

DBT-ILS study helps use of Syrian golden hamster for COVID-19 research



New Delhi, July 06: Syrian golden hamster (*Mesocricetus auratus*) has been demonstrated as a clinically relevant animal model for SARS-CoV-2 infection. However, lack of appropriate information regarding tissue-specific expression patterns of various proteins in these animals and non-availability of reagents like antibodies against this species is a major obstruction in doing research with them.

A research group at the Department of Biotechnology's Institute of Life Sciences (DBT-ILS) led by Dr Shantibhusan Senapati has conducted a study to analyze the tissue-specific expression pattern of angiotensin-converting enzyme 2 (ACE2), a proven functional receptor for SARS-CoV-2 in different organs of the hamster. They involved techniques like immunoblot analysis, immunohistochemistry, and immunofluorescence analysis to evaluate the ACE2 expression pattern in different tissues of the animal. The research team observed that the kidney, small intestine, esophagus, tongue, brain, and liver express ACE2. Epithelium of proximal tubules of kidney and surface epithelium of ileum expresses a very high amount of this protein. Surprisingly, analysis of stained tissue sections for ACE2 showed no detectable expression of ACE2 in the lung or tracheal epithelial cells. Similarly, all parts of the large intestine (caecum, colon, and rectum) were negative for ACE2 expression. Although some of these findings support earlier reports related to ACE2

expression patterns in human tissues some also contradicts already reported findings. However the findings of this study will definitely enable the appropriate use of the Syrian golden hamster to carry out SARS-CoV-2 related studies.

Reference: <https://www.biorxiv.org/content/10.1101/2020.06.29.177154v1>

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