



Giornata di studio sulla Bluetongue

Epidemiological situation of the Bluetongue in Tunisia

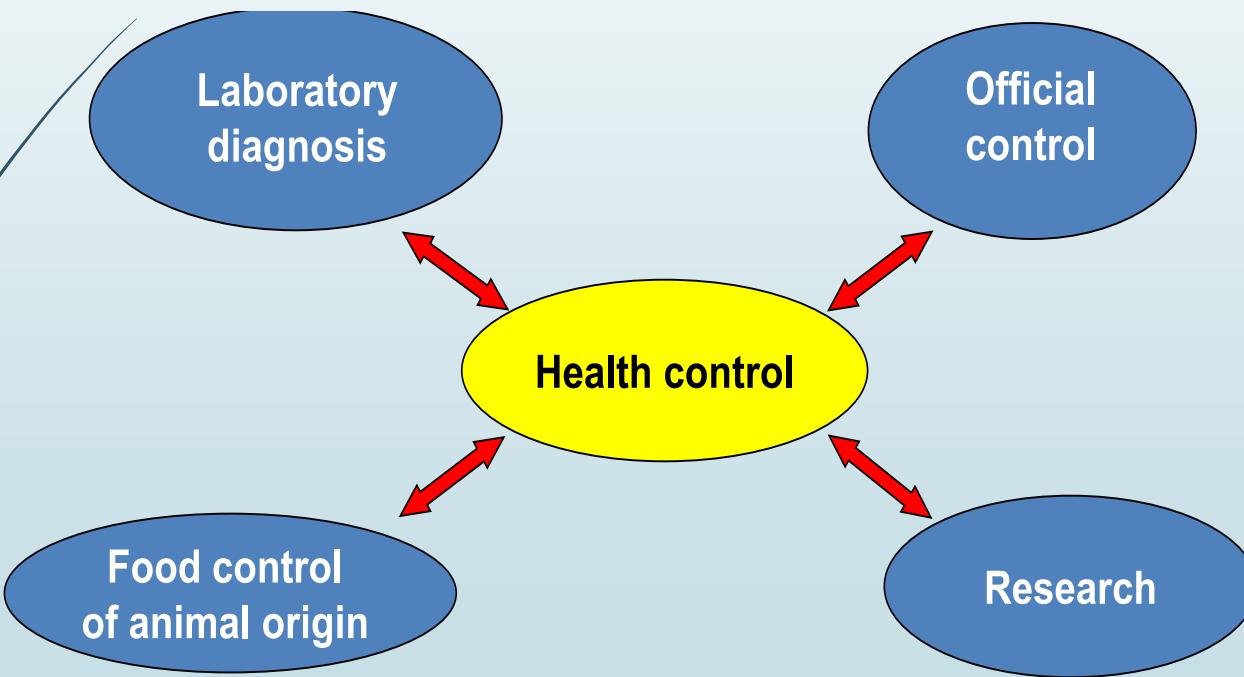
Soufien Sghaier



Teramo, 20 Novembre 2018

Centro Internazionale per la Formazione e l'Informazione Veterinaria "F. Gramenzi"

- ❖ Dr Soufien Sghaier - Virology laboratory
- ❖ Institute of Veterinary Research of Tunisia (IRVT)
 - Main local :Tunis
 - 4 regional centers



irvt tunis 2015 - 2016
Institut Arlindo



Virology Lab

Ruminants diseases:

- ✓ Bluetongue
- ✓ FMD
- ✓ PPR
- ✓ RVF
- ✓ Shmallenberg
- ✓ EHDV
- ✓ Lumpy skin disease
- ✓ Sheep and Goat pox

Fish diseases:

- ✓ Noda virus
- ✓ LCDV

Equine diseases:

- West Nile
- EIA
- EAV
- AHS
- Rhino pneumonia

Avian diseases:

- ✓ AI
- ✓ NDV
- ✓ WN

Lagomorph diseases:

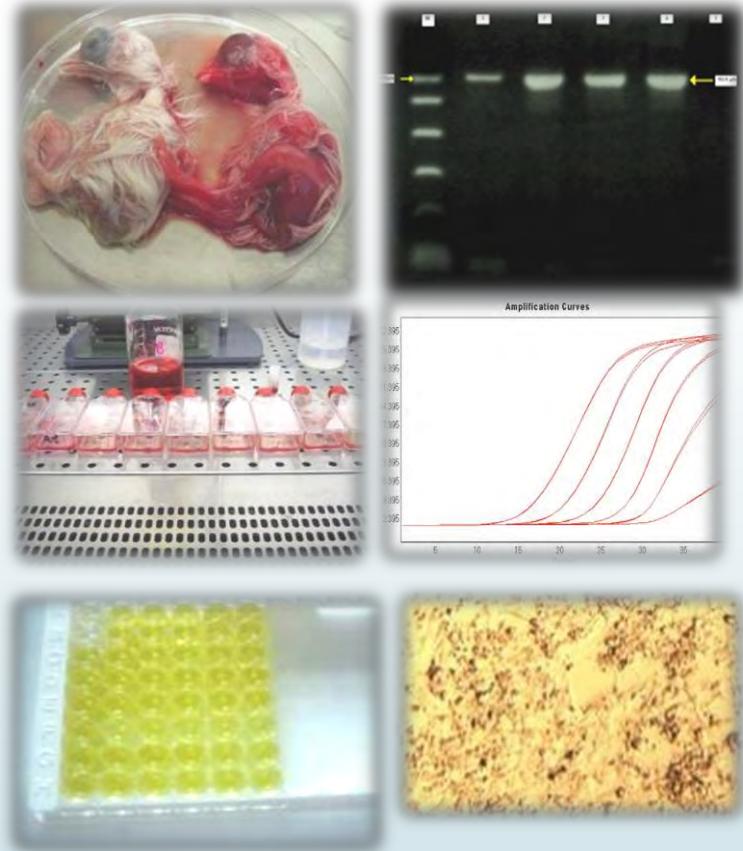
- ✓ RHDV



Diagnostic methods

Virology:

- ✓ Virus isolation in cells culture (BT, Nodavirus)
- ✓ Virus isolation on ECE (BT, NDV, AI)
- ✓ Elisa antigen (AIV, PPR)
- ✓ Conventional and real time PCR



Serology:

- ✓ Elisa
- ✓ seroneutralisation (BT serotyping)
- ✓ IHA

Medical entomology:

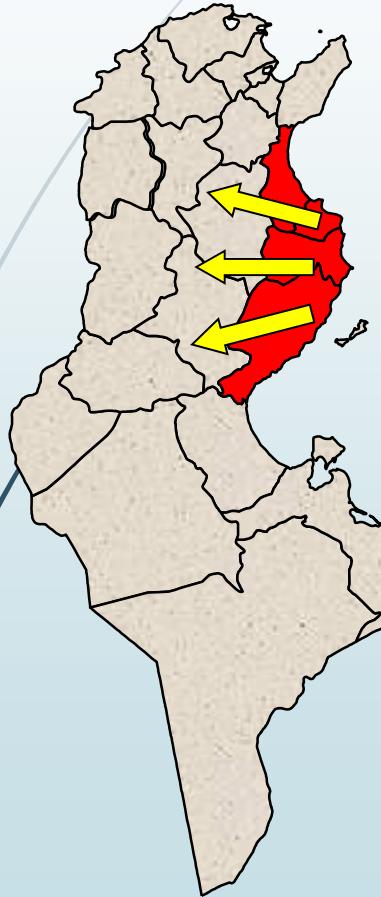
- ✓ Identification of culicoides and mosquitos



