Istituto Zooprofilattico Sperimentale delle Venezie

West Caucasian bat Virus circulation in Miniopterus schreibersii, Lleida bat virus co-circulation and phenotypic characterization

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Outline

WCBV: The Arezzo's case

WCBV outside Arezzo

WCBV vs. LLEBV(?)

Phenotype of divergent lyssaviruses

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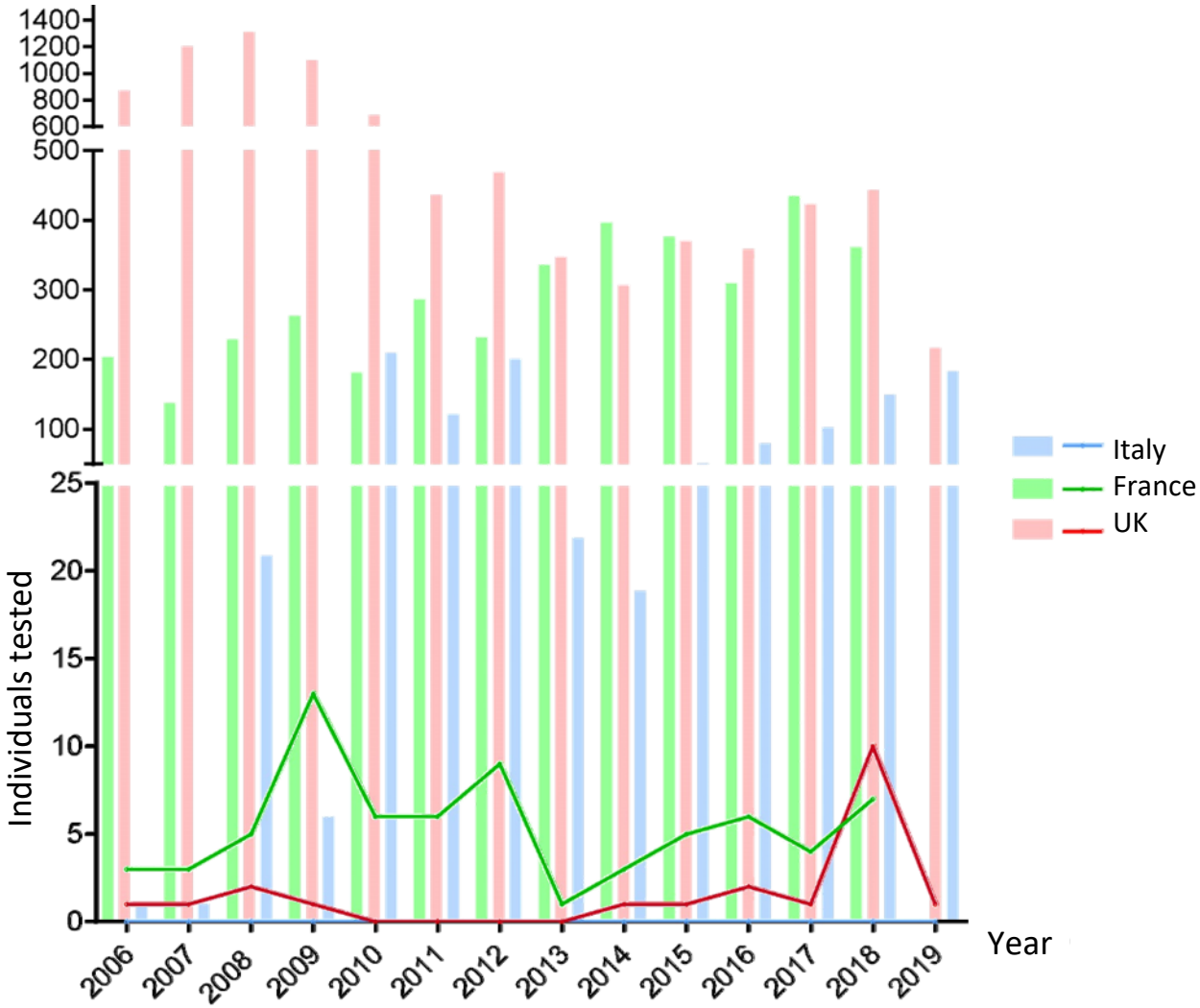
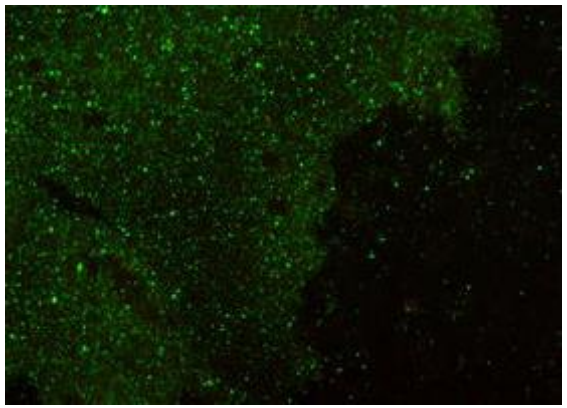
WCBV: The Arezzo's case

