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**Diagnostic technique of leptospirosis in animals**

动物钩端螺旋体病诊断技术

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## Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the Ministry of Agriculture and Rural Affairs of the People's Republic of China. This document is under the jurisdiction of the National Technical Committee on Animal Health Standardization (SAC/TC181). This document was drafted by: Jilin University, Jilin Provincial Animal Disease Prevention and Control Center, Nanchang Police Dog Base of the Ministry of Public Security, Changchun Sino Biological Science Technology Co., Ltd., Shanghai Jilin Biotechnology Co., Ltd., Beijing Zhongke Gene Technology Co., Ltd., Qingdao Lijian Biotechnology Co., Ltd. Co., Ltd., Durbert Mongolian Autonomous County Animal Husbandry Technology Service Center, and Shenzhen Aodong Inspection and Testing Technology Co., Ltd. The main drafters of this document are. Cao Yongguo, Zhang Wenlong, Xie Xufeng, Yu Qinlei, Xu Li, Liu Zhanbin, Liu Wei, Li Jie, Zhang Miaojie, Lin Yu, Sun Xueqiang, Huang Xianye and Zhang Li.

Leptospirosis (Leptospirosis) is caused by pathogenic *Leptospira* (*Leptospira*) A widely spread natural zoonotic infectious disease. When pigs, horses, cattle, sheep, dogs, cats and humans are infected with *Leptospira*, they will show Symptoms such as jaundice, miscarriage, liver and kidney failure, and even death have seriously endangered the development of animal husbandry and public health safety. It is a Class III animal infectious disease. Animal leptospirosis occurs all year round, with the peak of epidemic in summer and autumn. The early symptoms of leptospirosis are not obvious and can be easily confused with other diseases. Laboratory testing is required to confirm the diagnosis of leptospirosis. Laboratory tests include pathogen detection and antibody detection. Common pathogen detection methods include isolation and culture and polymerase chain reaction (PCR). Common methods for detecting leptospira antibodies include enzyme-linked immunosorbent assay (ELISA) and microscopic agglutination test (MAT). It is necessary to prepare enzyme-labeled secondary antibodies for the animals to be tested. However, this document involves many animal species, so the pathogen detection in this document adopts isolation, culture and PCR method was used, and MAT method was used for antibody detection, and ELISA method was cancelled. This document refers to some chapters given in the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals of the

World Organization for Animal Health (WOAH) and is Under the guidance of the "Three Animal Disease Prevention and Control Standards", combined with the new research results of relevant technologies in my country, the technology is in line with international advanced technology. Consistent. Diagnostic technology of animal leptospirosis

## 1 Scope

GB/T 45106-2024 gives the Chinese diagnostic techniques for leptospirosis in animals. Leptospirosis is a zoonosis carried in the kidneys of rodents and of livestock and shed in urine, and it matters both as a cause of abortion and production loss in cattle and pigs and as a human infection acquired from them, which is why the animal diagnosis is a public health instrument as much as a veterinary one. It is also genuinely difficult to diagnose: the organism is fastidious, the clinical picture is non-specific and serology has to distinguish exposure from active infection across many serovars. The standard sets the clinical diagnosis, the epidemiology, the clinical signs, the routine laboratory findings and the post-mortem changes, and then the laboratory methods: the sample collection and handling, the direct demonstration by dark-field microscopy and staining, the isolation and culture in the special media required, the serological diagnosis by the microscopic agglutination test with its panel and interpretation, and the molecular detection by PCR, followed by the criteria for a confirmed diagnosis. It takes effect on 1 July 2025.

This document specifies the comprehensive technical requirements for the determination of animal leptospirosis, and describes the clinical diagnosis, isolation and culture identification, polymerase chain reaction And the operation methods of microscopic agglutination experiment. This document applies to the clinical diagnosis, laboratory testing, epidemiological investigation, and inspection and quarantine of animal leptospirosis.

## 2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB 19489 General requirements for laboratory biosafety

NY/T 541 Technical Specification for Collection, Storage and Transportation of Veterinary Diagnostic Samples

## 3 Terms and definitions

There are no terms or definitions that require definition in this document.

## 4 Abbreviations

The following abbreviations apply to this document.

### 5.1 Epidemiology

5.1.1 Susceptible animals Animals such as pigs, horses, cattle, sheep, dogs, and cats can be infected.

5.1.2 Source of infection Wild rodents and marsupials are the main sources of infection for leptospirosis. Other animals can also be sources of infection, such as pigs, cattle, sheep, dogs, Arthropods and frogs.

5.1.3 Transmission routes Some wild rodents do not show clinical symptoms after being infected with *Leptospira*, but a large number of *Leptospira* will colonize in their kidneys.