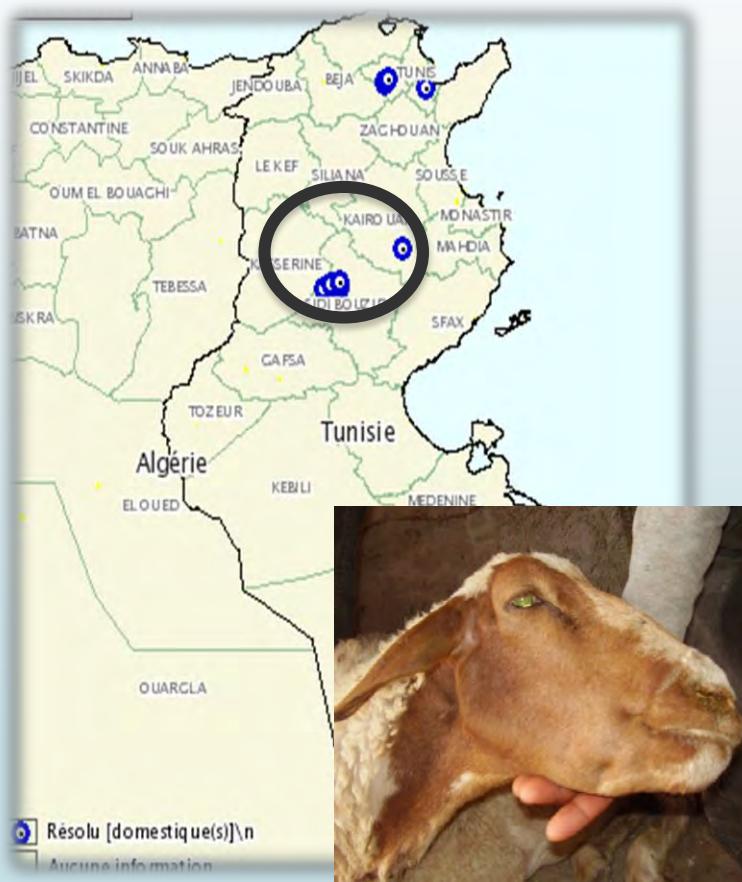
www.vetmed.univie.ac.at

BTV in TUNISIA before 2016

First outbreak BTV2 in 1999

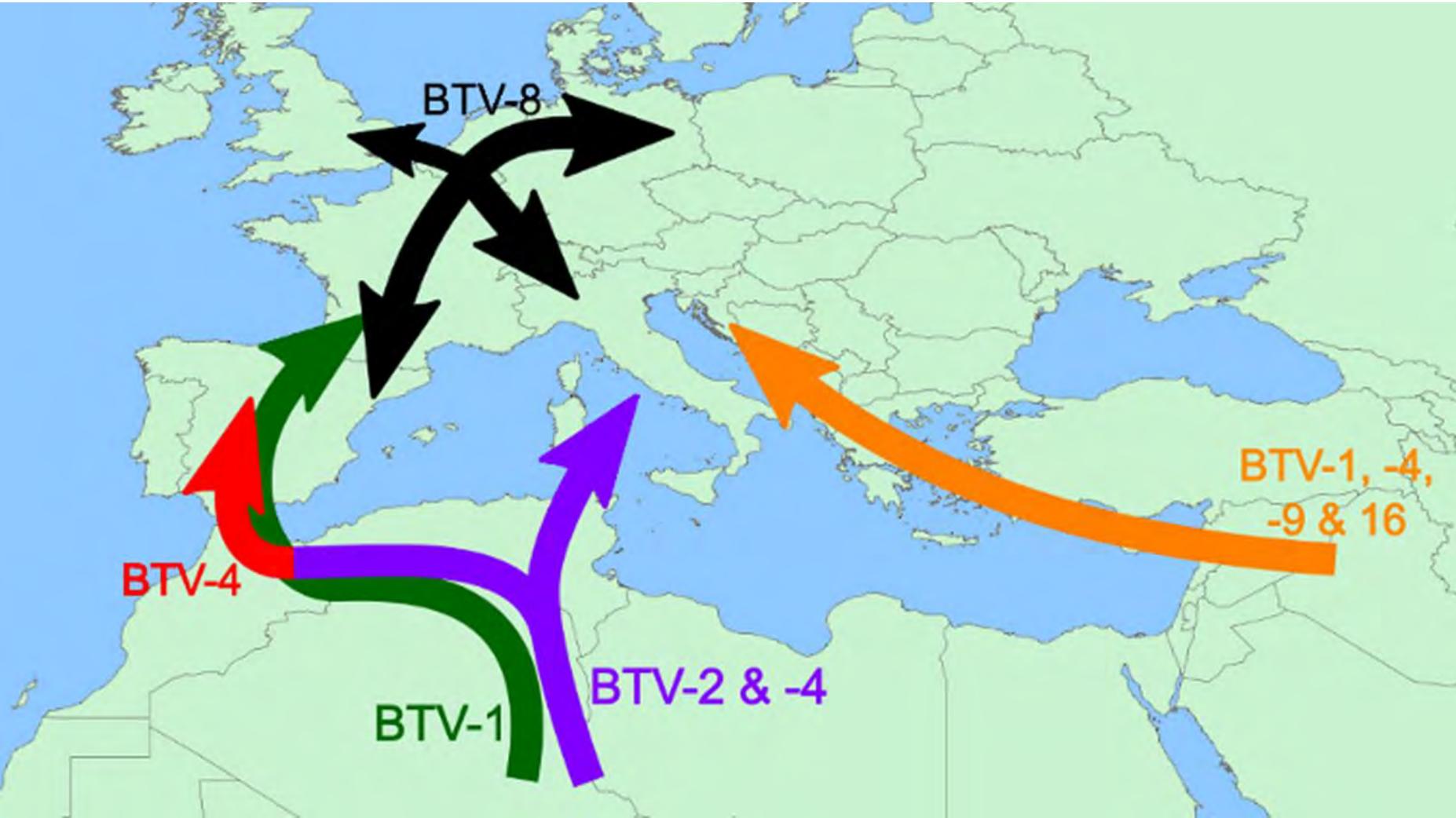


BTV1 in 2006



BTV4 in 2009



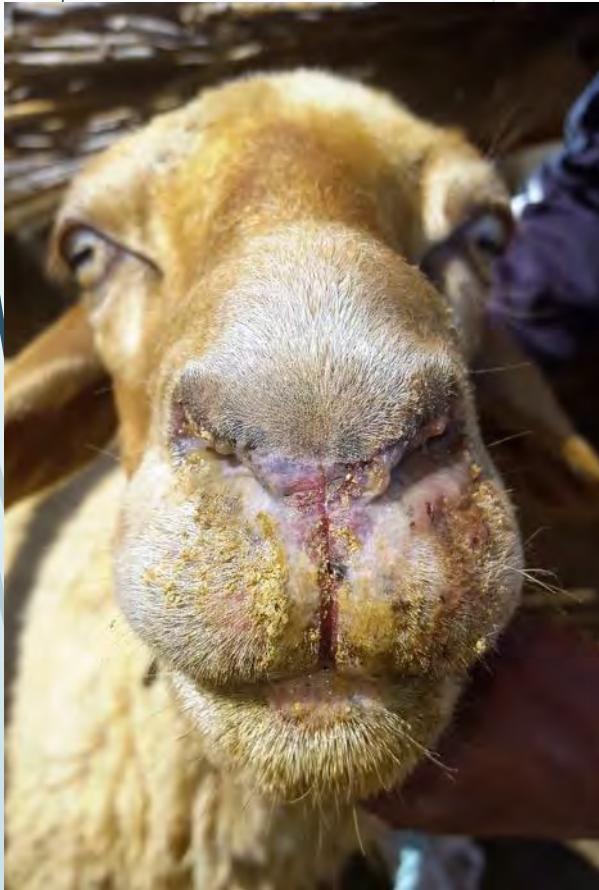


BTV-1, BTV-2 and BTV-4 have previously spread from North Africa, into Italy and the western Mediterranean Islands (in 2006, 2000 and 2003, respectively).