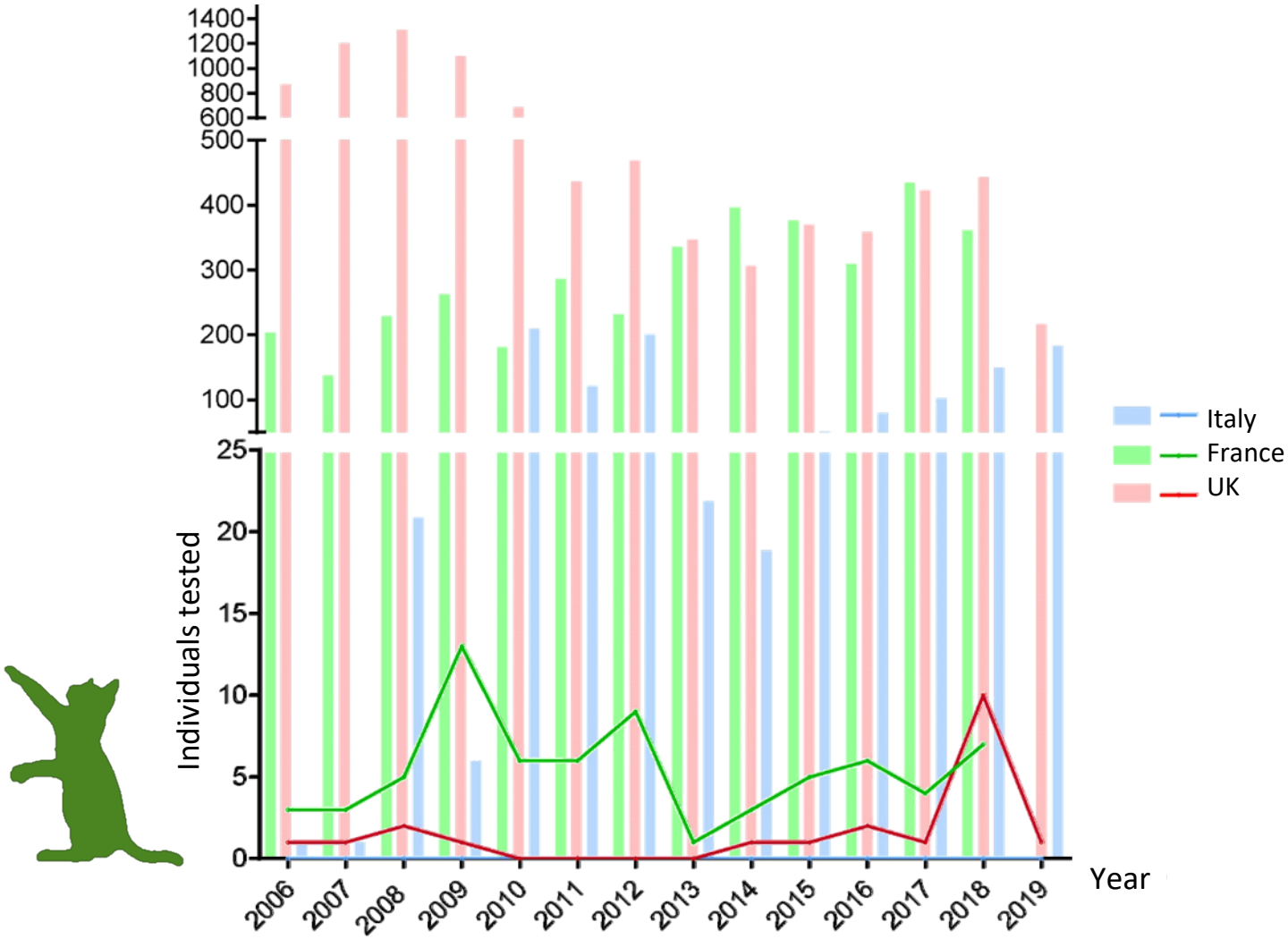


Maps downloaded from rabies bullettin on 10/06/2022

WCBV: The Arezzo's case



27 Giugno 2020



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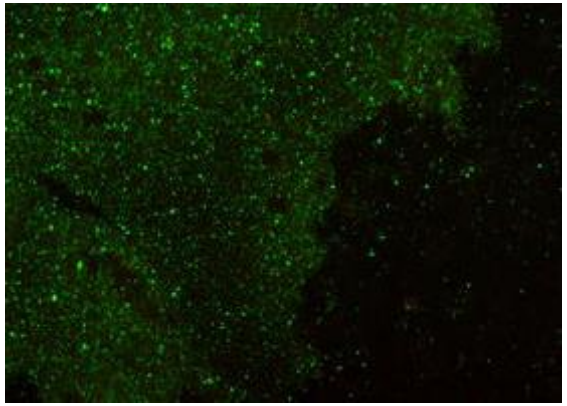
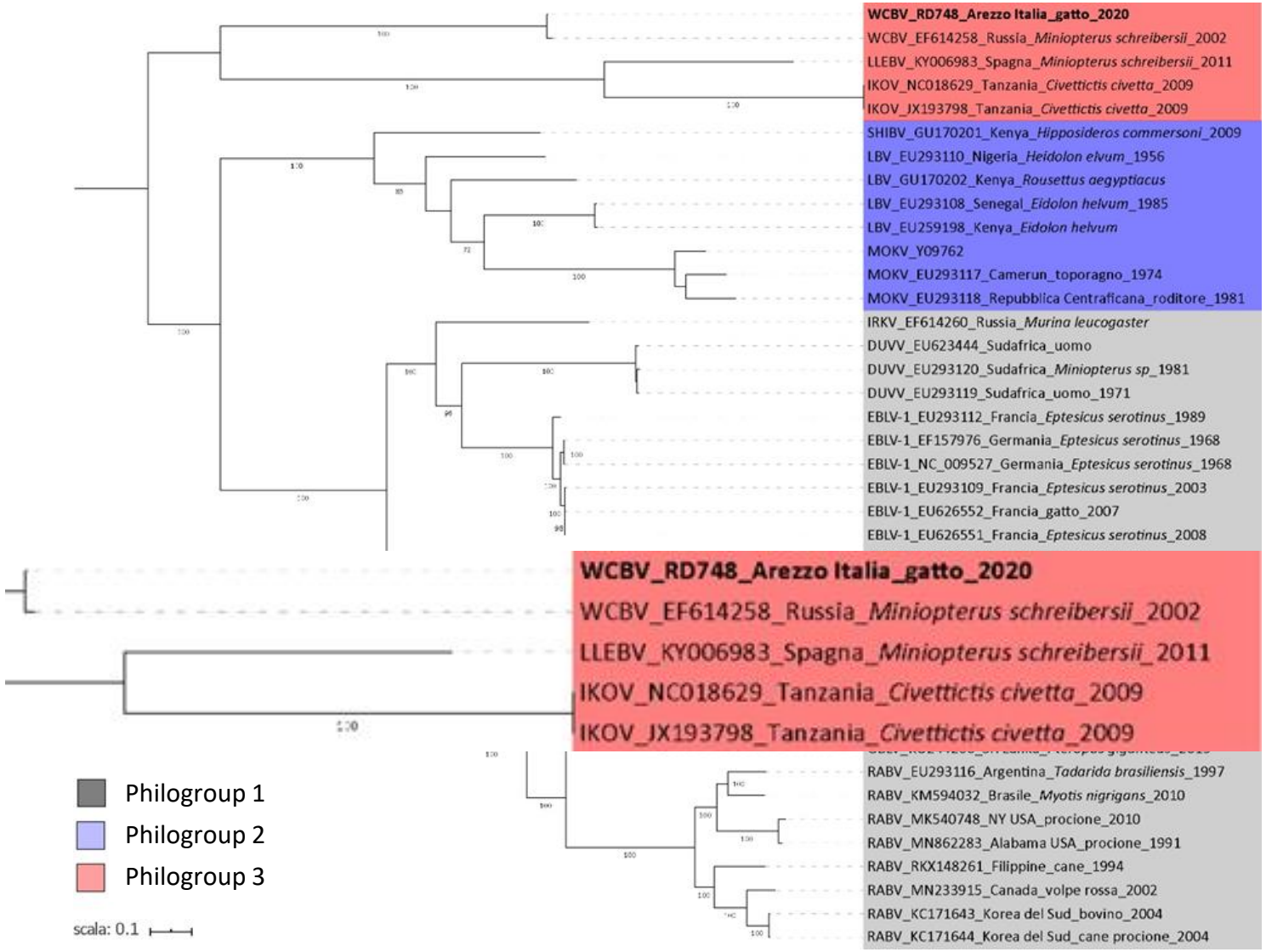
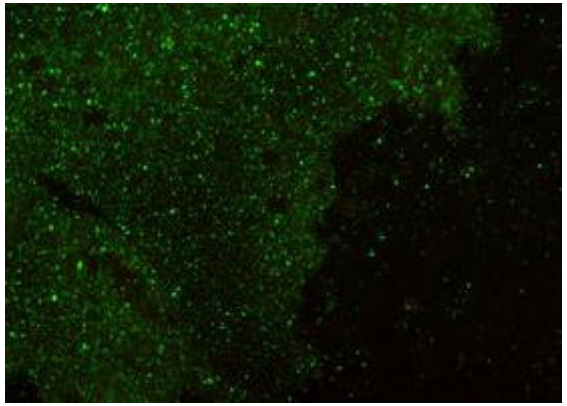
WCBV: The Arezzo's case



