

Submitter: Uni. of QLD - UQBR Aquatics

Bldg 80, Level 1, Services Rd

St Lucia, QLD 4072 Australia

Contact: Gillian Lawrence

Submission No: 25/M582

Your ref: 2025 ZF Sed and Otto  
path samples

Date received: 23 September 2025

Date of issue: 10 October 2025

Location: Otto (Conventional\_cert 3112) / Strain ID: Unknown

Species: Zebrafish

|                               | Most Recent  |        | Past 12 Months |  |
|-------------------------------|--------------|--------|----------------|--|
| <b>Bacteria and Fungi</b>     | Pos / Tested | Method | Pos / Tested   |  |
| Edwardsiella ictaluri         | 0 / 6        | PCR    | 0 / 0          |  |
| Mycobacterium spp.            | 0 / 6        | PCR    | 0 / 0          |  |
| Pseudomonas aeruginosa        | 0 / 6        | PCR    | 0 / 0          |  |
|                               | Most Recent  |        | Past 12 Months |  |
| <b>Ectoparasite</b>           | Pos / Tested | Method | Pos / Tested   |  |
| Piscinoodinium spp.           | 0 / 6        | PCR    | 0 / 0          |  |
|                               | Most Recent  |        | Past 12 Months |  |
| <b>Endoparasite</b>           | Pos / Tested | Method | Pos / Tested   |  |
| Ichthyophthirius multifiliis  | 0 / 6        | PCR    | 0 / 0          |  |
| Myxidium streisingeri         | 0 / 6        | PCR    | 0 / 0          |  |
| Pleistophora hyphessobryconis | 0 / 6        | PCR    | 0 / 0          |  |
| Pseudocapillaria tomentosa    | 0 / 5        | Histo  | 0 / 0          |  |
| Pseudocapillaria tomentosa    | 0 / 6        | PCR    | 0 / 0          |  |
| Pseudoloma neurophilia        | 0 / 6        | PCR    | 0 / 0          |  |
|                               | Most Recent  |        | Past 12 Months |  |
| <b>Histopathology</b>         | Pos / Tested | Method | Pos / Tested   |  |
| Zebrafish Histopathology      | 7 / 7        | Histo  | 0 / 0          |  |
|                               | Most Recent  |        | Past 12 Months |  |
| <b>Virus</b>                  | Pos / Tested | Method | Pos / Tested   |  |
| Picornavirus-1                | 2 / 6        | RT-PCR | 0 / 0          |  |

Location: Seddon (Conventional\_cert 3428) / Strain ID: Unknown

Species: Zebrafish

|                           | Most Recent  |        | Past 12 Months |  |
|---------------------------|--------------|--------|----------------|--|
| <b>Bacteria and Fungi</b> | Pos / Tested | Method | Pos / Tested   |  |
| Edwardsiella ictaluri     | 0 / 5        | PCR    | 0 / 0          |  |
| Mycobacterium chelonae    | 0 / 2        | PCR    | 0 / 0          |  |
| Mycobacterium fortuitum   | 0 / 2        | PCR    | 0 / 0          |  |
| Mycobacterium haemophilum | 0 / 2        | PCR    | 0 / 0          |  |
| Mycobacterium marinum     | 0 / 2        | PCR    | 0 / 0          |  |
| Mycobacterium spp.        | 0 / 7        | PCR    | 0 / 0          |  |
| Pseudomonas aeruginosa    | 0 / 5        | PCR    | 0 / 0          |  |
|                           | Most Recent  |        | Past 12 Months |  |
| <b>Ectoparasite</b>       | Pos / Tested | Method | Pos / Tested   |  |
| Piscinoodinium spp.       | 0 / 5        | PCR    | 0 / 0          |  |

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| Endoparasite                  | Most Recent  |        | Past 12 Months |  |
|-------------------------------|--------------|--------|----------------|--|
|                               | Pos / Tested | Method | Pos / Tested   |  |
| Ichthyophthirius multifiliis  | 0 / 5        | PCR    | 0 / 0          |  |
| Myxidium streisingeri         | 0 / 5        | PCR    | 0 / 0          |  |
| Pleistophora hyphessobryconis | 0 / 5        | PCR    | 0 / 0          |  |
| Pseudocapillaria tomentosa    | 0 / 5        | PCR    | 0 / 0          |  |
| Pseudocapillaria tomentosa    | 0 / 5        | Histo  | 0 / 0          |  |
| Pseudoloma neurophilia        | 0 / 5        | PCR    | 0 / 0          |  |