This therefore represents an established route for these viruses into Southern Europe

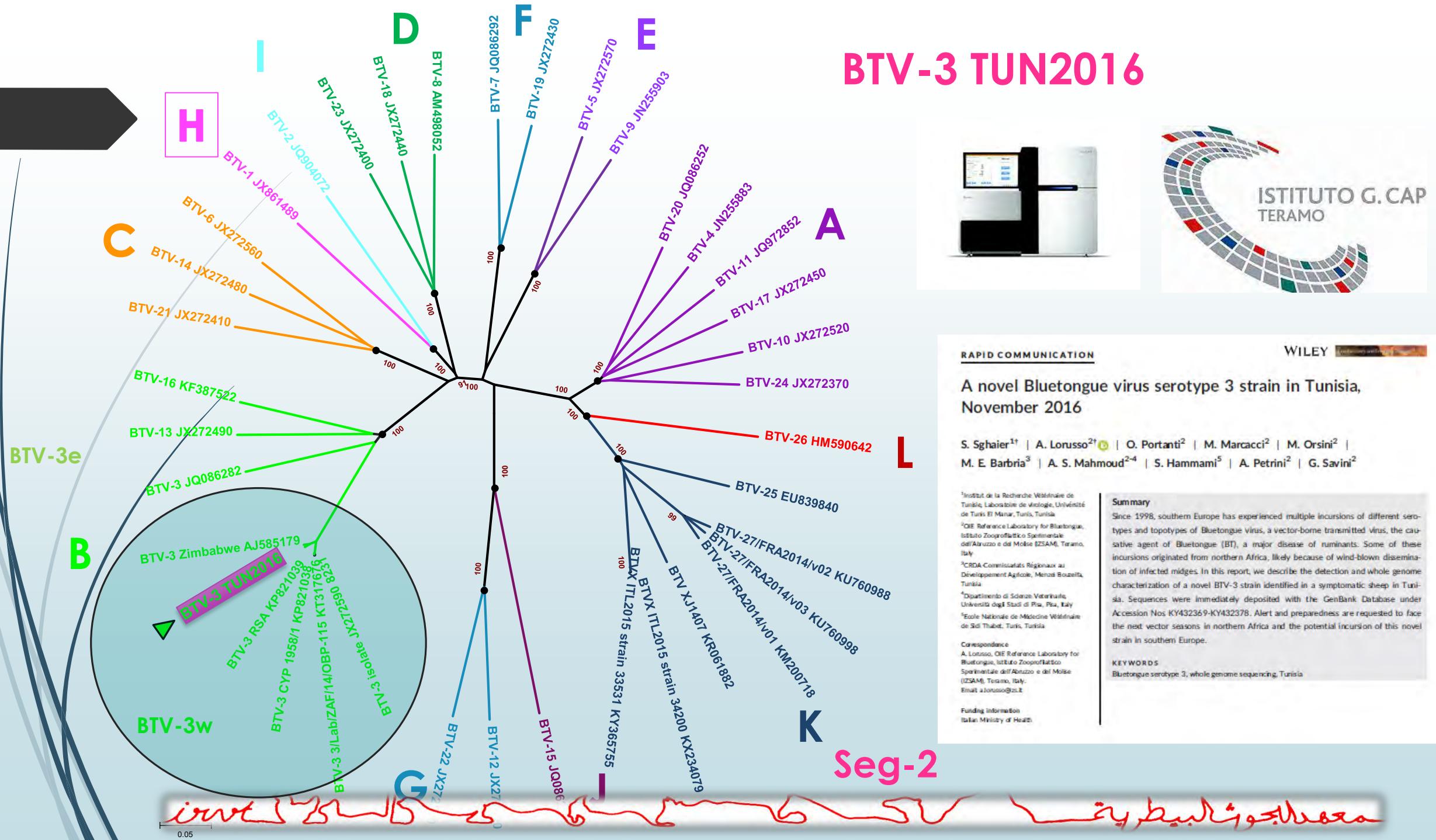
invasion
lymphocytes

BTV-3 in TUNISIA, November 2016



infectious rhinitis

BTV-3 TUN2016

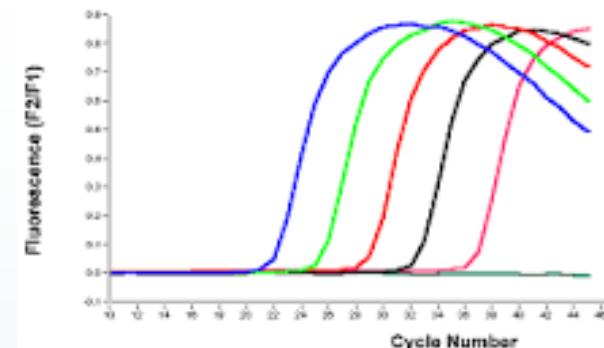


SURVEILLANCE ACTIVITIES

- 62 blood samples (RNA, specific qPCR for Seg-2 BTV-3)
- 107 serum samples (Elisa, SN)
- Most of the animals positive for BTV-1 and BTV-4 (MLV)