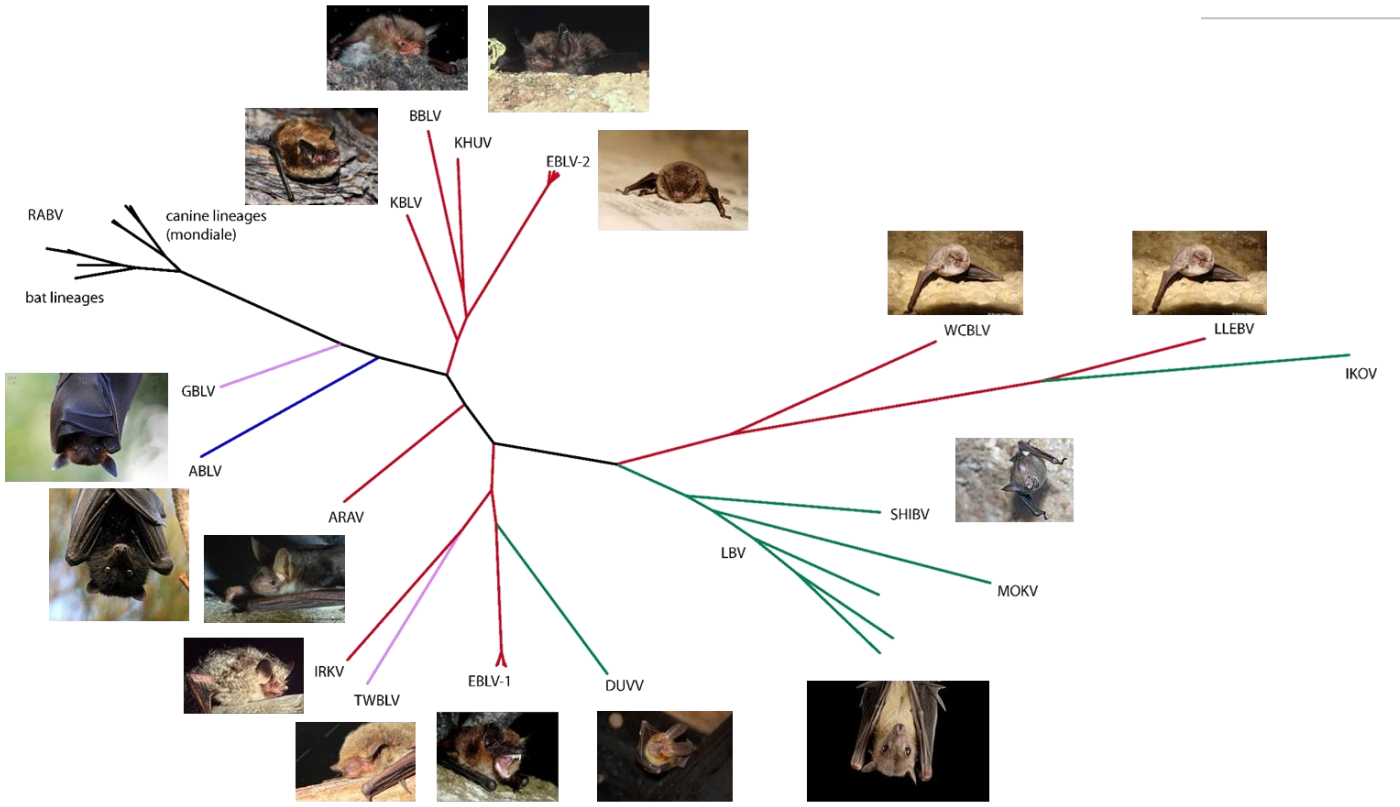
Miniopterus schreibersii



WCBV: The Arezzo's case



Miniopterus schreibersii



Lyssaviruses are usually species specific in bats

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WCBV: The Arezzo's case

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WCBV: The Arezzo's case

Bioacoustis:

- Biodiversity of bats
- Frequency of different species
- Behavior and habitat use

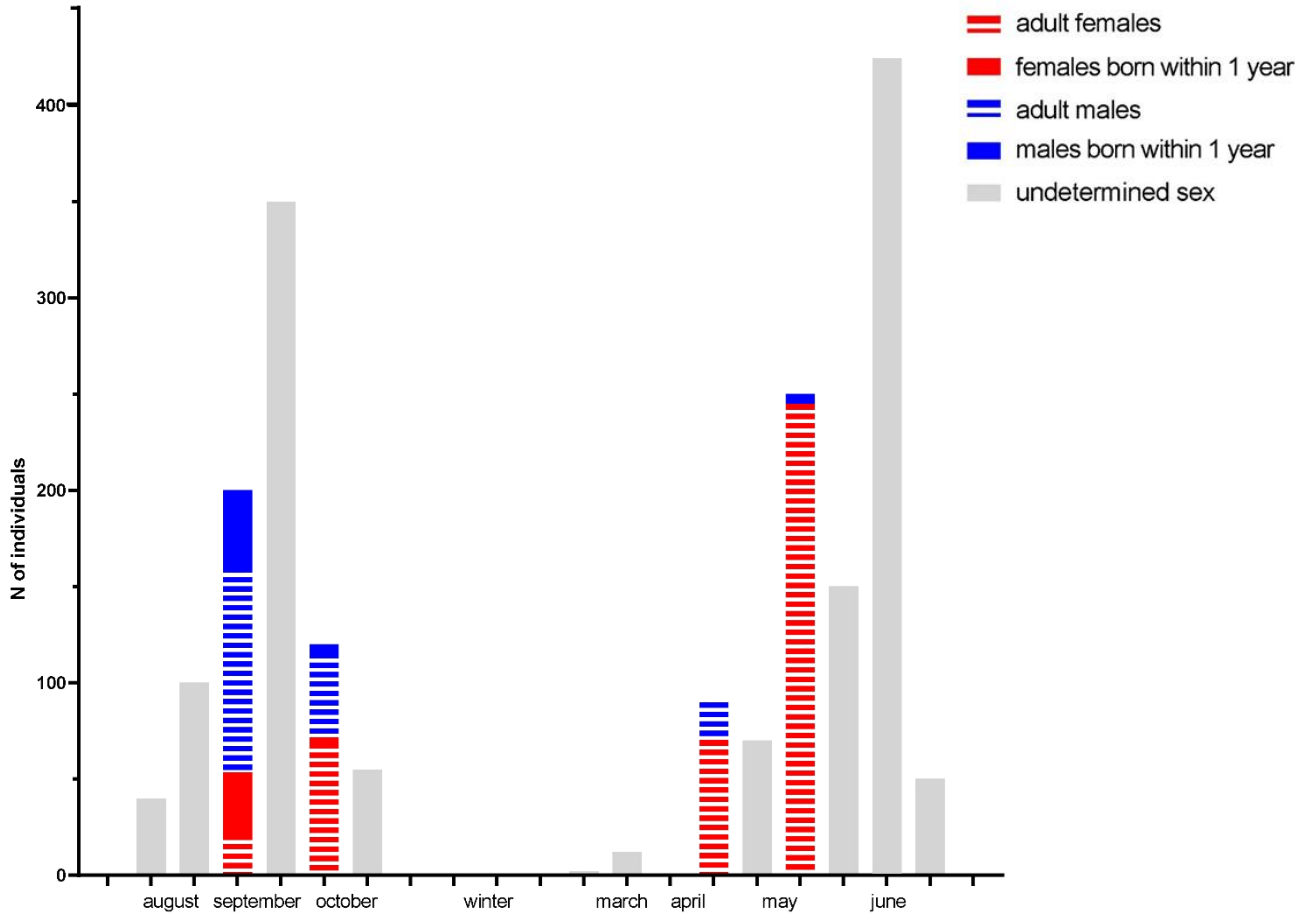
Visual inspection:

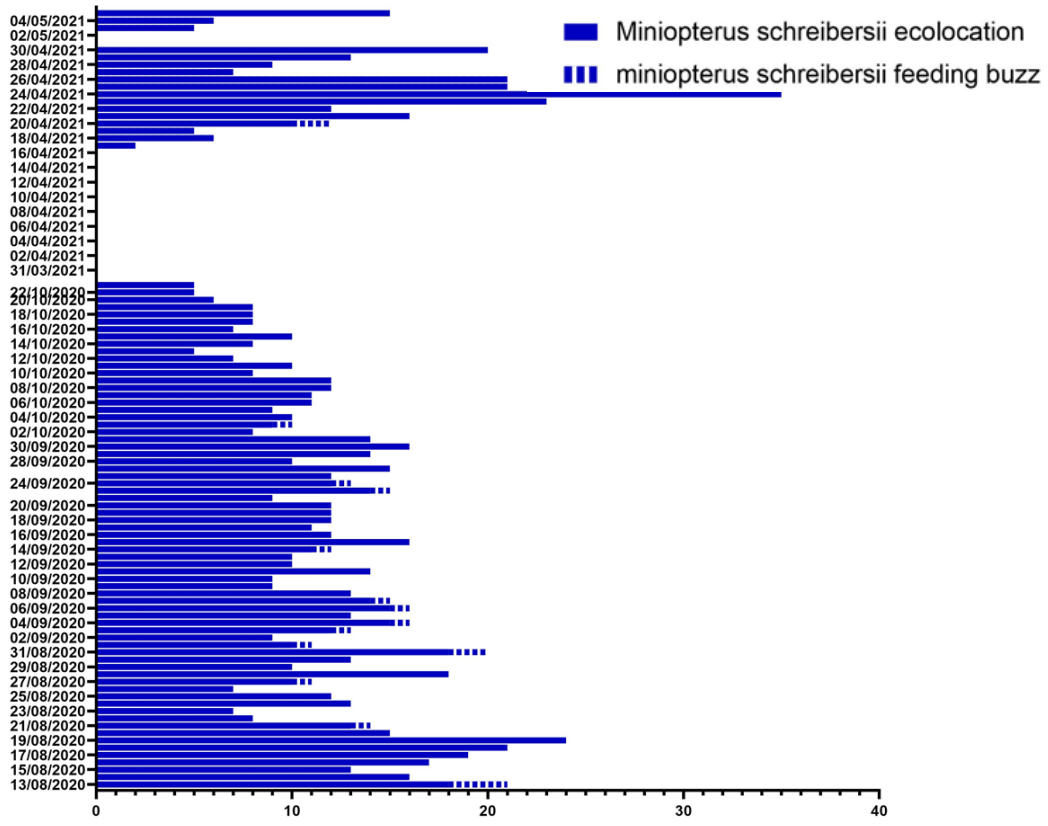
- Roost search
- Population description (size – seasonality – space use)

Active surveillance:

- Pupulations structure
- Antibodies against lyssaviruses
- Viral shedding

WCBV: The Arezzo's case





Arezzo's tombed river is a transient roost (no reproduction, possible mating)

Animal leave the roost at sunset and feed elsewhere

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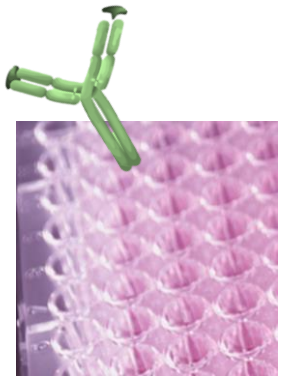
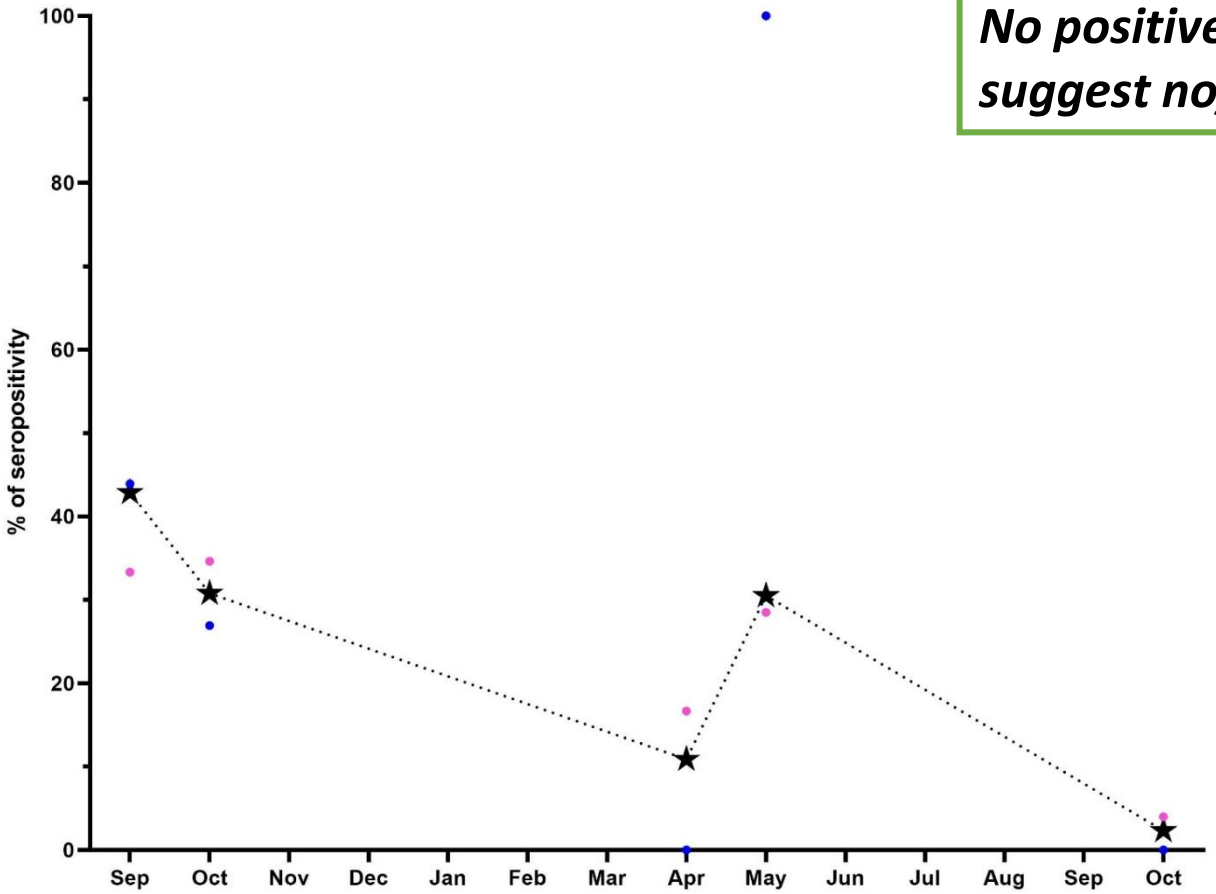
WCBV: The Arezzo's case