  

| Histopathology           | Most Recent  |        | Past 12 Months |  |
|--------------------------|--------------|--------|----------------|--|
|                          | Pos / Tested | Method | Pos / Tested   |  |
| Zebrafish Histopathology | 5 / 5        | Histo  | 0 / 0          |  |

  

| Virus          | Most Recent  |        | Past 12 Months |  |
|----------------|--------------|--------|----------------|--|
|                | Pos / Tested | Method | Pos / Tested   |  |
| Picornavirus-1 | 2 / 5        | RT-PCR | 0 / 0          |  |

The data presented for the 'Past 12 Months' has been generated by filtering only for Pathogen and Location. Therefore it includes all strains tested in that location for the pathogen within the past 12 months. The past data excludes the most recent test results.

#### Comment:

Samples Refs. were:

Sample 01\_Asympt. otto fish (125620) PCR tube, Sample 01\_Asympt. otto fish 10% NBF, Sample 02\_Asympt. otto fish (125619)PCR tube, Sample 02\_Asympt. otto fish 10% NBF, Sample 03\_Asympt. otto fish (125620) PCR tube, Sample 03\_Asympt. otto fish 10% NBF, Sample 04\_Sympt. Otto fish(skinny 09-2025 D) 10% NBF, Sample 04\_Sympt. Otto fish(skinny) PCR tube, Sample 05\_Sympt. Otto fish(Egg Bound 09-2025 C) 10%NBF, Sample 05\_Sympt. Otto fish(Egg Bound) PCR tube, Sample 06\_Asympt. Seddon fish 10% NBF, Sample 06\_Asympt. Seddon fish PCR tube, Sample 07\_Asympt. Seddon fish 10% NBF, Sample 07\_Asympt. Seddon fish PCR tube, Sample 08\_Asympt. Seddon fish 10% NBF, Sample 08\_Asympt. Seddon fish PCR tube, Sample 09\_Asympt. Seddon fish 10% NBF, Sample 09\_Asympt. Seddon fish PCR tube, Sample 10\_Sympt. Seddon fish (spiral 09-2025 6) 10% NBF, Sample 10\_Sympt. Seddon fish (spiral) PCR tube, Sample 11- Z-HIST\_TLN het black ragged taill 10% NBF, Sample 12\_Z-HIST\_Sympt. Otto fish(09-2025 B) 10% NBF, Sample 13\_Z-PCR-C\_Sympt. Otto fish (red face) PCR tube, Sample 14\_Z-PCR-MYCO\_Asympt. Seddon fish PCR tube, Sample 15\_Z-PCR-MYCO\_Sympt. Otto fish(skinny) PCR tube.

PCR/RT-PCR assays include extraction, positive and negative controls to verify the results.

All other tests conducted were negative.

The following samples were POSITIVE for Picornavirus-1 by RT-PCR: Sample 02\_Asympt. otto fish (125619)PCR tube (Otto (Conventional\_cert 3112)), Sample 05\_Sympt. Otto fish(Egg Bound) PCR tube (Otto (Conventional\_cert 3112)), Sample 06\_Asympt. Seddon fish PCR tube (Seddon (Conventional\_cert 3428)), Sample 09\_Asympt. Seddon fish PCR tube (Seddon (Conventional\_cert 3428)).

Zebrafish picornavirus infects enterocytes, and is shed via faeces into the environment using a faecal-oral transmission route. The virus appears to be widespread in North America, Europe, and Asia but this is the first time we have detected positive fish in Australia. Zebrafish picornavirus is not associated with clinical disease but there are reports of changes to the immune response in the face of infection. I have attached several articles for you to understand the virus and implications thereof.

Sample 01\_Asympt. otto fish 10% NBF (Otto (Conventional\_cert 3112) - Pseudocapillaria tomentosa), Sample 02\_Asympt. otto fish 10% NBF (Otto (Conventional\_cert 3112) - Pseudocapillaria tomentosa), Sample 03\_Asympt. otto fish 10% NBF (Otto (Conventional\_cert 3112) - Pseudocapillaria tomentosa), Sample 04\_Sympt. Otto fish(skinny 09-2025 D) 10% NBF (Otto (Conventional\_cert 3112) - Pseudocapillaria tomentosa), Sample 05\_Sympt. Otto fish(Egg Bound 09-2025 C) 10%NBF (Otto (Conventional\_cert 3112) - Pseudocapillaria tomentosa), Sample 06\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Pseudocapillaria tomentosa), Sample 07\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Pseudocapillaria tomentosa), Sample 08\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Pseudocapillaria tomentosa), Sample 09\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Pseudocapillaria tomentosa), Sample 10\_Sympt. Seddon fish (spiral 09-2025 6) 10% NBF (Seddon (Conventional\_cert 3428) - Pseudocapillaria tomentosa):

No evidence of Pseudocapillaria tomentosa on histology sections.

