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Oral administration of valganciclovir reduces clinical signs, virus shedding and cell-associated viraemia in ponies experimentally infected with equid herpesvirus-1

Côme Thieulent, Gabrielle Sutton, Marie-Pierre Toquet, Samuel Fremaux, Erika Hue, Christine Fortier, Alexis Pleau, Alain Deslis, Stéphane Abrioux, Stéphane Pronost, et al.

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traditional VN tests, the antibody titre was expressed as the highest serum dilution causing 50% inhibition (IC₅₀).

Results: Titres of EHV-1 PV were optimised and PVNT successfully performed and compared with a conventional EHV-1 VN assay ($r=0.82$).

Main limitations: Cross-reactivity studies with other EHV-1s need further investigation.

Conclusions: Functional EHV-1 PVs can be generated using a minimum of four glycoproteins gB, gD, gH and gL. The addition of gC neither enhances PV production nor is essential for cell entry. EHV-1 neutralising antibodies can be quantified in experimentally infected horse sera.

Ethical animal research: The use of sera was authorised by the Loire Valley ethical review board (CEEA VdL, committee number 19).

Informed consent: Not stated.

Competing interests: None declared.

Source(s) of funding: Fonds Eperon OVERLORD N12-2017, Normandy County Council (17E01598/17EP04324) and the University of Kent.

82 | Oral administration of valganciclovir reduces clinical signs, virus shedding and cell-associated viraemia in ponies experimentally infected with equid herpesvirus-1

C. Thieulent^{1,2}; G. Sutton^{1,2}; M. P. Toquet^{1,2}; S. Fremaux¹; E. Hue^{1,2}; C. Fortier^{1,2}; A. Pléau³; A. Deslis³; S. Abrioux³; E. Guitton³; S. Pronost^{1,2} and R. Paillot^{1,2,4,*}

¹LABÉO Frank Duncombe, 14280 Saint-Contest, France; ²Normandie Univ, UNICAEN, BIOTARGEN EA7450, 14280 Saint-Contest, France;

³INRAE, UE-1277 Plateforme d'infectiologie expérimentale (PFIE), Centre de Recherche Val de Loire, 37380 Nouzilly, France; and ⁴School of Equine and Veterinary Physiotherapy, Writtle University College, Lordship Road, Writtle, Chelmsford CM1 3RR, UK.

Email: romain.paillot@writtle.ac.uk

Background: Equid alphaherpesvirus-1 (EHV-1) is a frequent respiratory pathogen of the horse, causing mild disease and occasionally myeloencephalopathy (EHM) or abortion. Current vaccines reduce the nasopharyngeal excretion and dissemination of the virus and therefore the extent of an epizooty, but their efficacy against secondary forms of diseases (abortion and EHM) is either limited or remains untested respectively. Several antiviral compounds are active against EHV-1 *in vitro* but no pharmaceuticals are licenced for *in vivo* treatment to date.

Objectives: To measure the *in vivo* efficacy of antiviral compounds, starting on the day of experimental infection of the target species with EHV-1 (C2254), as assessed by any reduction of clinical signs, virus shedding and viraemia.

Study design: Randomised semi-blinded experiment.

Methods: Four ponies were treated with valganciclovir (VGCV, the oral prodrug of ganciclovir [GCV]) at 6.5 mg/kg bodyweight, three times on day 1 and twice daily until day 14 inclusive. Four other

ponies received a placebo. All ponies were experimentally infected with a field EHV-1 strain (5e07 TCID₅₀/pony). Clinical signs of disease, virus shedding and blood/cell associated viraemia were recorded and measured for 3 weeks.

Results: Serum GCV concentration was maintained above the EC₅₀ (0.153 µg/mL) for at least 15 days. The overall cumulative clinical score was significantly reduced in VGCV treated ponies when compared with controls ($p<0.009$; pyrexia duration, nasal discharge and coughing). Infectious EHV-1 shedding measured on RK13 cells was significantly reduced in the VGCV treated group when compared with the control group between D+1 and D+12 ($p=0.006$). Blood and cell-associated viraemia were also both significantly reduced in the VGCV treated group ($p=0.02$ and 0.03 , respectively). All ponies seroconverted after infection.

Main limitations: Due to animal management procedures, blinding was not possible for clinical evaluation.

Conclusions: Oral administration of valganciclovir for 14 days from the first day of experimental EHV-1 infection induced no noticeable side effects but significantly reduced clinical signs, virus shedding and cell-associated viraemia.

Ethical animal research: All experimental procedures were approved by the Loire Valley ethical review board (CEEA VdL, committee number 19, authorisation number APAFIS#22708).

Informed consent: Not applicable.

Competing interests: None declared.

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83 | Identification of antiviral compounds against equid herpesvirus-1 using Real-Time Cell Analysis: screening of 2,891 molecules

C. Thieulent^{1,2}; E. Hue^{1,2,3}; G. Sutton^{1,2}; C. Fortier^{1,2,3}; P. Dallemagne⁴; S. Zientara⁵; H. Munier-Lehmann⁶; A. Hans⁷; R. Paillot^{1,8}; P.-O. Vidalain^{9,10} and S. Pronost^{1,2,3}

¹LABÉO Frank Duncombe, 14280 Saint-Contest, France; ²Normandie Univ, UNICAEN, Biotargen, 14000 Caen, France; ³Normandie Univ, UNICAEN, ImpedanCELL, 14280 Saint-Contest, France; ⁴Normandie Univ, UNICAEN, CERMN, 14000, Caen, France; ⁵Université Paris-

Est, Laboratoire de Santé Animale, ANSES, INRAE, ENVA, UMR 1161 Virologie, 94700, Maisons-Alfort, France; ⁶Institut Pasteur, PF-Chémogénomique et criblage biologique, CNRS UMR3523, 75015, Paris, France; ⁷ANSES, Laboratoire de Santé Animale, Site de Normandie, PhEED Unit, 14430, Goustranville, France; ⁸School of Equine and Veterinary Physiotherapy, Writtle University College, Lordship Road, Writtle, Chelmsford, Essex, CM1 3RR, UK; ⁹CIRI, Centre International de Recherche en Infectiologie, Univ Lyon, Inserm U1111, Université Claude Bernard Lyon 1, CNRS UMR5308, ENS de Lyon,