No positive salivary swabs suggest no/low shedding

Seropositive animals (neutralizing Ab against WCBV – RFFIT) in 4 time-points across years and season are supportive of virus maintainance in the population

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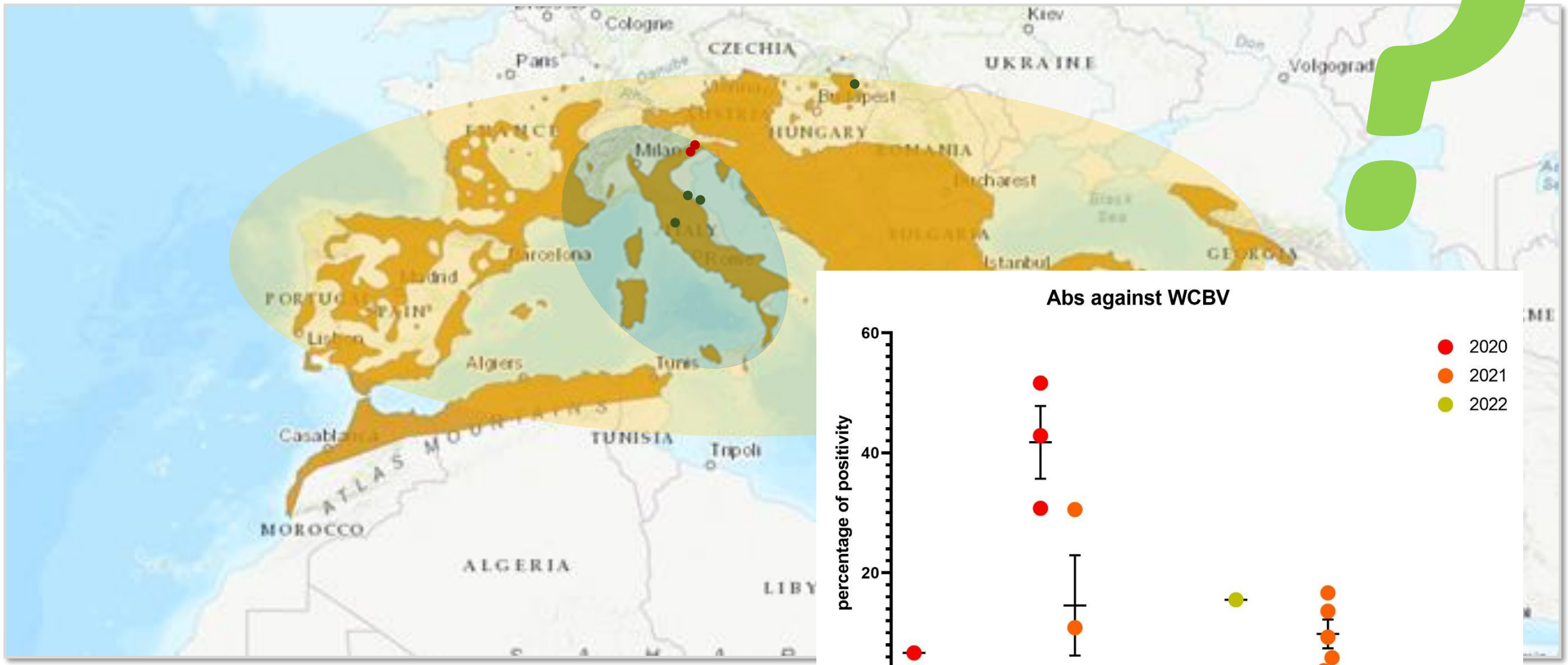
WCBV outside Arezzo



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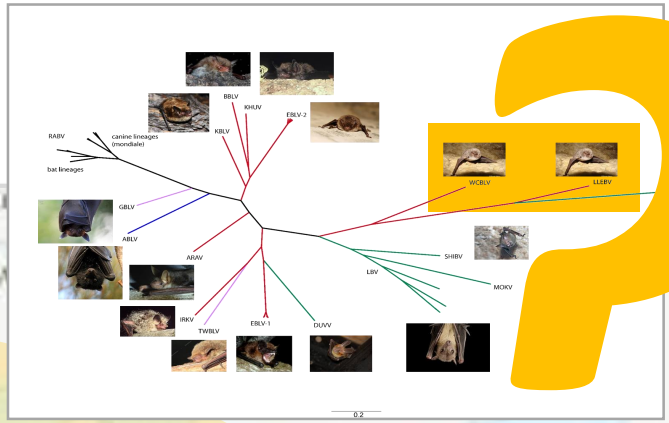
WCBV vs. LLEBV(?)