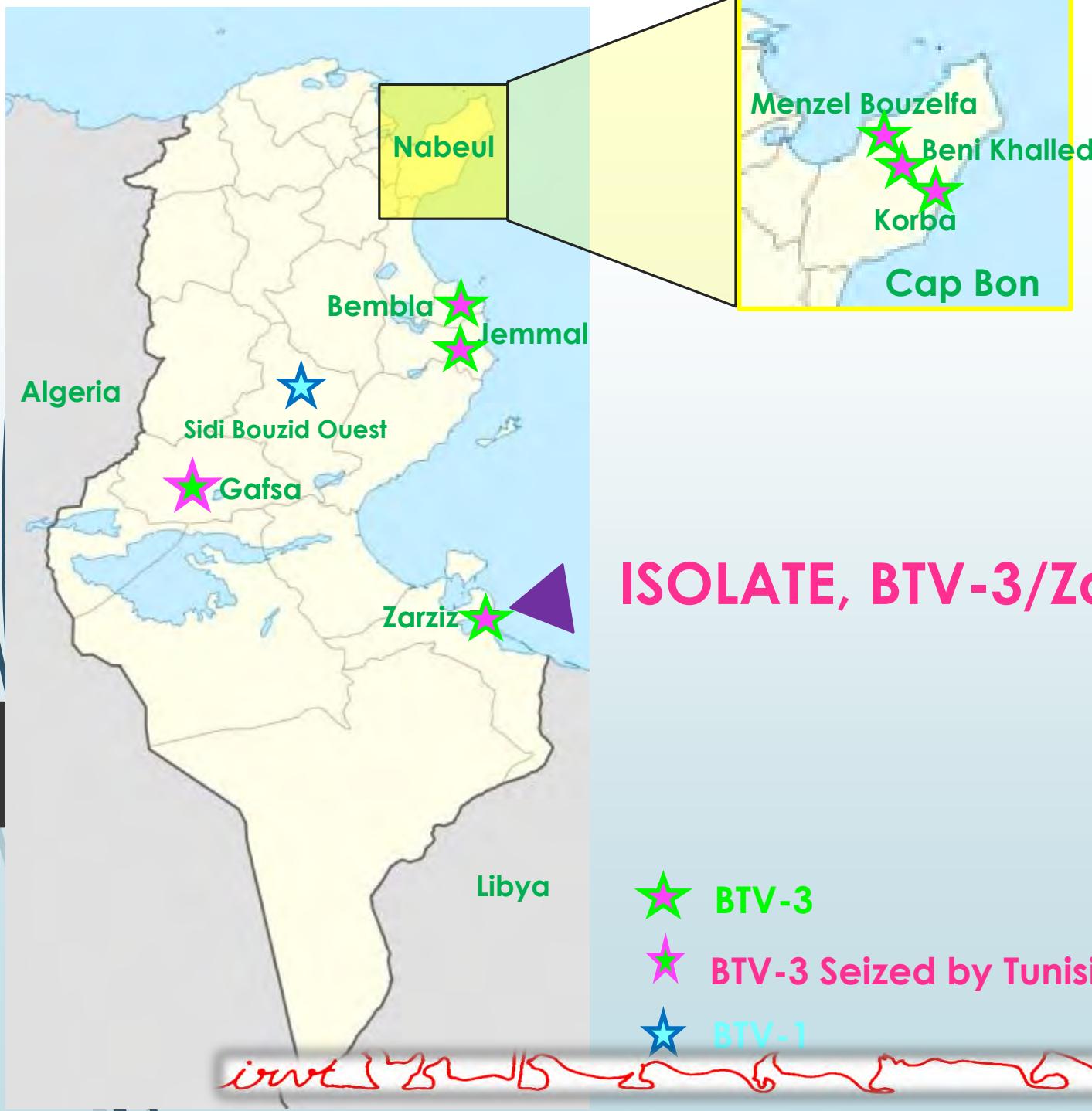


investigations
by burqas



From different areas of Tunisia

investigations
by burqas



23/62 qPCR + for BTV-3



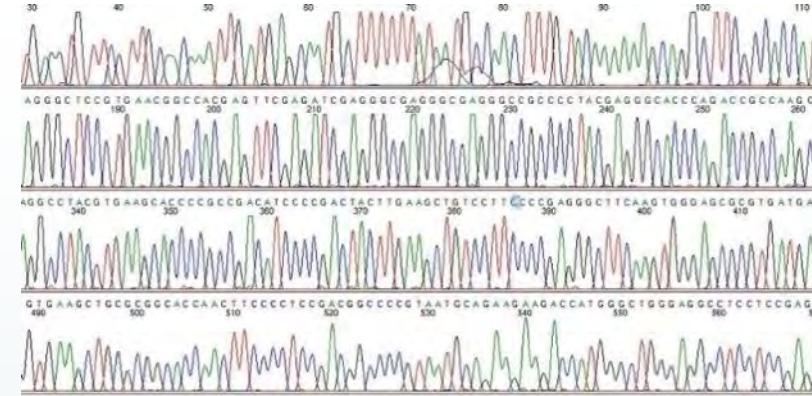
ISOLATE, BTV-3/Zarzis

Segment	% nt id avec BTV-3 TUN2016
Seg 1	93.7
Seg 2	94.1
Seg 3	96.1
Seg 4	96.3
Seg 5	96.3
Seg 6	98.0
Seg 7	95.9
Seg 8	94.0
Seg 9	96.7
Seg 10	80.3

DIFFERENT BTV-3!!!

BTV-3 TUN2016/Zarzis





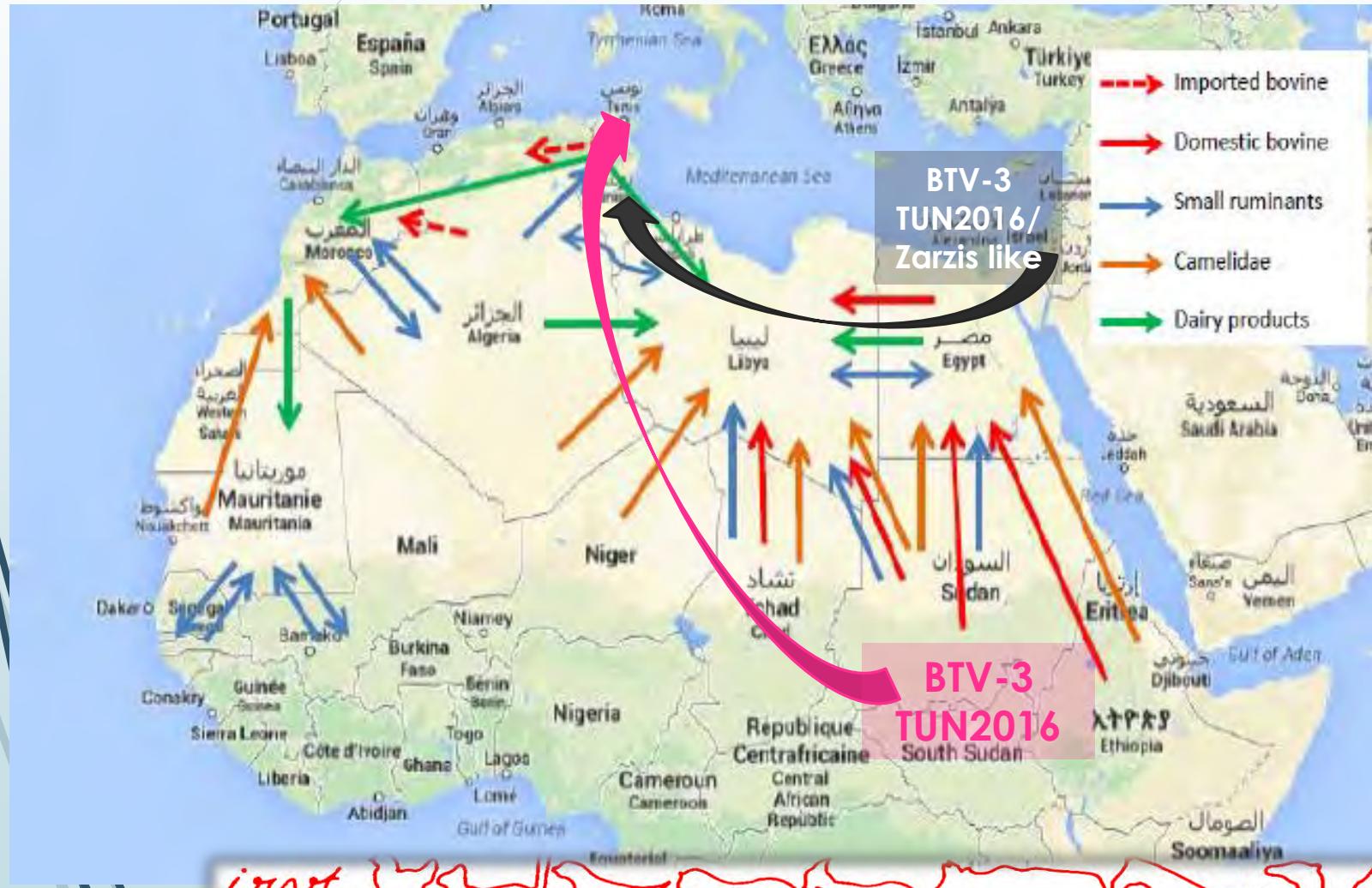
- RNA purified from BTV-3 positive blood samples
- RNA purified from BTV-3 isolates
- RT-PCR only for Seg-2

BTV-3 TUN2016 or
BTV-3 TUN2016/Zarzis-like?

