



THE OIE BLUETONGUE REFERENCE LABORATORY NETWORK

9th OIE seminar on the Veterinary Laboratory Networks and Networking

*Rossella Lelli
Madrid, June 19 , 2009*



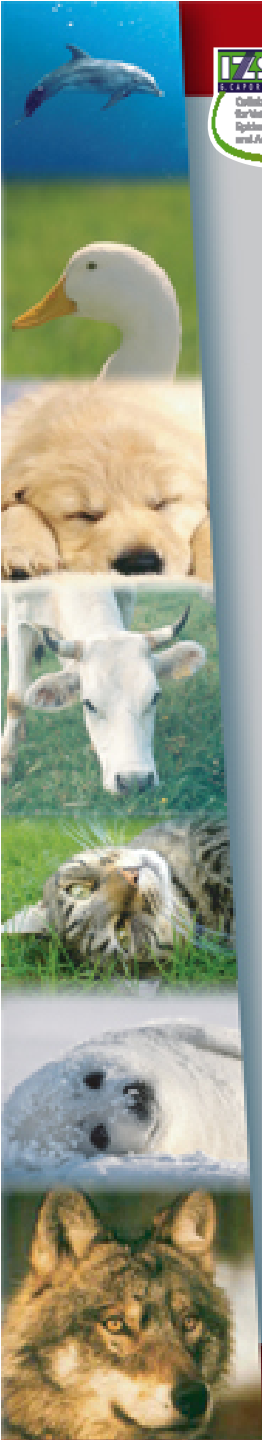
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Membership

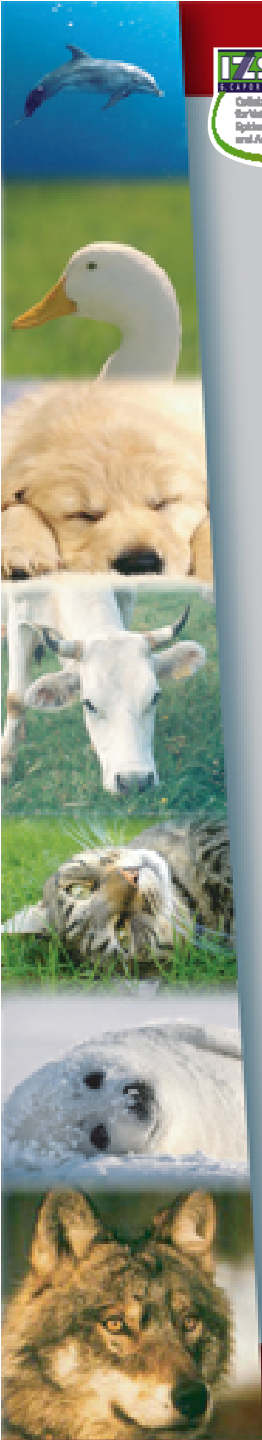
- OIE Central Bureau
- 5 OIE BT Reference Laboratories
- 3 OIE Collaborating Centers
- Inclusion of NRLs



Meetings

- **1st meeting** (*Civitella del Tronto, Italy 12-14 March 2007*)
 - ❖ Establishment of the **network**
 - ❖ Approval of **ToRs** and **objectives** of the network
 - ❖ Definition of a **working programme**

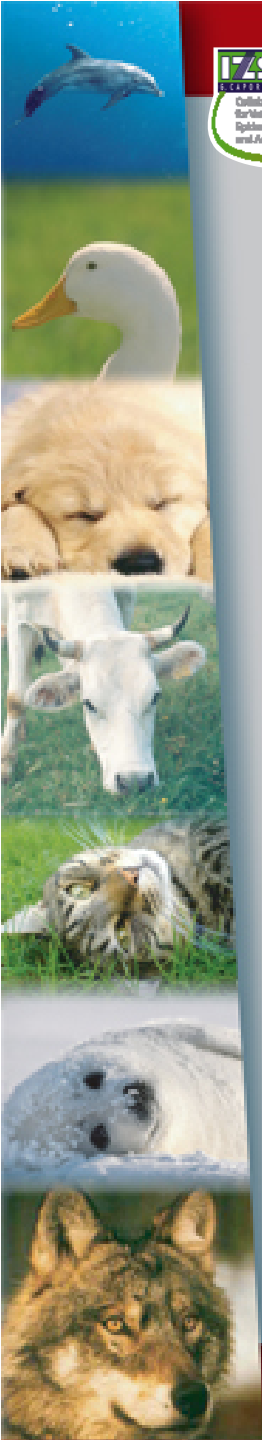
- **2nd meeting** (*Torre di Cerrano, Italy 1-2 June 2009*)
 - ❖ Progress report





