

# Emergent Sand Fly–Borne Phleboviruses in the Balkan Region

## Technical Appendix

**Technical Appendix Table.** Scientific sources of the data used in the study of sand fly–borne viruses in the Balkan region\*

Country	Study design	Virus species	Region	Information	Seroprevalence	Assays	Reference
Albania	Vector surveillance	Adria virus	Kruje and Lezhe	Viral detection from <i>Phlebotom</i> spp.		PCR	(5)
	Vector surveillance	Balkan virus	Kruje	Virus detection from <i>P. neglectus</i>		PCR	(6)
Bosnia-Herzegovina	Case reports	Unidentified phlebovirus	Herzegovina	Case reports from military barracks		Clinical diagnosis	(2,3)
	Serosurveillance	SFNV		Human seroprevalence	62.1%	CF	(33)
	Serosurveillance	SFNV		Human seroprevalence	?	CF	(7)
	Serosurveillance	SFNV		Human seroprevalence	15.7 %	HI	(11,12)
	Serosurveillance	SFSV		Animal seroprevalence (sheep, cattle)	13.5%–31.2%	HI	(11,12)
	Serosurveillance	TOSV	Sarajevo	Human seroprevalence, 2006	12.5%	IgG+IgM IT	(4)
				2007	9.38%		
				2008	10.71%		
	Vector surveillance	Balkan virus	Sovici	Virus detection from <i>P. neglectus</i>		PCR	(8)
Croatia	Serosurveillance	Unidentified phlebovirus	Croatian littoral	Human seroprevalence	22.6%	HI	(11,12)
	Serosurveillance	Unidentified phlebovirus	Mijet Island	Human seroprevalence	51.4%	HI	(1)
			Brac	Human seroprevalence	46.4%	HI	(1)
	Serosurveillance	SFNV	Hvar	Human seroprevalence	33.9%	PRNT	(9)
			Korcula	Human seroprevalence	26.0%		
			Brac, Dalmatia Province	Human seroprevalence	57.6%	PRNT	(9)
	Serosurveillance	SFNV		Human seroprevalence	23.6%	HI	(13)
	Serosurveillance	SFNV	Mijet Island	Human seroprevalence	51.4%	VNT	(10)
	Serosurveillance	SFSV	Brac, Dalmatia Province	Human seroprevalence	15.6%	PRNT	(9)
	Serosurveillance	TOSV	Adriatic coast	Human seroprevalence	33.6%	IT	(14)
					53.9%		
					6.1%		
	Case report	TOSV	Split	Case report and viral detection from CSF		PCR	(13)
	Vector surveillance	TOSV	Vidonje	TOSV Lin B and Lin C detection from <i>P. neglectus</i>		PCR	(15)

