UNIVERSITY OF MINNESOTA
Driven to Discover℠

# Antibodies for rapid mycoplasma hyopneumoniae detection

**Monoclonal antibodies for the direct and rapid detection of Mycoplasma hyopneumoniae in clinical samples.**

**IP Status:** US Patent Pending; Application No. 17/944,312

### Applications

- On-site diagnostic testing for swine pneumonia
- In situ detection of bacteria in animal tissues
- Therapeutic potential for bacterial clearance

### Key Benefits & Differentiators

- **High specificity:** These antibodies bind to M. hyopneumoniae but do not cross-react with other related mycoplasma species.
- **Rapid and accurate results:** The antibodies are being developed for use in a rapid, on-site immunoassay that overcomes the limitations of existing methods.
- **Streamlined testing:** The diagnostic platform does not require advanced laboratory equipment or extensive technical skills to operate.

### Technology Overview

M. hyopneumoniae infection is a primary cause of enzootic pneumonia, a chronic porcine respiratory disease that leads to significant economic loss in the pig industry. Current diagnostic assays are either inaccurate or require advanced laboratory equipment and specialized handling. For example, serological assays are unreliable in the early stages of infection and cannot differentiate between active infections, past exposure, or vaccination. In contrast, more accurate PCR assays are expensive and must be performed in a laboratory, making them unsuitable for on-site use. These shortcomings lead to delayed detection and treatment, contributing to the spread of the disease and an increase in secondary infections.

Researchers at the University of Minnesota have developed antibodies that detect M. hyopneumoniae with high specificity, without cross-reacting with other related swine mycoplasma species like M. flocculare and M. hyorhinis. This innovation enables the development of a rapid and accurate diagnostic assay that can be used directly on-site with minimal training and no need for specialized laboratory equipment. The antibodies are being developed for a handheld giant magnetoresistance (GMR) biosensor platform, which will allow for rapid, pen-side testing directly from swine laryngeal swabs, providing a solution that is both accurate and user-friendly.

### Phase of Development

**TRL: 4-5**
Antibodies have been developed and characterized. Further validation for use in clinical samples is underway, along with calibration for the GMR sensor platform.

**Technology ID**
2020-097

**Category**
All Technologies
Life Sciences/Biologics
Life Sciences/Diagnostics & Imaging
Life Sciences/Research Tools
Life Sciences/Therapeutics

**View online page**

### Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

### Researchers


- **Maxim C. Cheeran, MVSc, PhD** Professor, Department of Veterinary Population Medicine
- **Venkatramana Divana Krishna Bhat, PhD** Research Scientist, Department of Veterinary Population Medicine
- **Maria Pieters, DVM, PhD** Associate Professor, Department of Veterinary Population Medicine