PURPOSE OF THE OIE NETWORK OF BT REFERENCE LABORATORIES

1. To support the development of a global BT surveillance network
2. To improve BT control worldwide and facilitate international animal trade
3. To improve the knowledge of BT epidemiological situation



Activity

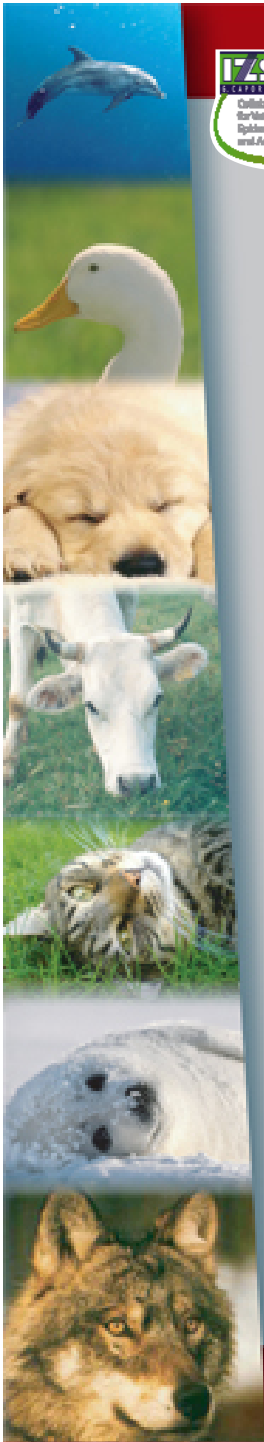
- To collect, characterize (antigenically and genetically) and store BT viruses representing the global diversity of strains
- To exchange diagnostic reference materials and related information
- To develop standard protocols for BTV and *Culicoides* surveillance
- To facilitate training and scientific information exchange on BT surveillance and control activity worldwide





Activity

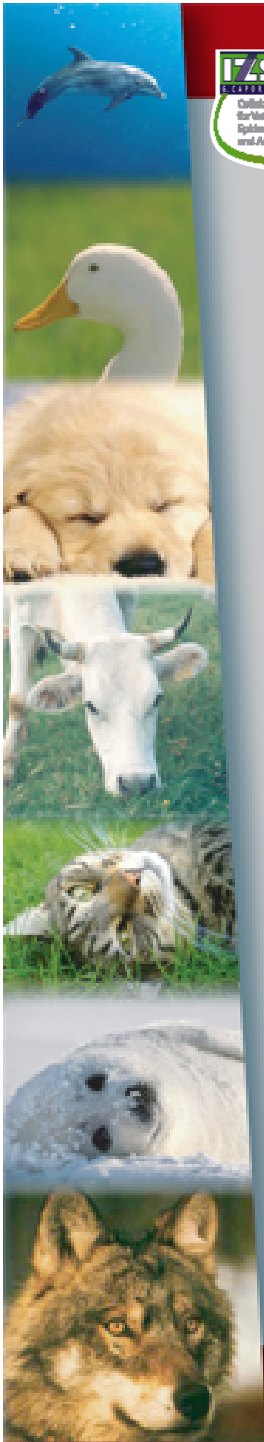
- ❑ To identify research need and, where appropriate, develop joint research
- ❑ To collect and distribute relevant epidemiological information [including BTV strains sequences]
- ❑ To collect all relevant data generated by the participants and act as clearing house for the retrieval and exchange of scientific data on worldwide BT epidemiological situation



Activity

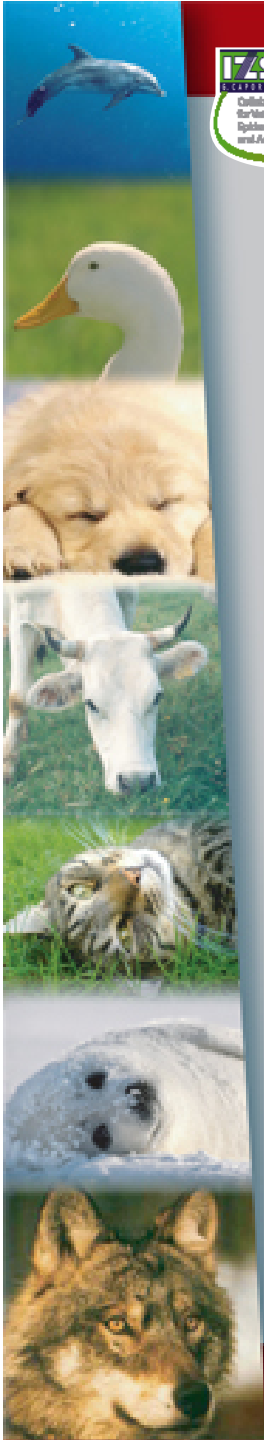
SCIENTIFIC & EPIDEMIOLOGICAL INFORMATION EXCHANGE

