# 2017-2019 年穿透式電子顯微鏡病例報告

生物研究組

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## 摘要

穿透式電子顯微鏡(transmission electron microscope)在過去為研究病毒學、微生物學、超微結構研究之重要工具，本所為了研究需要及海外惡性傳染病防治，藉由穿透式電子顯微鏡搭配各項技術，觀察病原種類，可提前發現可能病原或潛在微生物，提供後續各項檢驗方向。統計 2017、2018 及 2019 年電顯室檢體總件數分別為 297、220 及 305 件，負染色檢體 287、220 及 301 件，包含禽類 71、50 及 160 件 (24%、23% 及 52%)，草食動物 50、62 及 44 件 (17%、28% 及 14%)，水產動物 79、58 及 79 件(27%、26% 及 26%)，豬 6、1 及 3 件 (2%、0.5% 及 1%)，其他 81、49 及 15 件 (27%、22% 及 5%)，超薄切片檢驗共 14 件，其中 83、68 及 143 件檢體有檢出特異性病原顆粒(28%、31% 及 46%)。

# Transmission electron microscopy analyses 2017-2019

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## Abstract

Transmission electron microscopy (TEM) is a powerful tool for identifying cells and elucidating the ultrastructure of cellular components especially in the fields of virology and microbiology. We have used TEM primarily as an initial screening method to examine potential pathogens in terrestrial and aquatic animals. The results can then be used to further guide the direction of specific tests for rapid disease diagnostics.

A total of 297, 220 and 305 samples were collected for TEM in 2017, 2018 and 2019, respectively. In addition to the fourteen samples processed with the ultramicrotome, 287, 220 and 301 samples were examined by negative staining for pathogen observation, encompassing 71, 50 and 160 samples from poultry (24%, 23%, 52% of each year's total respectively), 50, 62 and 44 samples from herbivores (17%, 28%, 14%), 79, 58 and 79 samples from aquatic animals (27%, 26%, 26%), 6, 1, 3 samples from swine (2%, 0.5%, 1%), and 81, 49 and 15 samples from other sample types (27%, 22%, 5%). In 83, 68 and 143 of those specimens, we were able to positively identify specific virions and bacteria.