

Population Structure of *Toxoplasma gondii* in Serbia

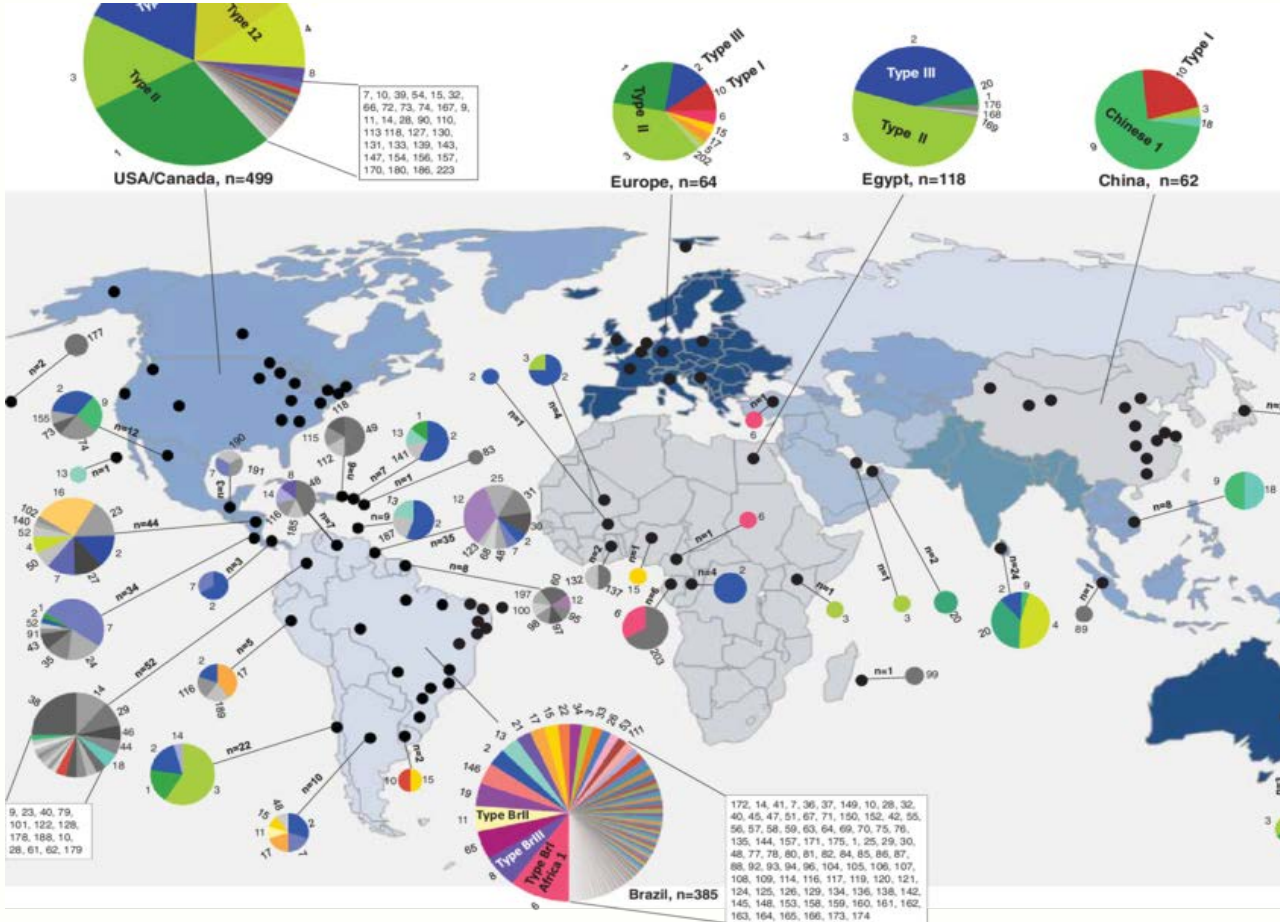
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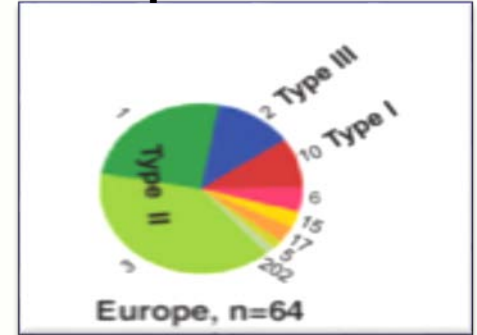
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T. gondii Population Structure

Global:












Europe:



Shwab EK, Zhu XQ, Majumdar D, Pena HF, Gennari SM, Dubey, JP, Su C. (2013). Geographical patterns of *Toxoplasma gondii* genetic diversity revealed by multilocus PCR-RFLP genotyping. *Parasitology*, 141.