- Bluetongue surveillance activities in California - N. J. MacLachlan**
- Unusual BTV Cases in South Africa - T. Gerdes**
- International surveillance of Bluetongue in the European Union - EU Btnet - P. Calistri**
- Information dissemination and the UK's response to Bluetongue - C. Oura**
- Recent Activities in Diagnosis and Surveillance for BTV in Australia - R. Lunt**
- Equine encephalosis in Israel - A. Shimshony**



Activity

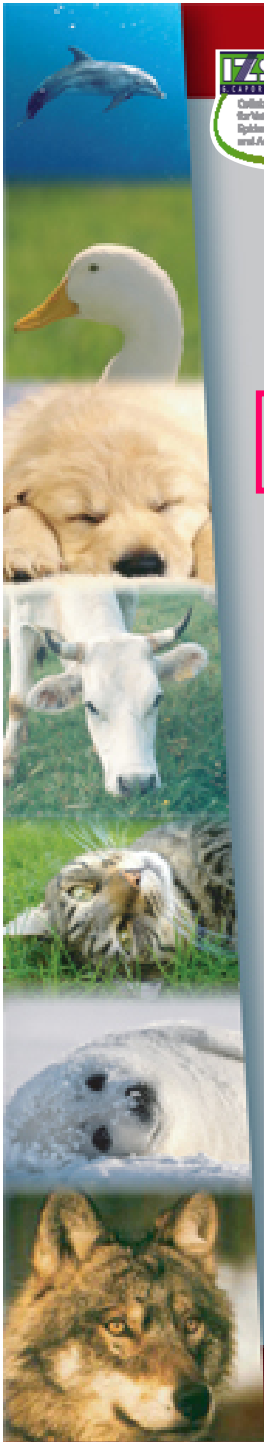
- ❑ **Cross placental transmission of some Bluetongue isolates other than BTV-8 - G. Savini**
- ❑ **Recent Bluetongue Activities at the National Veterinary Services (U.S.A.) - E. N. Ostlund**
- ❑ **Innovative eLearning system for the agricultural sector of the Mediterranean Countries: recognition, diagnosis, control and prevention of arthropod-borne diseases (eMed) - S. D'Albenzio**



Activity

- A leaflet has been produced to inform Member Countries about the network initiative





Activity

DEVELOPMENT OF TRAINING SUPPORT

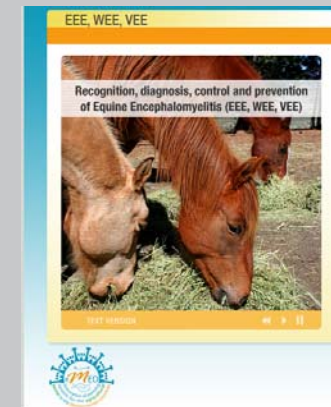
- To National Reference Laboratories
 - Epidemiology
 - Diagnostic methods
 - Entomology
 - GIS

Activity

DEVELOPMENT OF TRAINING SUPPORT

❑ OIE BT LabNet participated to the development of the Bluetongue component (and other diseases) within the **E-Med project** (*E-learning system for the agricultural sector in Mediterranean countries*)

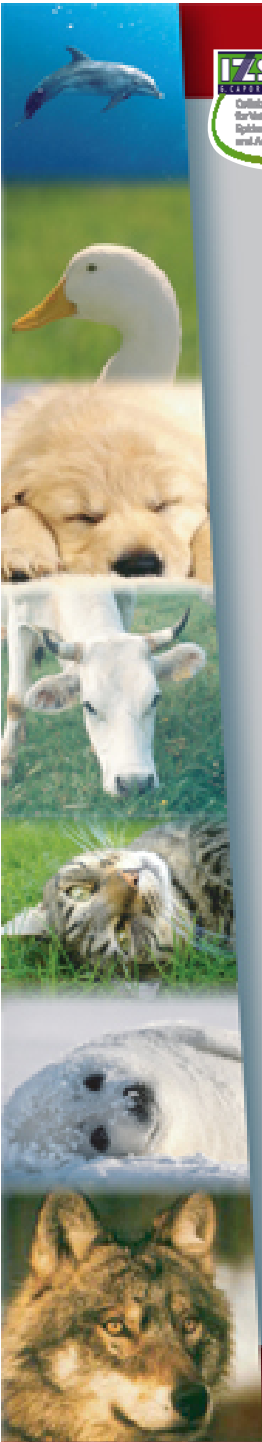
- ✓ Australia (CSIRO)
- ✓ South Africa (OVI)
- ✓ France (CIRAD)
- ✓ A. Shimshony (Israel)
- ✓ USA (NVL- Ames)
- ✓ California (UC Davis)
- ✓ UK (IAH)