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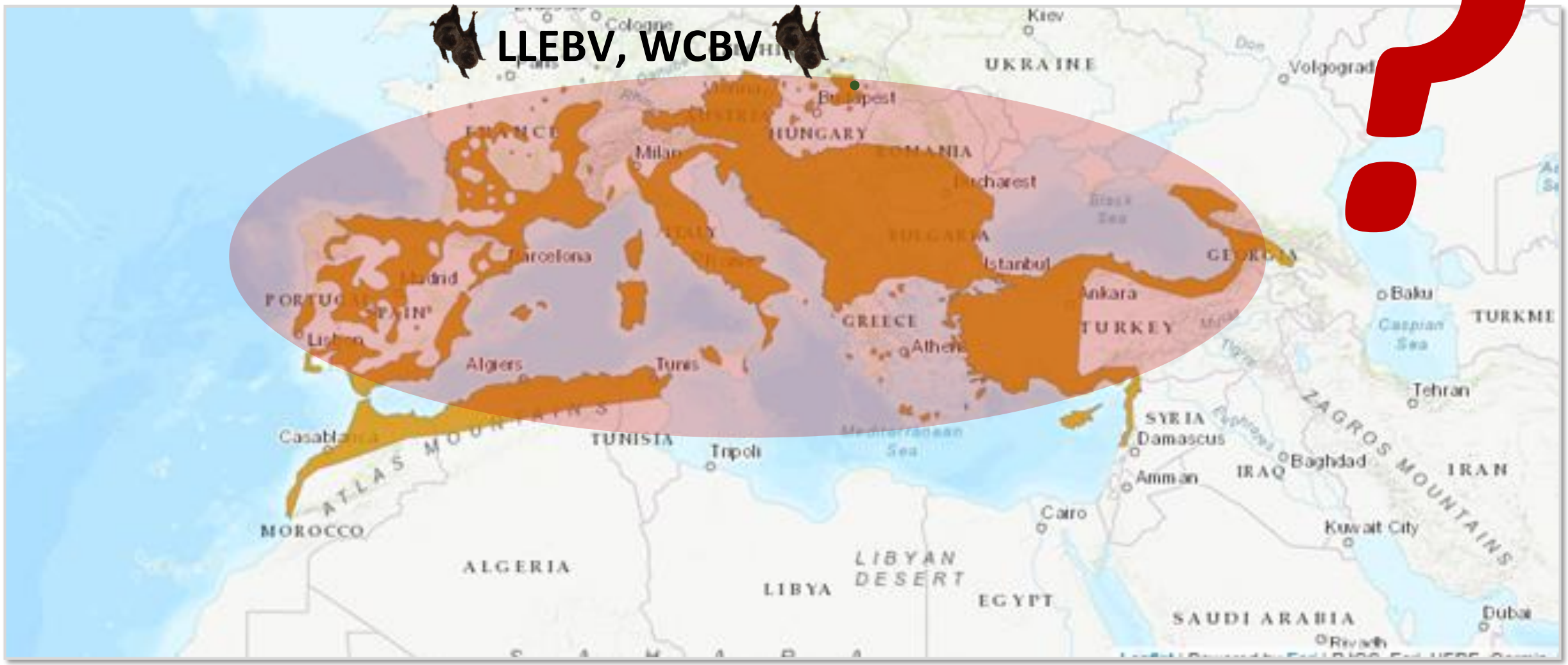
Phenotype of divergent lyssaviruses