Country	Study design	Virus species	Region	Information	Seroprevalence	Assays	Reference
	Vector surveillance	Balkan virus	Duba, Vidonje	Virus detection from <i>P. neglectus</i>		PCR	(8)
	Vector surveillance	Zaba virus	Vidonje	Virus isolation from <i>P. neglectus</i>		PCR, cell culture, sequencing	Unpub. data
Greece	Case reports	Unidentified phlebovirus SFNV	Athens	Sandfly fever outbreak in 1937		Clinical diagnosis PRNT	(16)
	Serosurveillance			Human seroprevalence >30 years	36%		(17)
				Human seroprevalence <30 years	4%		
	Serosurveillance	SFNV	Athens	Human seroprevalence	24.7%	PRNT	(9)
	Serosurveillance	SFNV	Malta (Crete) 25 different locations	Human seroprevalence	13.1%	PRNT	(18)
	Serosurveillance	SFSV		Human seroprevalence <30 years	16.7%	PRNT	(17)
	Serosurveillance	SFSV	Athens	Human seroprevalence	13%	PRNT	(9)
	Serosurveillance	SFSV	25 different locations	Human seroprevalence	8.5%	PRNT	(18)
	Serosurveillance	SFSV	12 different locations	Animal seroprevalence (dog)	50.7–84.9%	VNT	(27)
	Case-based surveillance	TOSV		Case report (German traveler)		IFA	(20)
	Case-based surveillance	TOSV	Thessaloniki	Case report (8-year-old boy)		IgG	(21)
	Serosurveillance	TOSV	Corfu	Human seroprevalence	51.7%	ELISA, IFA	(24)
	Serosurveillance	TOSV	Cephalonia North Greece	Human seroprevalence	39%	VNT	(22)
	Serosurveillance	TOSV	Islands	Human seroprevalence	11.26%	VNT	(23)
	Case report	TOSV	Trikala	Case report and Virus detection from CSF	21%	PCR	(25)
	Case report	TOSV	Serres	A probable case with symptoms		IgG + IgM IFA	(26)
	Serosurveillance	TOSV		Animal seroprevalence (dog)	0–15.4%	VNT	(27)
Vector surveillance	Corfu virus	Corfu Island	Virus isolation from <i>P. neglectus</i>		PCR, cell culture	(19)	
Case report	Adria virus	Thessaloniki	Case report and Virus detection from blood		PCR	(21)	
Serosurveillance	Arbia virus	12 different locations	Animal seroprevalence (dog)	2.6%	VNT	(27)	
Kosovo	Serosurveillance	Unidentified Phlebovirus SFNV	Kamenica	Human seroprevalence	27.4%	PRNT	(28)
	Serosurveillance			Human seroprevalence	27.9%	PRNT	(9)
	Serosurveillance	SFNV	Kamenica	Human seroprevalence	22.10%	PRNT	(28)
	Serosurveillance	SFNV	Peja	Human seroprevalence	1.00%	PRNT	(29)
	Serosurveillance	SFSV		Human seroprevalence	9.6%	PRNT	(9)
	Serosurveillance	SFSV	12 different locations	Animal seroprevalence (sheep, cattle)	22.2%–58.52%	VNT	(30)

Country	Study design	Virus species	Region	Information	Seroprevalence	Assays	Reference
	Serosurveillance	TOSV	Peja	Human seroprevalence	5.5%	ELISA	(29)
	Serosurveillance	TOSV	Peja	Human seroprevalence	0.5%	PRNT	(29)
	Serosurveillance	TOSV	12 different locations	Animal seroprevalence (sheep, cattle)	1.96%–5.14%	VNT	(30)
Former Yugoslav Republic of Macedonia Serbia	Vector Surveillance	Bregalaka Virus	Kezovica, Suvo Grlo	Virus isolation from <i>P. perfilliewi</i>		PCR, cell culture, sequencing	Unpub. data
	Case reports	Unidentified phlebovirus	East Serbia, Belgrade	Sandfly fever outbreak in 1946		Clinical diagnosis	(31)
	Case reports	Unidentified phlebovirus	Banat	Sandfly fever outbreak in 1946		Clinical diagnosis	(32)
	Case reports	Unidentified phlebovirus	South Serbia	Sandfly fever outbreak in 1950		Clinical diagnosis	(32)
	Vector surveillance and serosurveillance	SFNV (Yug Bogdanovac virus strain Yu 8/76)	Dobrič	Virus isolation from <i>P. perfilliewi</i>		PCR, animal experiment	(33)
				Human seroprevalence	4.16%	CF	
				Animal seroprevalence	12.96%	CF	
	Serosurveillance	SFNV		Human seroprevalence	19.4%	CF	(34)

\*CF, complement fixation; CSF, cerebrospinal fluid; HI, hemagglutination inhibition test; IFA, indirect immunofluorescence assay; IT, immunoassay test; PRNT, plaque reduction neutralization test; SFNV, sandfly virus Naples virus; TOSV, Toscana virus; VNT; virus neutralization test

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