Activities

INTERNATIONAL SURVEILLANCE

- The network is an asset of the OIE WAHIS/WAHID system providing data and analysis that increase the overall efficacy of the system



Activity

DATA SHARING

□ THE OIE LABNET WEBSITE: www.oiebtnet.izs.it

- ❖ Presentation of OIE BTLabNet
- ❖ Information on **diagnostic services and reagents availability**
- ❖ **Web-GIS** data collection on **BTV occurrence**
- ❖ **Strains** database
- ❖ **BTV Sequences** analysis
- ❖ Latest **news** & mailing list
- ❖ Document **repository**






ACTIVITY

OIE-LABNET Web-GIS




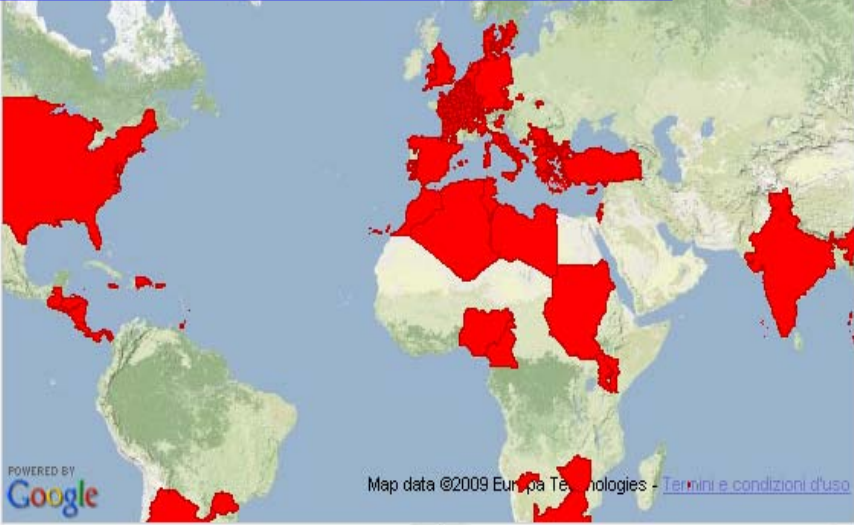
OIE-LABNET Web-GIS



OIE-BT-Labnet

Bluetongue Geographical Distribution





Map data ©2009 Europa Technologies - [Termini e condizioni d'uso](#)

Query builder | **Layer tree**

Compose your query


Choose a time interval (YYYY):
From: 1943
To: 2009

Choose Serotypes:
hold **Ctrl** key for multiple selection
Serotype 1
Serotype 2
Serotype 3
Serotype 4
Serotype 5
Serotype 6
Serotype 7
Serotype 8

Type Contry name:
example: Italy






Submit query » | **Clear selection**

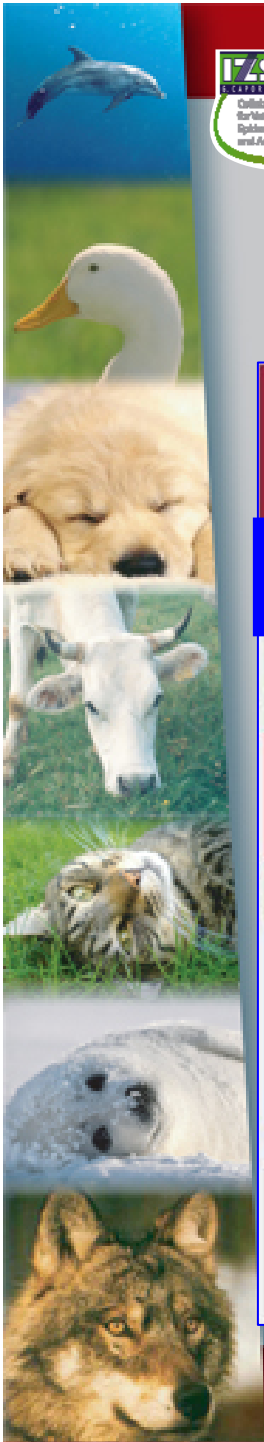
Query results

POWERED BY 

Longitude, Latitude: 0.00000, 0.00000
Current map scale: 1 : 110936068
Current map extent: -103, -28, 94, 64