2 different BTV-3 strains are circulating in Tunisia



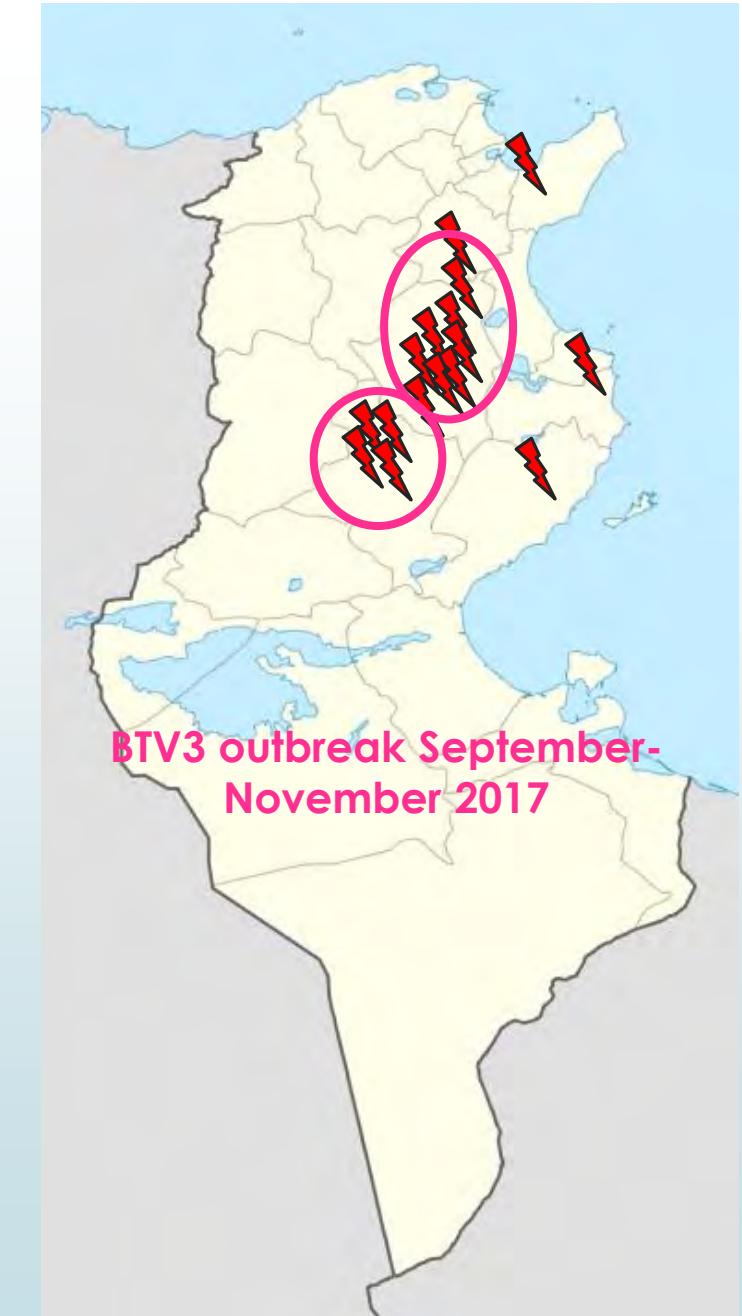
- Two different BTV-3 strains are circulating in Tunisia,
one is coming from east and one from south



Animal trade in Africa
Ripani (OIE) et al

متحركة في طرق تجارة الحيوانات
تحتاج إلى مراجعة

BTV-3 situation in 2017



inverno 2017

outubro 2017

BTV-3 situation in 2017



ALERT NEWS

Bluetongue virus serotype 3 in Western Sicily, November 2017

Alessio Lorusso^{1,2*}, Annalisa Guercio³, Giuseppa Purpari³, Cesare Cammà^{1,2}, Paolo Calistri^{1,2}, Nicola D'Alterio^{1,2}, Salah Hammami⁴, Soufien Sghaier⁴ and Giovanni Savini^{1,2}

¹OIE Reference Laboratory for Bluetongue, Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise, Campo Boario, 64100 Teramo, Italy.

²National Reference Center for Whole Genome Sequencing of microbial pathogens:

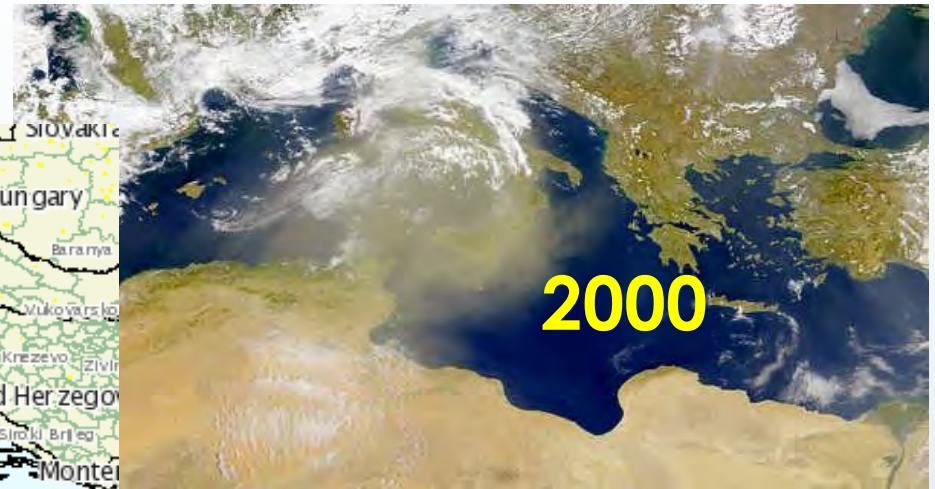
database and bioinformatic analysis,

Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise, Campo Boario, 64100 Teramo, Italy.

³Istituto Zooprofilattico Sperimentale della Sicilia, via G. Marinuzzi 3, 90129 Palermo, Italy.

⁴Université de Tunis El Manar, Institut de la Recherche Vétérinaire de Tunisie (IRVT), Laboratoire de Virologie, 20 Rue Djebel Lakhdar, 1006, Tunis, Tunisia.

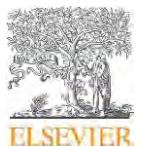
*Corresponding author at: Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise, Campo Boario, 64100 Teramo, Italy.
Tel.: +39 0861 332440, e-mail: a.lorusso@zts.it.



BTV-Y TUN2017

- < 62.3% nt id with Seg 2 of extant BTV serotypes
- 99% nt id in two genome segments with SP derived BTV strain
- Clusters with BTV-26 and SP BTV
- Serum samples failed to neutralize extant BTV serotypes
- 6/8 sheep coming from Libya were infected with a novel BTV strain...

