



ICTV Virus Taxonomy Profile: *Discoviridae* 2023

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Abstract

Discoviridae is a family of negative-sense RNA viruses with genomes of 6.2–9.7 kb that have been associated with fungi and stramenopiles. The discoverid genome consists of three monocistronic RNA segments with open reading frames (ORFs) that encode a nucleoprotein (NP), a nonstructural protein (Ns), and a large (L) protein containing an RNA-directed RNA polymerase (RdRP) domain. This is a summary of the International Committee on Taxonomy of Viruses (ICTV) Report on the family *Discoviridae*, which is available at ictv.global/report/discoviridae.

Table 1. Characteristics of members of the family *Discoviridae*

Example	<i>Penicillium discovirus</i> (S: MF142460; M: MF142459; L: MF142458), species <i>Orthodiscovirus missouriense</i> , genus <i>Orthodiscovirus</i>
Virion	Unknown
Genome	6.2–9.7 kb of trisegmented negative-sense RNA
Replication	Unknown
Translation	Unknown
Host range	Peronosporacean stramenopiles, eurotiomycete and sordariomycete fungi
Taxonomy	Realm <i>Riboviria</i> , kingdom <i>Orthornavirae</i> , phylum <i>Negarnaviricota</i> , class <i>Ellioviricetes</i> , order <i>Bunyavirales</i> ; the family includes the genus <i>Orthodiscovirus</i> and several species

VIRION

Unknown.

GENOME

The genome of discoverids comprises three RNA segments (small [S], medium [M], and large [L]) of linear negative-sense RNA with a total length of 6.2–9.7 kb (S segment: about

1.1–1.2 kb; M segment: about 1.7–1.9 kb; and L segment: about 3.4–6.5 kb) (Table 1). Each segment contains at least one ORF that encodes either an NP, an Ns or an L protein containing an RNA-directed RNA polymerase (RdRP) domain [1–3] (Fig. 1).

REPLICATION

Unknown.

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Keywords: *Discoviridae*; ICTV Report; orthodiscovirus; taxonomy.

Abbreviations: L, large; M, medium; NP, nucleoprotein; Ns, nonstructural protein; RdRP, RNA-directed RNA polymerase; S, small.

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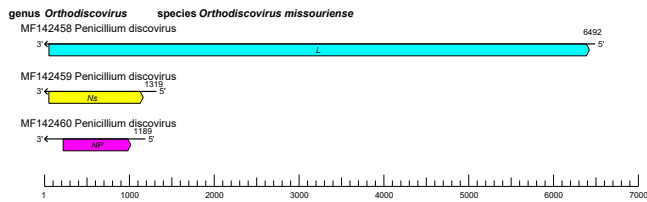


Fig. 1. Genome organisation of *Penicillium discovirus*. ORFs are indicated as boxes, coloured according to the predicted protein function (L, large protein gene; NP, nucleoprotein gene; Ns, nonstructural protein gene).

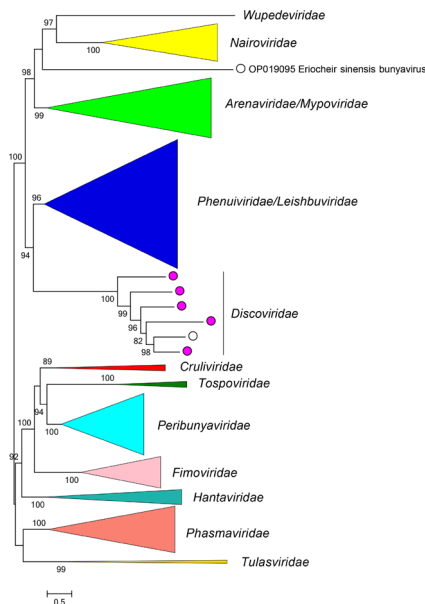


Fig. 2. Phylogenetic relationships of viruses in the family *Discoviridae*. Branches for other families are collapsed. Numbers at nodes indicate bootstrap support >70%. Full details of the virus sequences and methods used are available in the full ICTV Report on the family *Discoviridae*.

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TAXONOMY

Current taxonomy: ictv.global/taxonomy. Discovirids are most closely related to arenavirids, leishbuvirids, mypovirids, nairovirids, phenuivirids, and wupedevirids [4] (Fig. 2). The family includes the genus *Orthodiscovirus* and >4 species; numerous discovirus-like sequences have also been found in sequence-read archives [5]. Like most other bunyavirals, Discovirids (i) have multisegmented, negative-sense single-stranded RNA genomes; (ii) encode proteins with high sequence identity to proteins of other bunyavirals, (iii) and have five conserved motifs (A–E) in their RdRP domain.

RESOURCES

Full ICTV Report on the family *Discoviridae*: ictv.global/report/discoviridae.

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Conflicts of interest

The authors declare that there are no conflicts of interest.