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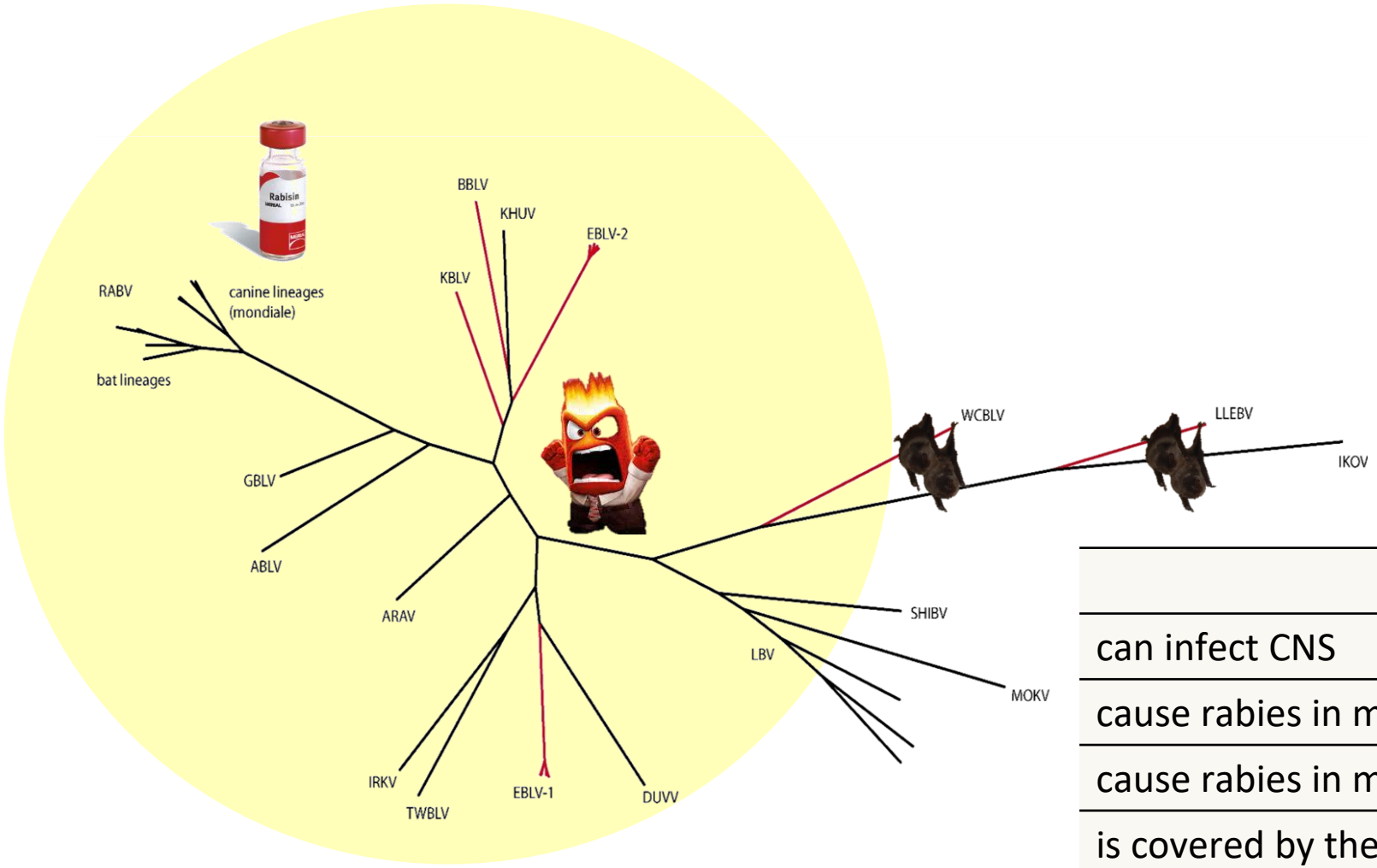
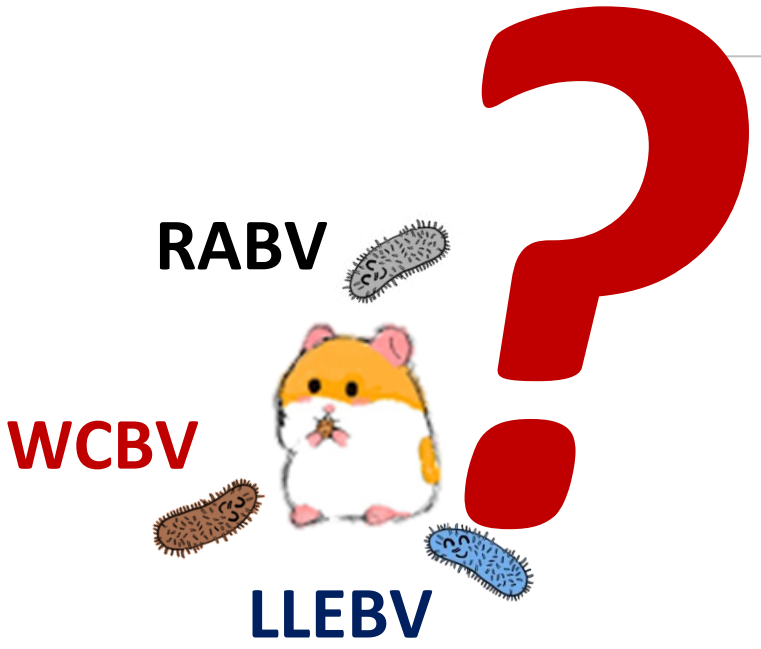
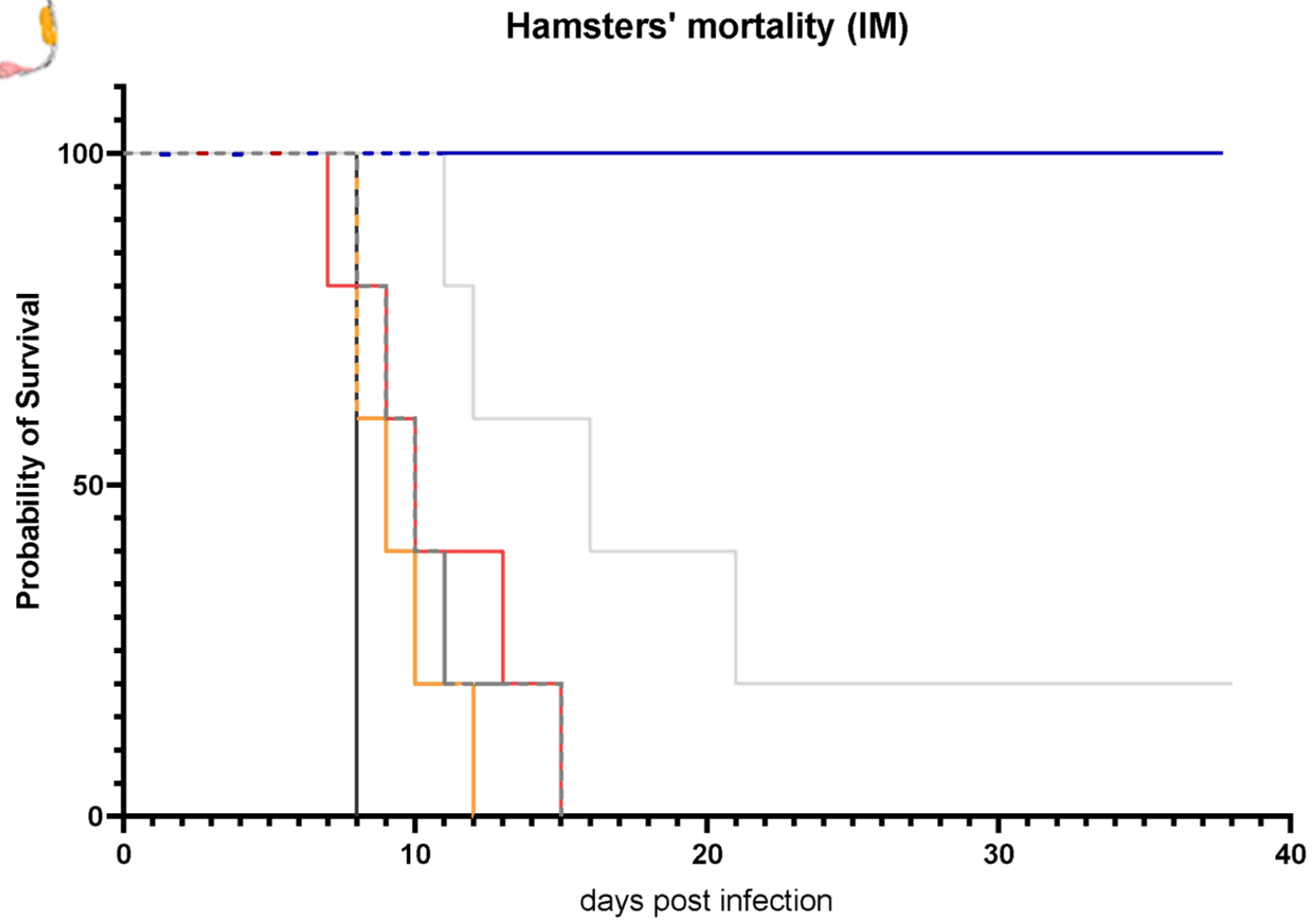




	WCBV	LLEBV
can infect CNS	Y	Y
cause rabies in mammals (bats)	N/Y?	N/Y?
cause rabies in mammals (non bats)	Y	?
is covered by the vaccine	Low/N	Low/N