Infection, Genetics and Evolution 59 (2018) 63–71



Contents lists available at ScienceDirect

Infection, Genetics and Evolution

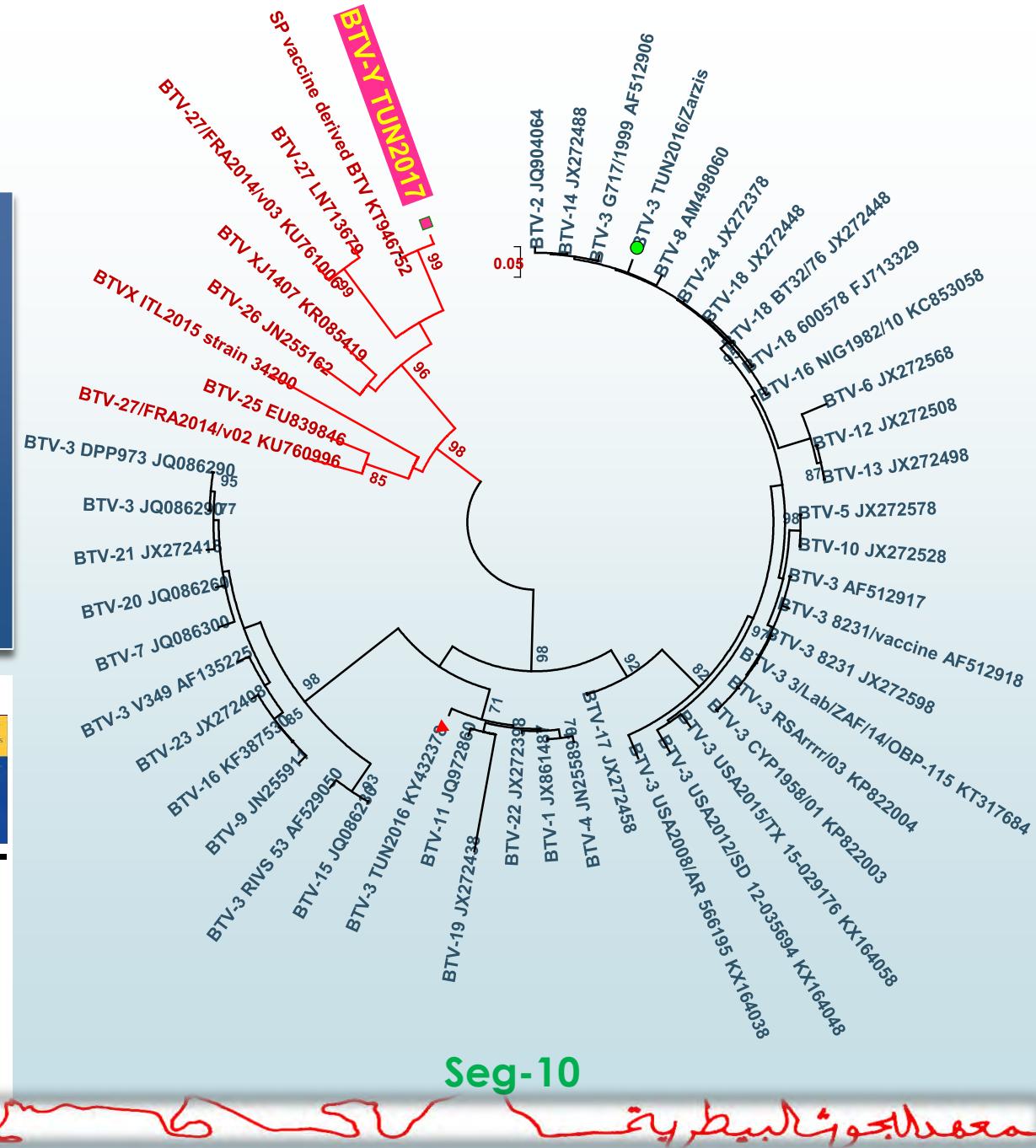
journal homepage: www.elsevier.com/locate/meegid



Research paper

Analysis of bluetongue serotype 3 spread in Tunisia and discovery of a novel strain related to the bluetongue virus isolated from a commercial sheep pox vaccine

Alessio Lorusso^{a,b,*}, Soufien Sghaier^{c,1}, Marco Di Domenico^{a,b}, Mohamed Elias Barbria^d, Guendalina Zaccaria^{a,b}, Aida Megdich^c, Ottavio Portantini^{a,b}, Imed Ben Seliman^e, Massimo Spedicato^{a,b}, Federica Pizzurro^{a,b}, Irene Carmine^{a,b}, Liana Teodori^{a,b}, Mejdi Mahjoub^f, Ioinda Mangone^{a,b}, Alessandra Leone^{a,b}, Salah Hammam^g, Maurilia Marcacci^{a,b}, Giovanni Savini^{a,b}





RVCSP-FCO

Annexe 3 : Fiche d'enquête de suspicion de la BT/EHD

Réf doc : RES-BT/EHD
Version : Aout 2017

Enquête effectuée par: AMARA Ahmed Tel 98436681 Fax 76220721
 Adresse C.R.D.A Gafsa
 Date de réalisation de l'enquête: 23/03/2018
 Nom et prénom de l'éleveur: M. Sghairi S. AADI
 Gouvernorat Gafsa Délégation Gafsa Sud Imada Nadrhour
 Coordonnées 34° 31' 50.52" E 83° 04' 32" S

1- Données sur l'élevage

Type d'élevage : intensif extensif sédentaire transhumant
 BV : organisé traditionnel laitier viande
 PR : unité d'engrangement privé Commerçant en bestiaux

Espèces présentes	Bovins	Ovins	Caprins	Race atteinte :
Nombre	06	150	19	ovine + Caprine

Indicateurs épidémiologiques généraux

Nombre d'animaux dont l'âge est	Bovins			Ovins/Caprins		
	<3 mois	[3mois-1an]	>1 an	<3 mois	[3mois-1an]	>1 an
Morts	-	-	-	-	-	05
Malades	-	02	03	85	04	17
Non atteints	01	02	03	85	04	98

Etendue de l'événement :

Existe t'il des endroits humides aux alentours de l'élevage (fumier, bouses, boues) :
 Oui Non Je ne sais pas

si oui : Est ces endroits ont été traités Oui Non

Si oui par quel produit (principe actif) *la local et les arres sont traiter par la Delta-methri*

Exploitations avoisinantes

Présence d'exploitations avoisinantes Oui Non nombre d'exploitations : 01
 Distance à l'exploitation la plus proche: 0,3 km.

Présence de problèmes similaires dans ces exploitations : Oui Non Je ne sais pas

Introduction :

Introduction de nouveaux animaux ? Oui Non Je ne sais pas
 Si oui : origine des animaux : gouvernorat : Délégation : date : / /

2- Données sur la maladie

Déclarant de la maladie : éleveur vétérinaire autres préciser :

Date d'apparition de la maladie : 16/01/2018

Visite d'un vétérinaire : Oui Non Si oui : nom du vétérinaire :

Mobile : Date de visite : / /

Actions prises (TT, vaccination, désinsectisation) :

Symptômes

Symptômes généraux	Signes locaux	Signes respiratoires	Autres symptômes
Abattement <input checked="" type="checkbox"/>	Salivation <input type="checkbox"/>	Toux <input type="checkbox"/>
Fievre <input type="checkbox"/>	Œdème de la face <input checked="" type="checkbox"/>	Dyspnée <input type="checkbox"/>
Amaigrissement <input checked="" type="checkbox"/>	Œdème de l'auge <input checked="" type="checkbox"/>
	Jetage <input type="checkbox"/>	Diarrhée <input type="checkbox"/>
	Raideur des membres <input checked="" type="checkbox"/>	Emission de sang <input type="checkbox"/>
	Boliterie <input type="checkbox"/>		
	Torticoli <input type="checkbox"/>		

BTV-Y 2018



All samples are + BTVY

GENERALLY APATHOGENIC ????????

