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

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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 EHVs 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.

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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 $TCID_{50}$/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 EC_{50} (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 viremia.

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.

Sources of funding: Fonds Eperon OVERLORD N12-2017, Normandy County Council (17E01598/17EP04324), the IFCE (Institut Français du Cheval et de l'Equitation) grant number 2017-008, CENTAURE European project co-funded by Normandy County Council, European Union in the framework of the ERDF-ESF operational programme 2014-2020.

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

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