



Data Sheet

Ready-to-Use Triple Co-Culture Blood-Brain Barrier Model Kit

Catalog No.: Neo-BBB-RAT-24

Format: Frozen insert-based BBB Model Kit

Model Type: Rat Primary Triple Co-Culture BBB Model

Cell Types: Rat Brain Capillary Endothelial Cells, Brain Pericytes, and Astrocytes

Regulatory Status: For Research Use Only. Not for diagnostic or therapeutic use.

Product Description

The Ready-to-Use Triple Co-Culture Blood-Brain Barrier Model Kit is an insert-based in vitro BBB model designed for CNS drug permeability screening, barrier integrity studies, and BBB physiology research. The model is based on a published triple co-culture architecture in which brain endothelial cells, pericytes, and astrocytes are arranged to mimic the cellular organization of the neurovascular unit.

Key Features

- Triple-cell BBB architecture: endothelial cells, pericytes, and astrocytes
- Designed for TEER measurement and paracellular permeability assays
- Supports permeability testing with markers such as sodium fluorescein, FITC-dextran, and Evans Blue albumin
- Useful for ranking CNS-positive and CNS-negative candidate compounds
- Frozen whole-model format for convenient storage before use
- Paper-based use window: functional assay use after approximately 4 days post-thaw recovery



Applications

- CNS drug-discovery permeability screening
- Blood-brain barrier integrity evaluation
- TEER and tracer leakage assays
- Efflux/influx transporter-associated permeability studies
- BBB physiology and pathology research
- Macromolecule permeability feasibility testing with appropriate membrane format

Technical Specifications

Model configuration: Triple co-culture insert model with brain endothelial cells, pericytes, and astrocytes

Barrier readout: TEER using EVOM-compatible resistance meter

Functional maturity: Paper-based TEER reported near $250 \Omega \cdot \text{cm}^2$ by Day 4

Compound validation: Reference panel of known BBB-permeable and BBB-restricted drugs

Storage: Frozen at -80°C ; paper-based stability up to 6 months

QC markers: Endothelial vWF/LDL receptor, astrocyte GFAP, pericyte alpha-SMA

Release testing: TEER, permeability marker assay, morphology, sterility, and mycoplasma

Handling Summary

Maintain frozen until use. Thaw and recover using the lot-specific handling protocol. The referenced model describes warm thawing medium, medium replacement after recovery, and assay readiness after 4 days of incubation. Final commercial instructions should be validated for the exact product format.

Limitations

This datasheet is based on a rat primary-cell BBB model. It's not marketed as a human BBB model unless the final product is separately validated with human cells. TEER and permeability values may vary depending on membrane type, medium, electrode setup, compound solubility, adsorption, and analytical method.