Novel *Rousettus aegyptiacus* cell lines allow insight in Type I and III Interferon responses to European Bat Lyssaviruses in distinct reservoir species

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Bats harbor many highly pathogenic viruses, including Lyssaviruses, often in absence of severe clinical disease. The European Bat Lyssavirus (EBLV) was isolated from European bat species of the genera Myotis and Eptesicus, which display low mortality and seroconversion upon infection.

Whether global anti-viral resistance or EBLV-specific immunity prevents fatal disease in bats remains unclear. This is largely due to impracticability of in vivo studies in Myotis and Eptesicus bats as these are included in conservation programs for European species. To circumvent these limitations, we investigated anti-Lyssavirus responses using the pteropid bat *Rousettus aegyptiacus*, which is not included in conservation programs.

Cell lines originating from different tissues of *R. aegyptiacus*, i.e. nasal epithelium (RaNep), olfactory epithelium (RaOlf), nervus olfactorius (RaNoI), Bulbus olfactorius (RaBulb) and the brain (RaCer), were generated and characterized. The patterns of susceptibility to EBLV infection as well as the mRNA profiles of type I (IFNα, IFNB, IFNe, IFNκ, IFNω) and type III (IFNλ1-4) Interferons were defined.

As most bat species are strictly protected, it is necessary to establish stable systems to study essentials in bat immunology in vitro. Thus, our novel cell lines offer unique opportunities to advance research focusing on infection immunology in reservoir species.

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