BTV TUN 2018

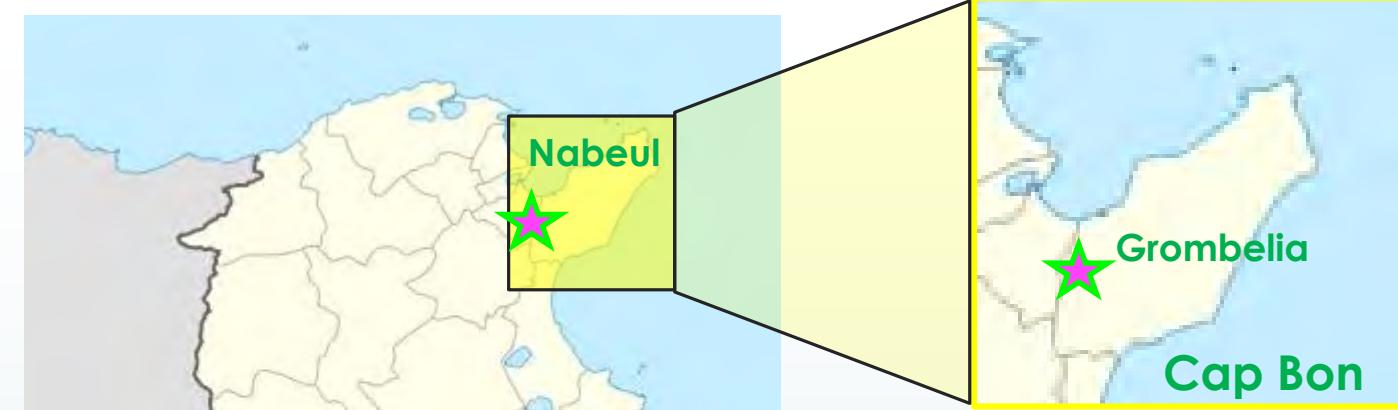
1st October

6 samples → 4 positifs BTV

Serotyping

BTV-3

4th October



27 Septembre

investigations
laboratoire

Photo Dr. Soufien Sghaier

BTV-3 TUN 2018



BTV-3 TUN 2018



inv ١٣٦٥٤٥٦
جامعة تونس

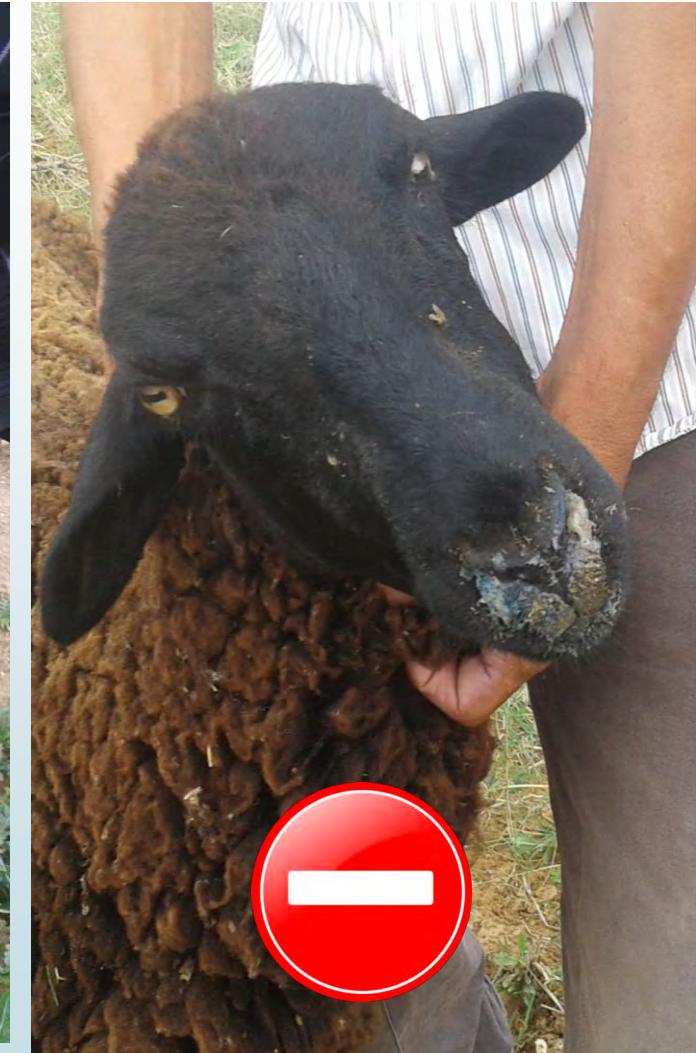
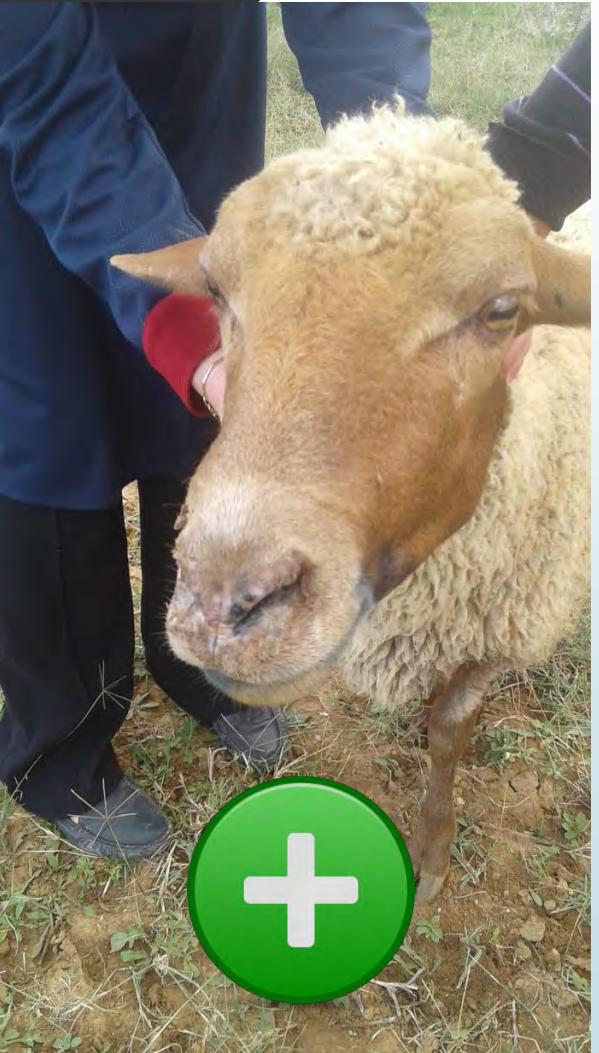


