

Table S1. Haplotype analysis, polymorphic sites analysis and Tajima's D test estimation performed by DnaSP v.6 software for *gdh*, *bg* and *tpi* loci. Π indicates the nucleotide diversity (average number of nucleotide substitutions between all unique pairwise comparisons of sequences); S indicates the number of segregating sites. The asterisks show significance of Tajima's D test values, where * is equal to not significant ($P > 0.10$ or $0.10 > P > 0.05$).

Gene	N. of haplotypes	Hd (Haplotype diversity)	π (Nucleotide diversity)	S (N. segregating sites)	Tajima's D
<i>gdh</i>	9	0.8246	0.05205	33	-0.56486*
<i>bg</i>	16	0.8234	0.04675	29	0.72639*
<i>tpi</i>	14	0.8312	0.12852	145	1.98090 *

Table S2. *Gdh* locus haplotype analysis; * indicates the presence of different haplotypes generated from a single ambiguous (double peaks) sequence retrieved from a single isolate; ** indicates present study isolates.

HAPLOTYPE	N. OF SEQUENCES	HOST (N)	ASSEMBLAGE DETECTED	AREA
<i>hp1</i>	1	<i>R. rattus</i> (1)	G	Canary Islands
<i>hp2</i>	1	<i>R. rattus</i> (1)	B	Canary Islands
<i>hp3</i>	1	<i>R. rattus</i> (1)	G	Canary Islands
<i>hp4</i>	5	<i>C. elaphus</i> (2); <i>R. r. rupicapra</i> (1)**; <i>R. p. ornata</i> (1); <i>C. capreolus</i> (1)	A	Poland, Italy, The Netherlands
<i>hp5</i>	5	<i>C. capreolus</i> (2); <i>R. r. rupicapra</i> (1); <i>S. scrofa</i> (1)**; <i>D. dama</i> (1)	A	Poland, Italy, Sweden
<i>hp6</i>	9	<i>D. dama</i> (8); <i>S. scrofa</i> (1)	A	Italy, Croatia
<i>hp7</i>	2	<i>C. lupus</i> (1); <i>N. procyonoides</i> (1)	D	Romania
<i>hp8</i>	1	<i>D. dama</i> (1)	E	Romania
<i>hp9</i>	1	<i>D. dama</i> (1)	E	Sweden

Table S3. *Bg* locus haplotype analysis; * indicates the presence of different haplotypes generated from a single ambiguous (double peaks) sequence retrieved from a single isolate; ** indicates present study isolates.

HAPLOTYPE	N. OF SEQUENCES	HOST (N)	ASSEMBLAGE DETECTED	AREA
<i>hp1</i>	2	<i>R. rattus</i> (2)	G	Canary Islands
<i>hp2</i>	1	<i>R. rattus</i> (1)	G	Canary Islands
<i>hp3</i>	1	<i>R. rattus</i> (1)	G	Canary Islands
<i>hp4</i>	1	<i>R. rattus</i> (1)	B	Canary Islands
<i>hp5</i>	13	<i>C. elaphus</i> (3); <i>A. alces</i> (2); <i>D. dama</i> (8)	A	Poland, Norway, Italy
<i>hp6</i>	16	<i>F. silvestris</i> (1); <i>S. scrofa</i> (5); <i>C. capreolus</i> (3); <i>C. elaphus</i> (4); <i>P. lotor</i> (3)	B	Luxembourg, Poland, Germany
<i>hp7</i>	2	<i>S. scrofa</i> (1); <i>C. capreolus</i> (1)	B	Poland
<i>hp8</i>	1	<i>C. capreolus</i> (1);	B	Poland
<i>hp9</i>	3	<i>C. lupus</i> (1); <i>N. procyonoides</i> (1); <i>S. scrofa</i> (1)**	D	Poland, Italy
<i>hp10</i>	20	<i>C. capreolus</i> (8); <i>D. dama</i> (1); <i>V. vulpes</i> (1); <i>R. tarandus</i> (6); <i>A. alces</i> (4)	A	Poland, Sweden, Norway, Spain
<i>hp11</i>	1	<i>R. norvegicus</i> (1)	G	Sweden
<i>hp12</i>	5*	<i>H. cristata</i> (5)*, **	B	Italy
<i>hp13</i>	1*	<i>H. cristata</i> (1)*, **	B	Italy
<i>hp14</i>	1*	<i>H. cristata</i> (1)*, **	B	Italy
<i>hp15</i>	1*	<i>H. cristata</i> (1)*, **	B	Italy
<i>hp16</i>	3	<i>S. scrofa</i> (2)**; <i>R. r. rupicapra</i> (1)**	A	Italy

Table S4. *Tpi* locus haplotype analysis; * indicates the presence of different haplotypes generated from a single ambiguous (double peaks) sequence retrieved from a single isolate; ** indicates present study isolates.

HAPLOTYPE	N. OF SEQUENCES	HOST(N)	ASSEMBLAGE DETECTED	AREA
<i>hp1</i>	10	<i>C. elaphus</i> (2); <i>D. dama</i> (8)	A	Poland, Italy
<i>hp2</i>	5*	<i>R. rattus</i> (1); <i>V. vulpes</i> (4)*	B	Canary Islands, Sweden
<i>hp3</i>	1	<i>S. scrofa</i> (1)**	A	Italy
<i>hp4</i>	1	<i>H. cristata</i> (1)**	B	Italy
<i>hp5</i>	1	<i>H. cristata</i> (1)**	B	Italy
<i>hp6</i>	1	<i>C. a. moreoticus</i> (1)	B	Croatia
<i>hp7</i>	1*	<i>V. vulpes</i> (1)*	B	Sweden
<i>hp8</i>	1	<i>C. elaphus</i> (1)	A	Croatia
<i>hp9</i>	1	<i>R. norvegicus</i> (1)	G	Sweden
<i>hp10</i>	1	<i>D. dama</i> (1)	A	Sweden
<i>hp11</i>	1	<i>D. dama</i> (1)	E	Sweden
<i>hp12</i>	1	<i>H. cristata</i> (1)**	A	Italy
<i>hp13</i>	11	<i>R. rattus</i> (8); <i>M. musculus</i> (3)	G	Canary Islands
<i>hp14</i>	3	<i>R. rattus</i> (2); <i>M. musculus</i> (1)	G	Canary Islands