Phenotype of divergent lyssaviruses



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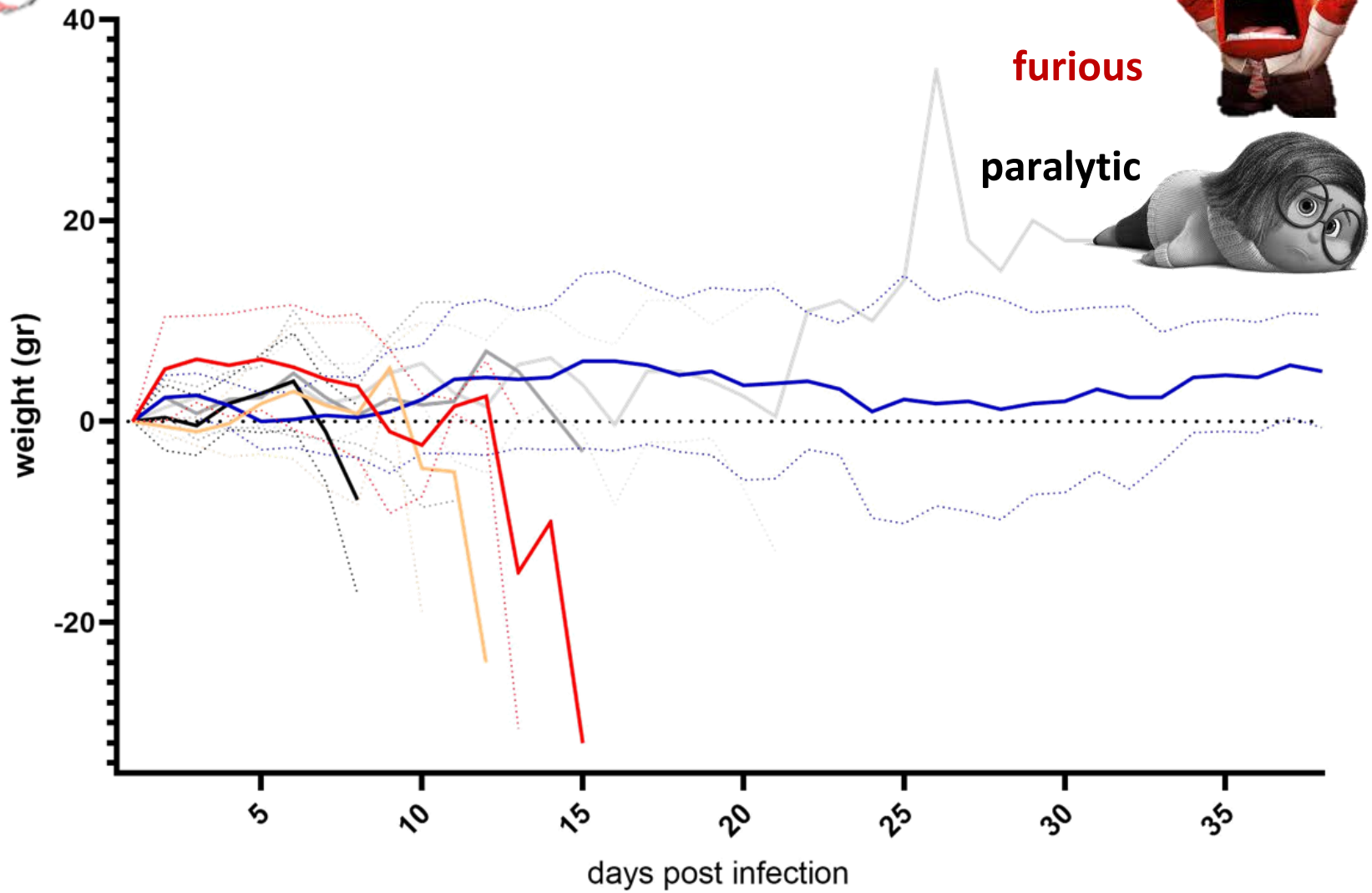
Phenotype of divergent lyssaviruses



furious

paralytic

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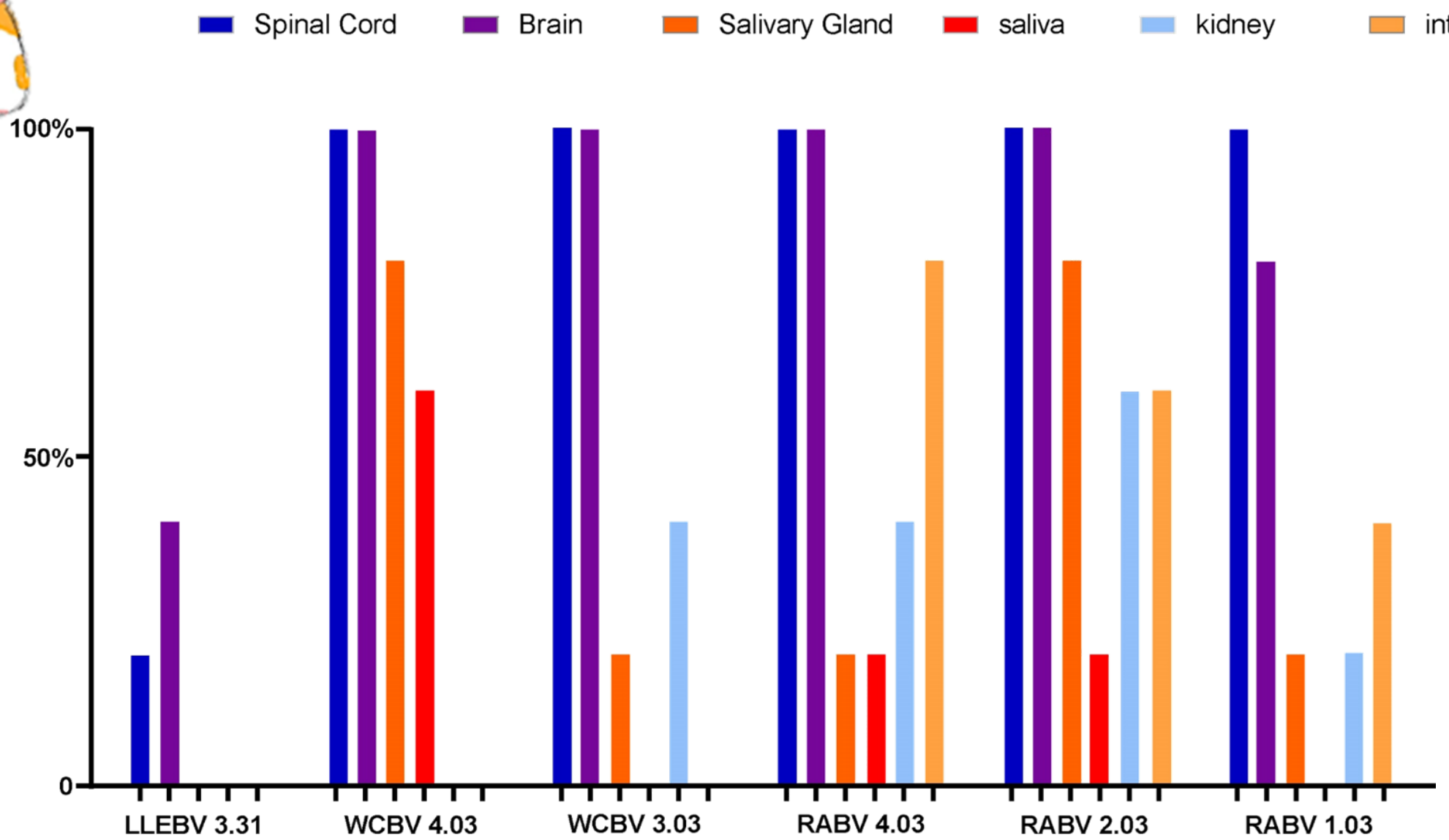
Phenotype of divergent lyssaviruses



Conclusions

West Caucasian Bat virus was found in Italy in 2020 after spilling over a cat in a city

Ecopathological studies confirmed the source of the spillover in a seropositive transient colony of 50-400 *Miniopterus schreibersii located* in a tunnel below the city

Since 2020, IZSVe founded antibodies against WCBV in other 4 colonies in Italy and 1 in Hungary, suggesting its wide spread across the species' distribution range

IZSVe founded LLEBV Abs in Arezzo, confirming that WCBV and LLEBV can co-circulate in one population

Experimental infection of hamsters intramuscularly showed that WCBV behave similarly to RABV, causing furious rabies with salivary shedding and multi-organ involvement at high dose. On the other hand no animal succumbed after incoculation with LLEBV, despite the virus was found in the brain of 2 individuals

Questions?

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