

## MAURITIAN CYNOMOLGUS MACAQUES

Various nonhuman primate (NHP) species and other large animal models are used in discovery, preclinical, and translational research at Franklin Biolabs. Mauritian cynomolgus macaques (MCMs) offer unique advantages due to their genetic profile in conjunction with consistent physiology, low pathogen burden, and well-characterized immune system.

### Historical Context and Population Genetics

The cynomolgus macaque was introduced to Mauritius 400 years ago from Southeast Asia. Genetic studies confirmed an estimated founder population of 10-20 animals (1,2). MCMs are geographically isolated and have not hybridized with other subspecies or macaque species, unlike Asian NHPs. The resulting low level of diversity grants MCMs distinct and highly reproducible physiology and genetics.

### Health and Pathogen-Free Status

MCMs have experienced a historically low exposure to endemic pathogens (3). All Mauritian-origin cynos are naturally born specific pathogen-free (SPF; B-virus, SRV, SIV, STLV1 free) with no seroconversion, meaning 100% of the animals and their offspring are SPF. Asian-origin research animals can test negative but later became positive under stress or immune compromise; this does not occur in MCMs. MCMs have also demonstrated a lower incidence of spontaneous pathology compared to Asian-origin macaques (4,5) and have consistent hematological and biochemical reference intervals (6,7). The excellent baseline health and predictable, defined physiology of MCMs alleviates significant safety concerns for researchers and animal caregivers while enabling uninterrupted research studies.



Our reliable pipeline of Mauritian cynos from Bioculture offers a stable, legally regulated supply with a clear chain of custody for F0, F1, and F2 animals. As a highly adaptable introduced species, MCMs require population control to protect Mauritius' endemic biodiversity, including many endangered bird species. Their ethical sourcing for biomedical research is therefore generally supported by conservation bodies (8).

### Importance of Primates in Preclinical Research

NHPs represent the most similar model to humans (9) meaning they are invaluable for preclinical and translational research. The genetic homogeneity and consistent physiology of MCMs reduces variability in research, particularly drug responses. MCMs have highly predictable PK/PD profiles compared to other macaque populations (4) and are validated for use across drug modalities ranging from small molecules to biologics and gene therapies. Moreover, outliers can be genetically characterized to inform data interpretation. MCMs exhibit ~8 distinct haplotypes whereas other species have dozens with multiple variants that can complicate research. Selective breeding has provided MHC-defined MCM groups suitable for biomedical research applications such as transplantation, vaccines, and drug development and safety assessment.

### Conclusion

Mauritian cynomolgus macaques combine genetic simplicity, physiological consistency, and pathogen-free status to represent a genuinely robust NHP model for preclinical research.

Excerpted from Bioculture Group. (2025) *The Critical Role of Mauritian Cynomolgus Macaques in Drug Discovery and Development* [white paper].

### References

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