Sample 01\_Asympt. otto fish 10% NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

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## Macropathology

Received: 12 x 150ml histo falcon tube containing whole zebra fish in 10% NBF.

Labelled: Euthanased by ice slurry 18.9.25

1 Z-HMPF Asympt. otto fish 10% NBF

2 Z-HMPF Asympt. otto fish 10% NBF

3 Z-HMPF Asympt. otto fish 10% NBF

4 Z-HMPF Sympt. Otto fish (skinny, 09-2025 D) 10% NBF

5 Z-HMPF Sympt. Otto fish (Egg Bound, 09-2025 C) 10% NBF

6 Z-HMPF Asympt. Seddon fish 10% NBF

7 Z-HMPF Asympt. Seddon fish 10% NBF

8 Z-HMPF Asympt. Seddon fish 10% NBF

9 Z-HMPF Asympt. Seddon fish 10% NBF

10 Z-HMPF Sympt. Seddon fish (spiral, 09-2025 6) 10% NBF

11 Z-HIST TLN het black ragged tail 10% NBF

12 Z-HIST Sympt. Otto fish (09-2025 B) 10% NBF

Representative sections of the tissues are taken for histology.

## Histopathology, HE and Zn

1.Z-HMPFAsympt. otto fish 10% NBF

Central nervous system, musculoskeletal system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (female), integument (including fins and tail):

No significant abnormalities.

### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 02\_Asympt. otto fish 10% NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

2. Z-HMPF Asympt. otto fish 10% NBF

Central nervous system, musculoskeletal system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (female), integument (including fins and tail):

No significant abnormalities.

### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 03\_Asympt. otto fish 10% NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

3. Z-HMPF Asympt. otto fish 10% NBF

Central nervous system, musculoskeletal system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (female), integument (including fins and tail):

No significant abnormalities.

### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 04\_Sympt. Otto fish(skinny 09-2025 D) 10% NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

4. Z-HMPF Sympt. Otto fish (skinny, 09-2025 D) 10% NBF

### Liver

Diffusely hepatocytes contain a single uniform hypereosinophilic globule within the cytoplasm. This is interpreted as a protein droplet of unknown aetiology, could it be genotype?. No evidence of pathology is present and this is considered a background finding in this fish.

Central nervous system, musculoskeletal system, gills, heart, kidneys, gastrointestinal system, reproductive system (male), integument (including fins and tail):

No significant abnormalities.

### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections. The liver change is incidental and likely not significant.

Sample 05\_Sympt. Otto fish(Egg Bound 09-2025 C) 10%NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

5. Z-HMPF Sympt. Otto fish (Egg Bound, 09-2025 C) 10% NBF

### Reproductive system (female)

The coelomic cavity is packed with mature ova, some of which are degenerating with minimal inflammation.

### Liver

Scattered enormous hepatocytes (5-10 xs normal size) with large nuclei and prominent nucleoli, background finding.

Central nervous system, musculoskeletal system, gills, heart, kidneys, gastrointestinal system, integument (including fins and tail):

No significant abnormalities.

#### Comments

Egg-associated inflammation has no distinct aetiology but may be associated with reduced spawning.

Megalocytosis in the liver may reflect exposure to hepatic carcinogens and all possible sources should be considered, including dietary. However, these cells do not appear to result in neoplasia, and the fish remain asymptomatic.

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 06\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Zebrafish Histopathology):

#### 6. Z-HMPF Asympt. Seddon fish 10% NBF

Central nervous system, musculoskeletal system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (female), integument (including fins and tail):

No significant abnormalities.

#### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 07\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Zebrafish Histopathology):

#### 7. Z-HMPF Asympt. Seddon fish 10% NBF

##### Liver

Multifocal necrogranuloma with scanty central mineralisation. No acid-fast bacteria are present. Mild focal biliary hyperplasia, background finding.

##### Reproductive system (female),

Mild early degeneration of ova.

Central nervous system, musculoskeletal system, gills, heart, kidneys, gastrointestinal system, integument (including fins and tail):

No significant abnormalities.

#### Comments

The necrogranuloma in the liver may reflect an incidental tissue pathology. We cannot completely rule out infectious agents, but no evidence was seen. Biliary fibrosis is a background finding of unknown aetiology in zebrafish.

