

MICRONUCLEUS ASSAY IN RODENTS

Rodent peripheral blood or bone marrow erythrocytes are analyzed to detect micronuclei arising from structural or numerical chromosomal damage. Fluorescent staining and state-of-the-art flow cytometry enable automated identification and enumeration of micronucleated immature erythrocytes (reticulocytes) and mature erythrocytes. This approach provides a sensitive, quantitative assessment of *in vivo* genotoxic potential in accordance with OECD Test Guideline 474 (OECD TG 474).

COMPARISON

Rat

- ▶ MicroFlow kit
- ▶ CD71+
- ▶ Flow Cytometry (≥4000 RET)
- ▶ Frequency of micronuclei in the RET population (%MN-RET)

Mouse

- ▶ Blood smear slides
- ▶ Acridine orange
- ▶ Fluorescent Microscopy (≥4000 RET)
- ▶ Incidences of micronucleated reticulocytes (MN/1000 RETs)

Global Toxicology Solutions: Accelerating the Path to Clinical Trials

QPS provides a fast and reliable route to Phase I/II clinical trials through GLP-compliant preclinical safety tests, combining global regulatory expertise with advanced methodologies like high-throughput flow cytometry.



Comprehensive Preclinical Services

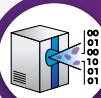


Advanced *In Vivo* Micronucleus Assay



Full-Spectrum Toxicity Testing

Essential studies including General, Reproductive, Genetic, and Biocompatibility testing for IND filing.



Cells Scored Per Sample 20,000

High-Throughput Flow Cytometry replaces tedious manual slide reading to complete studies faster.



Global Regulatory Compliance

Facilities are GLP-compliant (FDA, OECD), AAALAC accredited, and follow international safety standards.



Peripheral Blood Advantages

Requires lower sample volumes and allows multiple samples per subject, reducing animal usage.



Diverse Test Systems

Specialized housing and study designs for rodents, rabbits, dogs, and mini-pigs.



Gold Standard Reproducibility

Uses calibration standards and validated OECD 474 methods for consistent regulatory acceptance.

Comparison of Micronucleus Assay Methodologies (Advanced vs. Traditional)

MICE (TRADITIONAL)

DETECTION: Fluorescent Microscopy



SAMPLE SIZE: ≥300 RET per sample



EVALUATION: Incidences (MN/1000 RET)



RAT (ADVANCED METHOD)

DETECTION: Flow Cytometry



SAMPLE SIZE: ≥4,000 RET per sample



EVALUATION: Frequency of MN-RET (%)



MICRONUCLEUS ASSAY IN RATS

WHY CHOOSE THE QPS RAT MICRONUCLEUS ASSAY?

Features

- ▶ Flow Cytometry
 - Fast, reproducible results that take advantage of laser-based technologies
- ▶ Calibration Standards
 - Malaria Biostandards, with Positive and Negative Controls, ensure proper flow cytometric setup

Benefits

- ▶ Accepted by Regulatory Agencies
- ▶ Complete More Studies in Less Time
 - Routinely score 20,000 cells per sample and analyze an entire study in one day
- ▶ Provides Reproducible Data
 - Calibration standards ensure confidence in your results

Advantages of Rat MN (Flow Cytometry) over Mice (Traditional)

- ▶ Allows each subject to be sampled multiple times
- ▶ Easily integrates into existing toxicology studies
- ▶ Requires very low sample volumes
- ▶ Reduces the number of animals in your studies

QPS GLOBAL SITES & NETWORK LOCATIONS



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