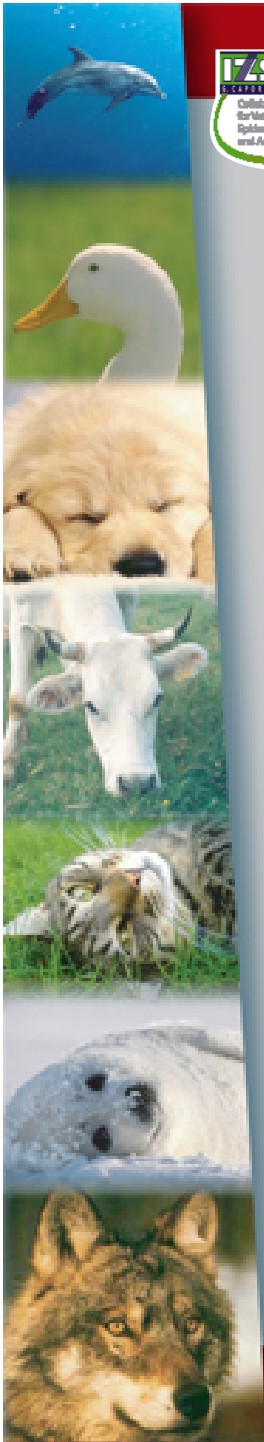
Best visualization and improved performances with [Mozilla Firefox](#) - Recommended screen resolution: 1280x1024 or more



-  National boundaries
-  First Administrative division
-  Hydrography
-  Disease occurrence since 1943
-  Selected disease occurrence





OIE-LABNET Web-GIS



Oie  **OIE-BT-Labnet** 

Bluetongue Geographical Distribution

Query builder Layer tree

Base layers


- from Google Maps
 - Terrain
 - Streets
 - Satellite
 - Hybrid

Overlays

- National boundaries
- First Administrative division
- Hydrography
- Disease occurrence since 1943

} OIE shapefile

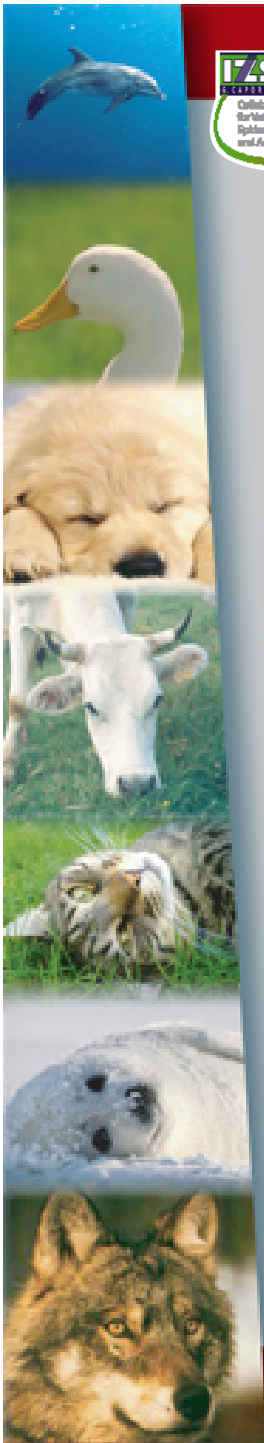
Map data ©2009 Europa Technologies - [Termini e condizioni d'uso](#)

POWERED BY 

Longitude, Latitude: 93.16406, 34.30714
Current map scale: 1 : 110936068
Current map extent: -103, -28, 94, 64

Best visualization and improved performances with [Mozilla Firefox](#) - Recommended screen resolution: 1280x1024 or more.

National boundaries First Administrative division
 Hydrography Disease occurrence since 1943
 Selected disease occurrence



ACTIVITY

STRAINS DATABASE

► Databases ► BTV Strains

Menu

- About
- Technical Support
- OIE Standards
- Databases
 - ◀ BTV Strains
 - ◀ BTV Maps