Photo Dr. Soufien Sghaier

جامعة تونس



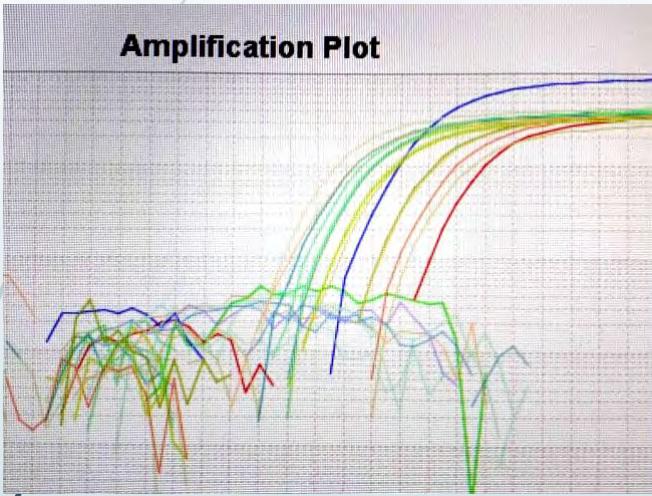
BTV-3 TUN 2018



inv ٢٠١٨ تونس بكتيريا الماء

BTV TUN 2018

10 october

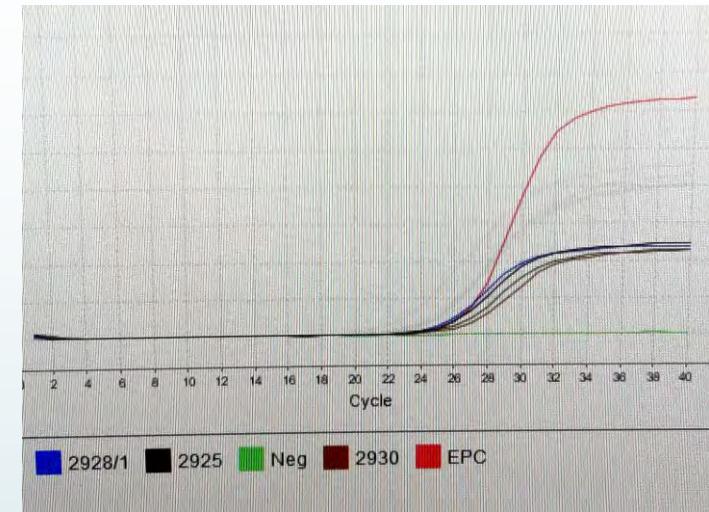


↓
Serotyping
~~BTV-3~~

infectious



16 October



↓
BTV-2

infectious

BTV-2 TUN 2018

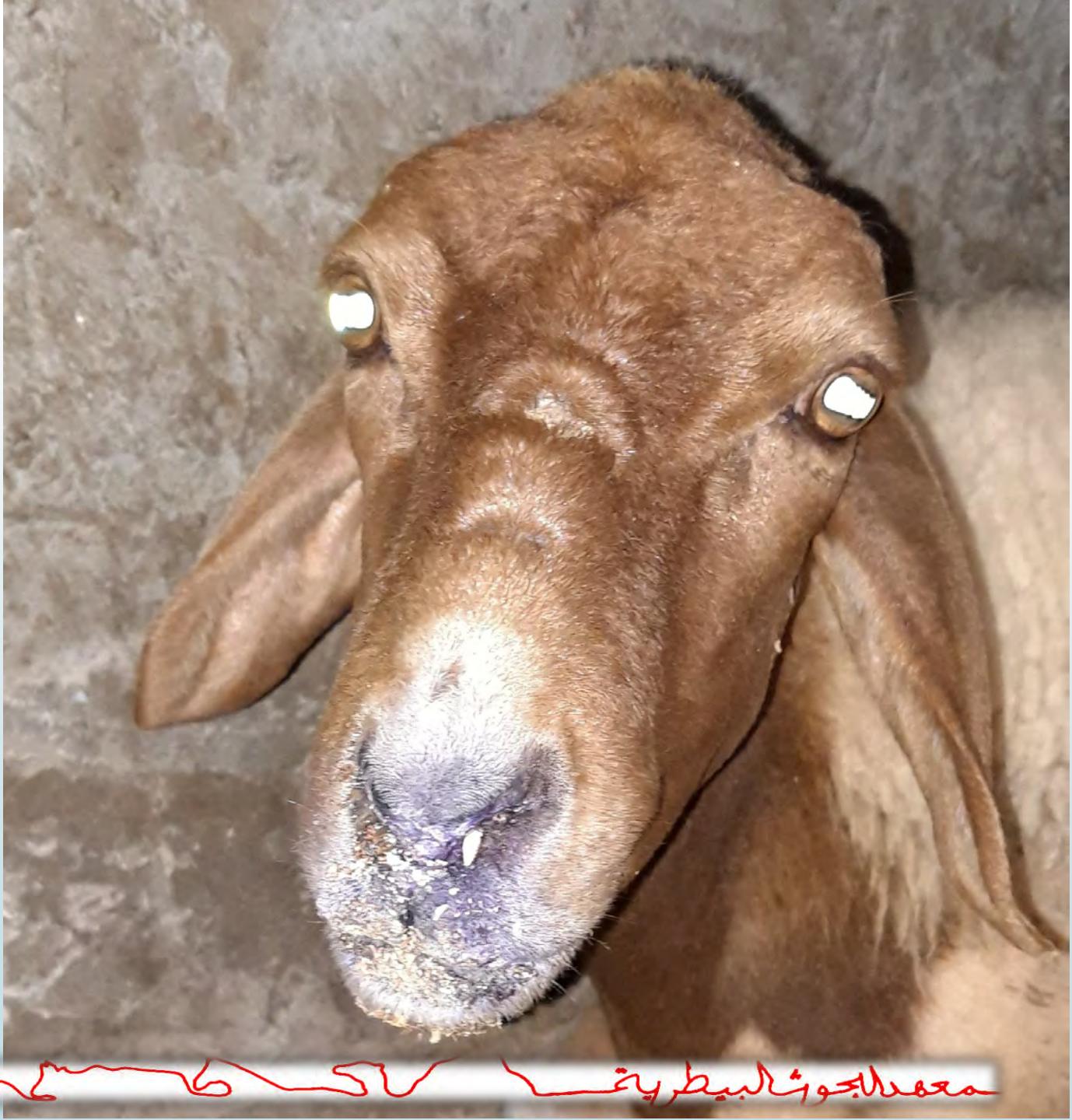


Photo Dr. Aymen Heni

infectious bovine rhinotracheitis

BTV-2 TUN 2018

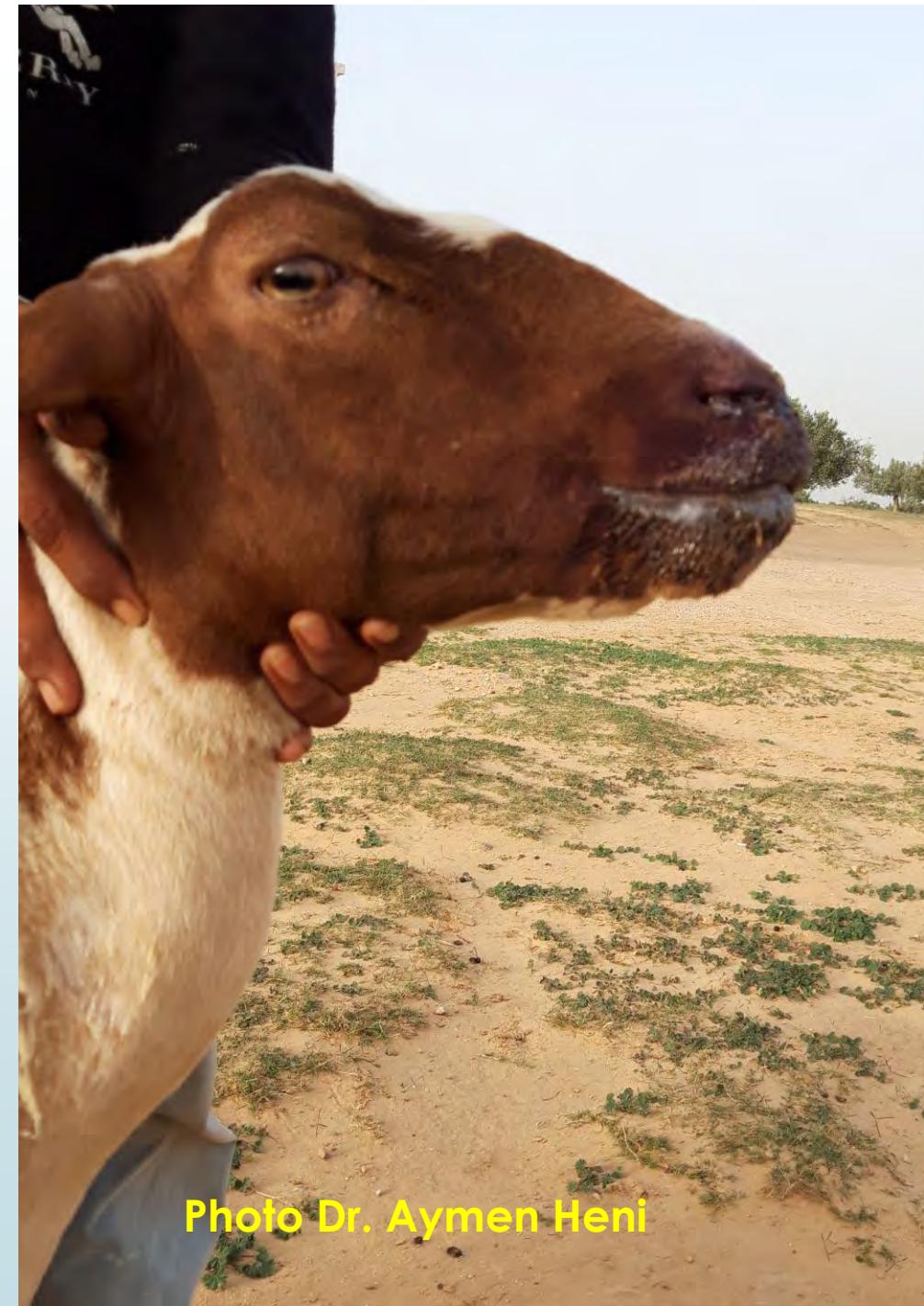


Photo Dr. Aymen Heni

BTV-2 TUN 2018



Photo Dr. Aymen Heni