TECHNICAL SHEET:
SARS-COV-2 PRECLINICAL MODELS

IN-VIVO EFFICACY STUDIES AGAINST
SARS-COV-2

VOXCAN
→ Animal Medical Imaging Services

→ Animal Models

SARS-CoV-2 models

- ✓ Infection via **intranasal instillation** with SARS-CoV-2.
- ✓ *Characterised with SARS-CoV-2/2020/FR/702 variant in mice and Syrian Golden hamsters.*
- ✓ *In development: models with SARS-CoV-2 VUI 202012/01 and 501Y.V2 variants.*
- ✓ **Possibility of co-infection models** with bacterial strains (KAPE group, *S. aureus*) to model secondary pneumonia.

K18-hACE2 mouse model

K18-hACE2 transgenic mice express human ACE2 (hACE2) receptors under the human keratin 18 promoter, allowing effective viral entry of SARS-CoV-2 in epithelial cells and efficient infection.

- ✓ **Strain**: B6.Cg-Tg(K18-ACE2)2Prlmn/J
- ✓ **Age and sex**: 8 wks, Females
- ✓ **Provider**: The Jackson Laboratory, Charles River
- ✓ **Phenotype**: high lung viral load, cytokine activation, weight loss, ocular and nasal discharge, development of serum antibodies.

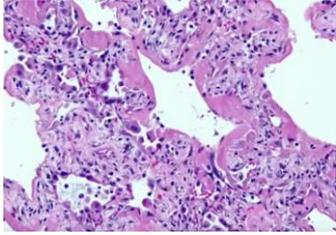**The Jackson Laboratory**   **charles river**

Syrian Golden hamster model

Syrian Golden hamsters ACE2 present a high degree of sequence homology with human ACE2 (hACE2) receptors, enabling effective infection with SARS-CoV-2 and high viral titers within 48h.

- ✓ **Strain**: RjHan/AURA
- ✓ **Age and sex**: 7 wks, Females
- ✓ **Provider**: Janvier Labs
- ✓ **Phenotype**: high lung viral load, cytokine activation, spleen and lymphoid atrophy, development of serum antibodies.

JANVIER LABS Rodent research models & associated services

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→ Our Panel of Readouts for SARS-CoV-2 Models

Histological assessment

✓ Histopathological analysis (**HES staining, IHC**) to determine tissue damage and inflammation (lung tissues).


Biomarker assays

✓ Quantification of **proteins and cytokines** of interest using the **Luminex** technology to assess the inflammatory response (lung tissues, lavages) – *in validation.*

Viral RNA titer and RT-qPCR assays

✓ Detection, quantification and monitoring of **SARS-CoV-2 infection kinetics** over time (oropharyngeal swabs and lung tissues).
✓ Detection of your **candidate RNA-based therapeutics** (tissues).
✓ Evaluation of **inflammatory gene expression** of interest (lung tissues).
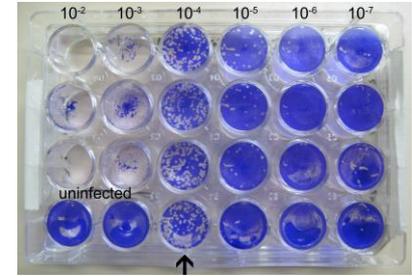
Replicative viral titer: PFU counting

✓ Quantification of **replicative SARS-CoV-2 viral titer** by performing plaque assays (lung tissues).

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