BTV Strains

- Search strains
- Virus Sequences

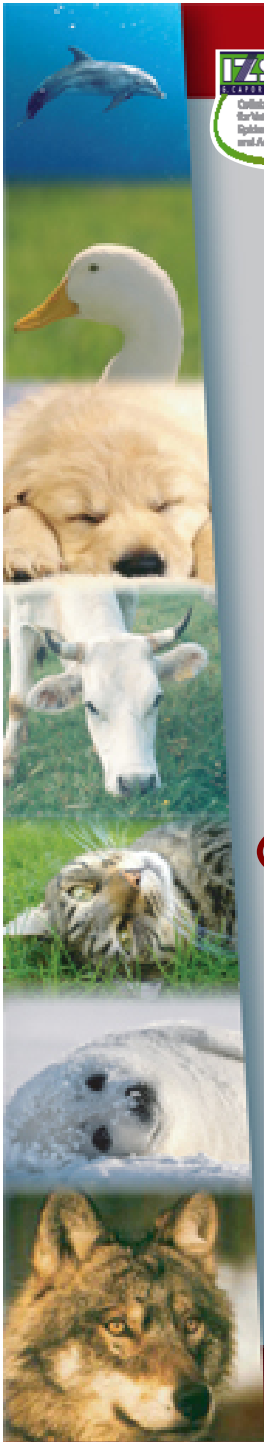


ACTIVITY

Strain Details

Country	Laboratory	Species	Serotype	Year	Material	Catalogue	Reference No.	Isolation date	Location
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2003	BLOOD	2003IS1052 Sang	2003IS788	14-MAR-2003	N2 /
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2003	BLOOD	2003TE6843 Sang	2003TE89451	15-SEP-2003	N5 /
ITALY	CESME presso IZSA&M	CATTLE	Serotype 2	2004	BLOOD	2004TE11124 S. 17-21	2004TE96108	17-DEC-2004	+4°C
ITALY	CESME presso IZSA&M	CATTLE	Serotype 2	2004	BLOOD	2004TE7334 Sang	2004TE90719	23-AUG-2004	+4°C
ITALY	CESME presso IZSA&M	CATTLE	Serotype 2	2004	BLOOD	2004TE9246 Sang 9	2004TE93299	27-OCT-2004	+4°C
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2000	BLOOD	2000TE2057 Sang 2,3	2000TE10500	08-NOV-2000	L6
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2000	BLOOD	2000TE2377 Sang 1,2	2000TE12707	06-DEC-2000	
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2001	BLOOD	2001TE2005 Sang	2001TE12312	11-OCT-2001	L1
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2001	BLOOD	2001TE2014 Sang	2001TE12321	17-SEP-2001	L5
ITALY	CESME presso IZSA&M	SHEEP	Serotype 2	2001	BLOOD	2001TE2015 Sang	2001TE12322	17-SEP-2001	L5

Records 1 to 10





ACTIVITY

Strain Details

Country: ITALY
Laboratory: CESME presso IZSA&M
Species: SHEEP
Serotype: Serotype 9
Year: 2000
Material: BLOOD
Catalogue: 2000TE2298 Sang 3,4,7,9
Reference No.: 2000TE12217
Isolation date: 06-DEC-2000
Location: L5
Comments: 147CS002

Test details

VERO
 ECE

Sequenced Segments

Segment	Link to Genbank
Segment 5	Link to Genbank
Segment 10	Link to Genbank

Segment: Segment 10

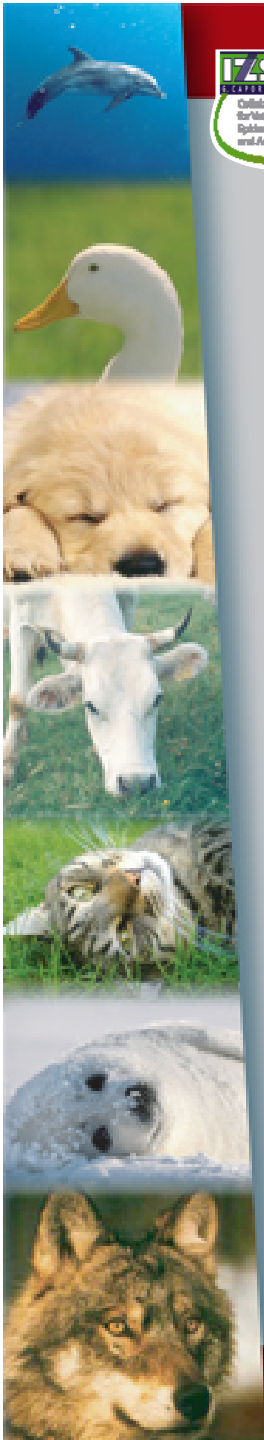
Fasta: >gi|60100193|gb|AY775161.1| Bluetongue virus strain 12217/00 segment S10, complete sequence
 GTAAAAAGTGTGCTGCCATGCTATCCGGGCTGATCCAAAGGTTCCGAGGAAGAAAAATGAAACATAAT
 CAAGAGAGAGTGAAGAGCTAAGTTGGTTCGTGGATGATACGATTCACAACCACCAAGATATGCTC
 CGAGTGCCCCAGTGCCTTCATCGATGCCAACCGTTGCCCTTGAATATTGGATAAAGCGATGTCAAACAC
 TACTGGTGTACGCAACACAGAAGCGGAGAAAGCTGCATTCGCATCGTACGCAGAAGCGTTTCGTGAT
 GATGTGAGACTAAGACAGATTAACGTCATGTTAATGAACAGATCCTCCAAAGTAAAGAGTGATTTGG
 GTGGTTTAAAGAAAAAGAGAGCTATCATAACATGACGTTGTTAGTTGCCGCTGTTGTTGCCGTTGTGAC
 GTCGGTATGCACGCTTCAAGTGATATGAGCGTGGCGTTAAGCTTAACGGCACATCAACGGAAATACCG
 CAGTGGTTAAGAGTCTAAATCCCATGCTGGAGTAGTAAATCTGGGTGCGACTTTCATAATGATGTTT
 GTGCGAAGAGTGAGAGAGGACTAAACCAGCAGATTGACATGATCAAGAAGGAAGTTATGAAGAAACATC
 ATATAATGATCGGGTGAGGATGAGCTTACAGAAATTTTGTGGTCCCGCTAGATGGTTTCGAACACTACA
 TTAACCTAAGATCAGTAGGTAGAGTGCCGCCCGAGGTTGCACCGCGTGGAGTGGTTGATCCAGCGATG
 CAAATTCCTACTGCTGATAACGGG