Egg-associated inflammation has no distinct aetiology but may be associated with reduced spawning.

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 08\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Zebrafish Histopathology):

#### 8. Z-HMPF Asympt. Seddon fish 10% NBF

Central nervous system, musculoskeletal system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (male), integument (including fins and tail):

No significant abnormalities.

#### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 09\_Asympt. Seddon fish 10% NBF (Seddon (Conventional\_cert 3428) - Zebrafish Histopathology):

#### 9. Z-HMPF Asympt. Seddon fish 10% NBF

Central nervous system, gills, heart, liver, kidneys, musculoskeletal system  
gastrointestinal system, reproductive system (male), integument (including fins and tail):

No significant abnormalities.

#### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

Sample 10\_Sympt. Seddon fish (spiral 09-2025 6) 10% NBF (Seddon (Conventional\_cert 3428) - Zebrafish Histopathology):

#### 10. Z-HMPF Sympt. Seddon fish (spiral, 09-2025 6) 10% NBF

##### Central nervous system

Within the spinal cord, is a single xenoma (Pseudoloma neurophilia, presumptive) is present, comprising numerous oval shaped microsporidia, approximately  $5.4 \times 2.7 \mu\text{m}$ . These stain pink with acid-fast ZN stain.

##### Musculoskeletal system

Focal region in the dorsal tail of myofibre degeneration with minimal inflammation present.

##### Reproductive system (female)

The coelomic cavity is packed with mature ova, some of which are degenerating with minimal inflammation.

#### Liver

Multifocal mild biliary hyperplasia.

#### Swim Bladder

Diffuse inflammation.

Gills, heart, kidneys, gastrointestinal system, integument (including fins and tail):

No significant abnormalities.

#### Comments

Pseudoloma neurophilia is an obligate intracellular parasite which results in central nervous system and skeletal muscle infection and pathology. Transmission occurs through ingestion of the mature infective spore, which can survive outside the host. Ingestion of spores probably occurs when infected fish are cannibalized, with there being the possibility of vertical transmission during spawning. It is important to remove infected fish and deceased fish as soon as possible to avoid transmission.

Egg-associated inflammation has no distinct aetiology but may be associated with reduced spawning.

Biliary fibrosis is a background finding of unknown aetiology in zebrafish.

The myositis is mild, it may be an incidental lesion, or be part of non-infectious diseases e.g. nutritional, metabolic or even immune-mediated.

The swim bladder is a spontaneous lesion and not associated with infectious agents.

Sample 11- Z-HIST\_TLN het black ragged tail 10% NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

11. Z-HIST TLN het black ragged tail 10% NBF

#### Integument (including fins and tail)

The tail shows epithelial hyperplasia with myriad of melanocytes present throughout. No infectious or parasitic agents are seen.

#### Musculoskeletal system

Locally extensive myofibre degeneration of the middle tail region. No infectious or parasitic agents are seen. No inflammation.

Central nervous system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (male)

No significant abnormalities.

#### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections. The tail lesion appears to be proliferative, and the amount of melanin production suggests inflammation/irritation but I could find no aetiology in the sections examined and there was minimal inflammation. It may be a repetitive trauma lesion from bumping against the internal tank structures? Or being bitten by other fish?

The myositis is mild, it may be an incidental lesion, or be part of non-infectious diseases e.g. nutritional, metabolic or even immune-mediated.

Sample 12\_Z-HIST\_Sympt. Otto fish(09-2025 B) 10% NBF (Otto (Conventional\_cert 3112) - Zebrafish Histopathology):

12. Z-HIST Sympt. Otto fish (09-2025 B) 10% NBF

#### Musculoskeletal system

Locally extensive myofibre degeneration of the middle tail region. No infectious or parasitic agents are seen. No inflammation.

Central nervous system, gills, heart, liver, kidneys, gastrointestinal system, reproductive system (male), integument (including fins and tail):

No significant abnormalities.

#### Comments

No indication of parasitic or infectious diseases is present on the sections of this fish. No acid-fast organisms were seen on ZN-stained sections.

The myositis is mild, it may be an incidental lesion, or be part of non-infectious diseases e.g. nutritional, metabolic or even immune-mediated.

*L. Rasmussen*

**Dr Lorna Rasmussen**  
BVSc, BVSc(Hons),  
MMedVet(Path), Dip ACVP,  
Specialist Veterinary Pathologist



**Peony Fung**  
**Molecular Testing**