Major outcomes of discussions from the WHO working group on COVID-19 animal models

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To develop and standardize **animal models** to evaluate the potential for vaccine effectiveness and to understand the potential for enhanced disease after vaccination.

+200 experts from +20 countries and +60 entities were convened since Feb 2020.

Live deliberations on **results**
Researchers collaborating on **protocols** and processes
Live state of the art **reviews** to guide developers and researchers
Info on **global capacity** to conduct animal studies

Facilitate access to global resources for **accelerated** evaluation

Enhanced **access** to animal laboratories for **ALL** developers

[https://www.who.int/publications/m/item/global-animal-laboratories-capacities-to-support-vaccine-and-therapeutic-evaluation](https://www.who.int/publications/m/item/global-animal-laboratories-capacities-to-support-vaccine-and-therapeutic-evaluation)
Achievements
(Munoz-Fontela et al., Nature 2020; Munoz-Fontela et al., PloS Pathog 2021)

- Portfolio of models (small/large) to assess pathogenicity, immunity and transmission of SARS-CoV-2
- No evidence of VAERD
- Assessment of VOC transmission and immune escape
- Identification of secondary viral reservoirs
- Preclinical development of ALL COVID-19 vaccines
Lessons learned

1) Unprecedented data sharing
2) Value of pre-prints?
3) Avoiding of unnecessary repetition
4) Standardization
5) ‘Proud to be WHO’
Looking at ‘Pathogen X’

1) Experience can save time and lives (SARS-1, MERS)
2) Rapid sharing of data, ideas and models will reduce the time to develop vaccines and therapeutics
3) A good understanding of basic pathogenesis and immunology will speed vaccine testing (e. g. T cell epitopes in SARS-CoV-2 spike). Translational approach alone is not enough!
Challenges

1) Animal model repositories
2) Standardization (e.g. hamsters)
3) Lack of immune reagents
4) Animal testing protocols and euthanasia endpoints
5) Sharing, sharing, sharing…
Thank you

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