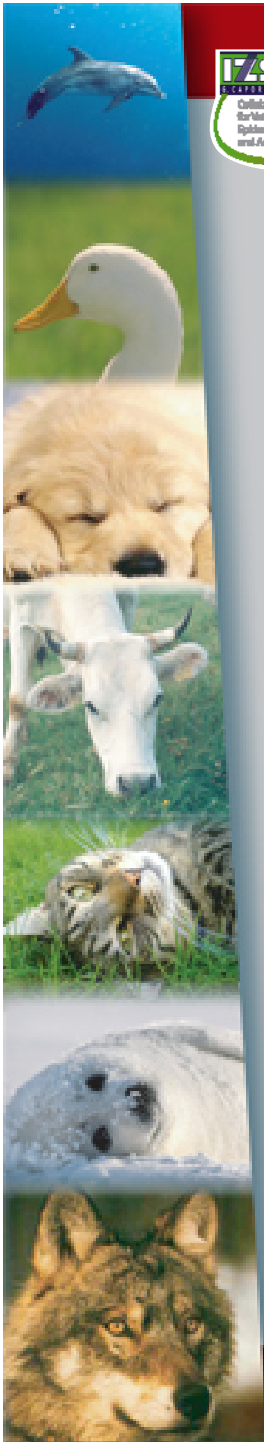
GenBank: AY775161.1

Bluetongue virus strain 12217/00 segment S10, complete sequence

[Features](#) [Sequence](#)

LOCUS AY775161 795 bp DNA linear VRL 01-AUG-2006
 DEFINITION Bluetongue virus strain 12217/00 segment S10, complete sequence.
 ACCESSION AY775161
 VERSION AY775161.1 GI:60100193
 KEYWORDS .
 SOURCE Bluetongue virus
 ORGANISM [Bluetongue virus](#)
 Viruses; dsRNA viruses; Reoviridae; Orbivirus.





ACTIVITY

► Databases ► BTV Strains

Menu

- About
- Technical Support
- OIE Standards
- Databases
 - ◄ BTV Strains
 - ◄ BTV Maps

BTV Strains

- Search strains
- Virus Sequences

ACTIVITY

Sequences


 10 
 Rows Displayed

12 results found, displaying 1 to 10

 Filter
  Clear

Year	Country	Serotype	Species	Segment
<input type="checkbox"/> 1999	GREECE	Serotype 4	SHEEP	Segment 10
<input checked="" type="checkbox"/> 2003	ITALY	Serotype 4	CULICOIDES spp	Segment 10
<input checked="" type="checkbox"/> 2000	ITALY	Serotype 9	SHEEP	Segment 10
<input checked="" type="checkbox"/> 2002	ITALY	Serotype 2	CATTLE	Segment 10
<input type="checkbox"/> 2001	ISRAEL	Serotype 4	Not defined	Segment 10
<input checked="" type="checkbox"/> 2000	ITALY	Serotype 2	SHEEP	Segment 10
<input type="checkbox"/> 1998	GREECE	Serotype 9	SHEEP	Segment 10
<input checked="" type="checkbox"/> 2003	ITALY	Serotype 4	SHEEP	Segment 10
<input checked="" type="checkbox"/> 2002	ITALY	Serotype 16	CATTLE	Segment 10
<input type="checkbox"/> 1999	ISRAEL	Serotype 16	Not defined	Segment 10