Results Overview

	HOST	n	Live/gDNA	Lineage			
				II	III	II/III	Atypical
	Human	8	Live (n=4), gDNA (n=4)	6	1	-	1
	Horse	4	Live (n=2), gDNA (n=2)	1	1	2	-
	Pig	8	gDNA	6	2	-	-
	Chicken	2	Live	1	-	1	-
	Sheep	1	Live	1	-	-	-
	Pigeon	3	Live	2	-	1	-
	Golden Jackal	13	gDNA	9	3	1	-
	Fox	9	gDNA	6	2	1	-
	Wolf	2	gDNA	1	-	1	-
	TOTAL	50		33	9	7	1

Strains from human hosts

Chromosome	Ib	VI	VIIa	VIII	IX	X	Plastid	III
Marker	C22-8	PK1	CS3	Alt.SAG2	BTUB	GRA6	Apico	29-2
<i>origin</i>	<i>n/status</i>							
Blood, AF	n=4 /LIVE							
AF	n=1/gDNA			-			-	-
CSF	n=1/gDNA			-				-
BAL	n=1/gDNA			-				-

Chromosome	VIIa	VIIa	VIII	VIII	VIII	X	
Marker	5'GRA7	3'GRA7	SAG1	5'SAG2	3'SAG2	GRA6	
<u>ATYPICAL (confirmed by Microsatellite typing and published in 2014)</u>							
<i>Origin</i>	<i>Status</i>						
Blood/BAL	gDNA	I/II	I/III	II/III	II/III	I/II	II

Strains from domestic animals

Chromosome		Ib	III	V	VI	VIIa	VIII	IX	X	Plastid
Marker		C22-8	C29-2	L358	PK1	CS3	Alt.SAG2	BTUB	GRA6	Apico
<i>Origin</i>	<i>Strain ID/status</i>									
<i>E. caballus</i>	Eq39/LIVE	III	III	III	III	II	II	III	III	II
	Eq40/LIVE	II	III	III	II	III	II	I	III	III
	Eq06/gDNA	-	-	-	II	II	II	II	II	-
	Eq12/gDNA	-	-	-	II	II	II	II	III	III
<i>S. scrofa</i>	n=2/gDNA	III	-	-	III	III	III	III	III	III
	n=6/gDNA	II	-	-	II	II	II	II	II	II
<i>O. aries</i>	O9/LIVE	II	II	II	II	II	II	II	II	II
<i>G. gallus</i>	K1/LIVE	II	III	III	III	III	II	II	I	III
	K2/LIVE	II	II	II	II	II	II	II	II	II

Strains from wild carnivores:

Red fox



Chromosome	Ib	VI	VIIa	VIII	IX	X	Plastid
Marker	C22-8	PK1	CS3	Alt.SAG2	BTUB	GRA6	Apico
<i>Vulpes vulpes</i>: 10/28 PCR +, (n=9 strains, all gDNA, no isolates)							
<i>n</i> /Strain ID							
67-16			-				-
n=2							
68-16			-				
113-16	-						-
61-13		-					
103-16							-
124-16							
121-16							

Strains from wild carnivores: Golden jackal



Chromosome	Ib	VI	VIIa	VIII	IX	X	Plastid
Marker	C22-8	PK1	CS3	Alt.SAG2	BTUB	GRA6	Apico
<i>Canis aureus</i> 18/72 PCR +, (n=13 strains, all qDNA, no isolates)							
n/Strain ID							
n=3							
n=2							
n=3			-				-
125-16							
n=2			-				
51-16							-
75-16							-

Strains from wild carnivores: Grey wolf



Chromosome	Ib	VI	VIIa	VIII	IX	X	Plastid
Marker	C22-8	PK1	CS3	Alt.SAG2	BTUB	GRA6	Apico
<i>Canis lupus</i> 2/10 PCR +, (n=2 strains, all qDNA, no isolates)							
<i>n</i> /Strain ID							
20-16			-				
22-16			-				-

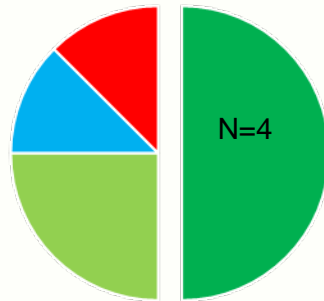
Strains from wild birds: City Pigeons



Chromosome	Ib	III	VI	V	VIIa	VIII	IX	X	Plastid
Marker	C22-8	C29-2	PK1	L358	CS3	Alt.SAG2	BTUB	GRA6	Apico
<i>Columba livia: n=3 strains, all LIVE</i>									
n/Strain ID									
G13									
n=2									

