental Biology, Neuroscience	1. Kaletta T & Hengartner MO. Nature Rev Drug Discov 5(5): 387-98,2206. 2. Ankeny RA. Nat Rev Genet, 2(6): 474-9,2001.
3	Fruit fly	<i>Drosophila melanogaster</i>	Developmental Biology, Neuroscience, Cancer Biology	1. Venken KJ & Bellen HJ. Nat Rev Genet, 6(3): 167-78,2005 2. Brumby AM & Richardson HE. Nat Rev Cancer 5(8): 626-39, 2005

4	Tunicates	<i>Ciona sp.</i>	Developmental Biology, Neuroscience	<ol style="list-style-type: none"><li>1. Lemaire P. Development 138: 2143-52, 2011.</li><li>2. Sherwood NM, Tello JA, Roch GJ. Comp Biochem Physiol A Mol Integr Physiol, 144(3): 254-71. 2006.</li></ol>
5	Sea Urchin / Star fish	<i>Echinoderms</i>	Developmental Biology, Neuroscience	<ol style="list-style-type: none"><li>1. Sea Urchin Genome Sequencing Consortium. Science 314(5801): 941-52, 2006.</li><li>2. Ben Khadra Y et al. Wound Repair Regen 23(4): 611-22, 2015.</li></ol>

Yours faithfully,



( Jerome Minz)

Deputy Secretary (AW) & Member Secretary (CPCSEA)