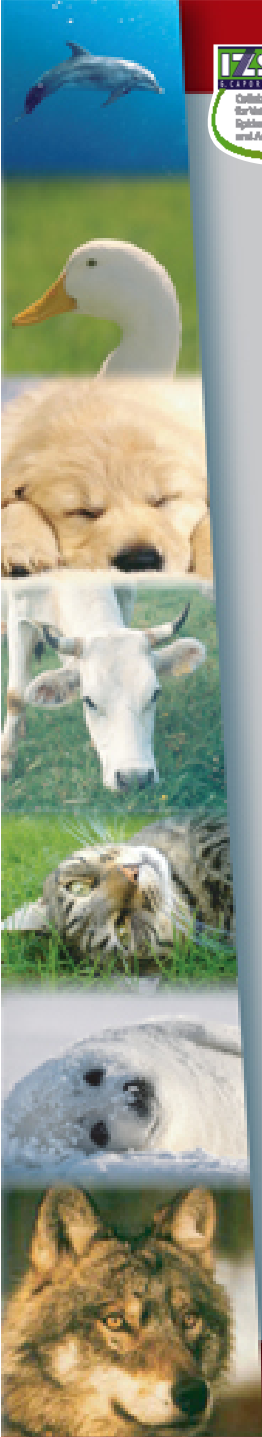
List Selected Sequences

Instructions

Select the sequences you want to compare/analyze. Use the buttons at right corner to view all available sequences. Once selected the sequences of interest, press the button "List Selected Sequences". Please, wait. The processing of data can take few minutes. A button will appear to start the Jalview freeware application to analyze and compare the selected sequences.



ACTIVITY



/sequences/alignfile.do

File Edit Select View Format Colour Calculate Help

Sort

- Calculate Tree
 - Average Distance Using % Identity
 - Neighbour Joining Using % Identity**
 - Average Distance Using BLOSUM62
 - Neighbour Joining Using BLOSUM62
- Pairwise Alignments...
- Principal Component Analysis
- Autocalculate Consensus

Neighbour joining tree using PID

File View

Consensus

GTTAAAAAGTGTGCGCTGCCATGCTATCCGGGCTGATCCAAAGGTTTCAGGAAAGAAAAATGAAACATAATCAGGAA+G+GT+GAAGAG+T



ACTIVITY

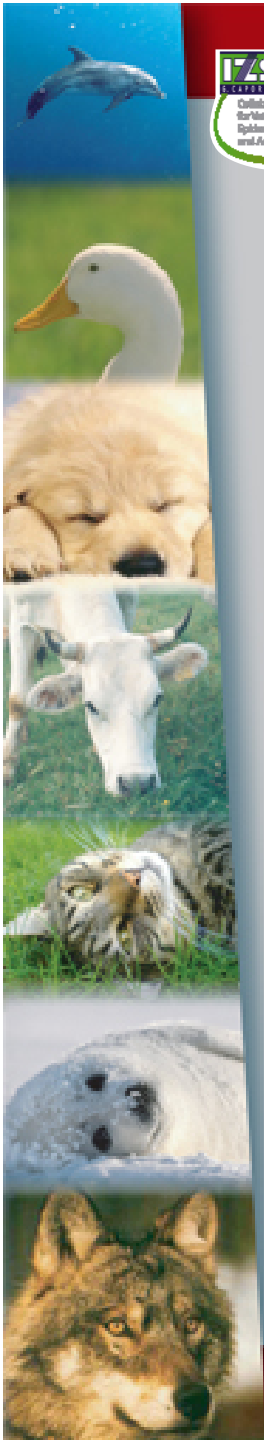
- ❑ The network **WELCOMES** all BT National Reference Laboratories and other competent laboratories wishing to join

Coordination

□ SECRETARIAT 2009-2011

*Istituto Zooprofilattico Sperimentale
dell'Abruzzo e del Molise
'G. Caporale' (IZS A&M)*

□ Annual meeting





WEB SITE & CONTACTS

WEB SITE

www.oiebtnet.izs.it

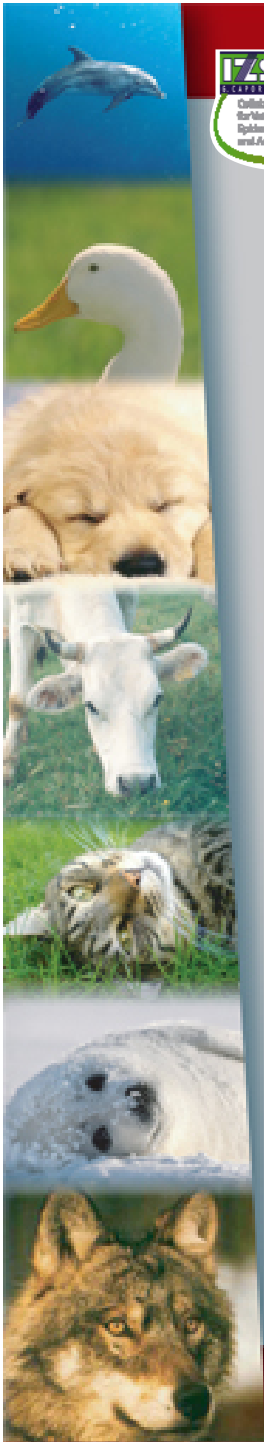
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THANK YOU!