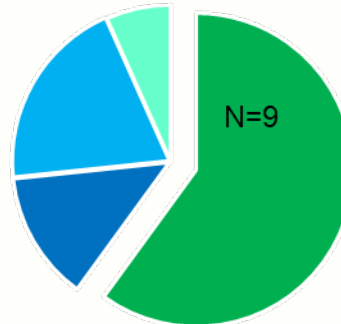
Strains in three different groups of intermediate hosts

Human strains (n=8)



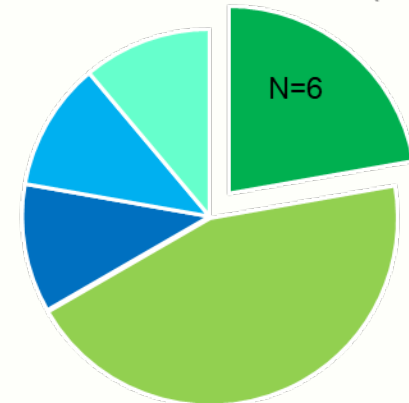
- lineage II archetype
- lineage II variant
- lineage III variant
- Atypical

Domestic animal strains (n=15)



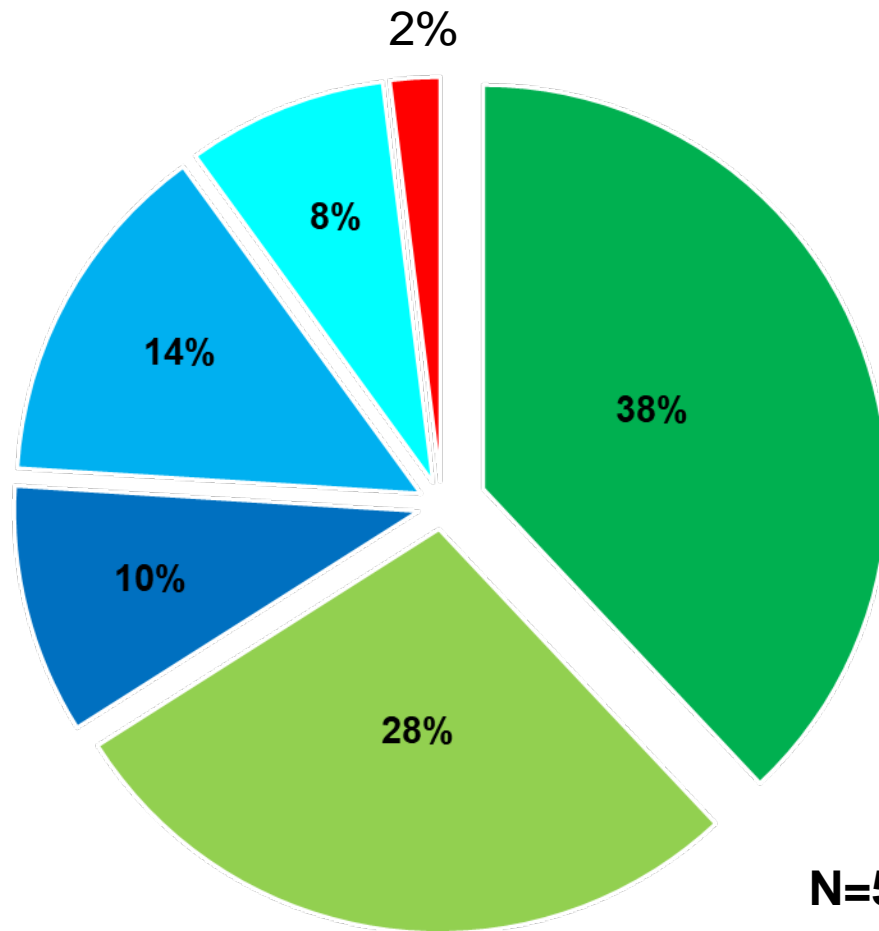
- lineage II archetype
- lineage III archetype
- lineage III variant
- II/III recombinant
- lineage II variant

Wild animal strains (n=27)



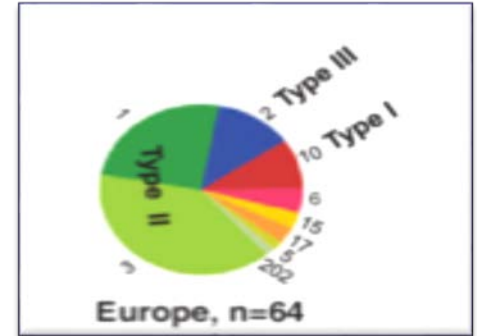
- lineage II archetype
- lineage II variant
- lineage III archetype
- lineage III variant
- II/III recombinant
- lineage II variant

Population structure of *T. gondii* in Serbia



N=50

- lineage II archetype
- lineage II variant
- lineage III archetype
- lineage III variant
- II/III recombinant
- Atypical



Thank you for your attention