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Human herpesvirus 8 (HHV-8) "in vitro" infection of human placental histocultures

Mariantonietta Di Stefano*[1], Maria Luisa Calabro[2], Iole Maria Di Gangi[2], Santina Cantatore[3], Massimo Barbierato[4], Luigi Chieco-Bianchi[4], Pantaleo Greco[5], Loreto Gesualdo[1], Elisabeth Menu[6] and José Ramon Fiore[7]

Address: [1]Laboratory of Molecular Medicine, University of Foggia, Foggia, Italy, [2]Istituto Oncologico Veneto, IRCCS, Immunology and Diagnostic Molecular Oncology, Padova,Italy, [3]Laboratory of Histology, School of Medicine, University of Foggia, Italy, [4]Department of Oncology and Surgical Sciences, Oncology Section, University of Padova, Padova, Italy, [5]Department of Surgical Sciences, University of Foggia, Foggia, Italy, [6]Unité de Régulation des Infections Rétrovirales, Institut Pasteur, Paris, France and [7]Department of Clinical and Occupational Health, University of Foggia, Foggia, Italy

* Corresponding author

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Background

Most human Herpesvirus infect placental cells and may be harmful in pregnancy, leading to obstetrical and/or neonatal complications. Although a correlation between human herpesvirus 8 (HHV-8) infection and abortion or low birth weight in children has been reported [1,2] presently no information has been published regarding HHV-8 tropism for placenta.

Materials and methods

In this study, a placenta histoculture system was used to evaluate the susceptibility of placental cells to "in vitro" HHV-8 infection. Quantitative detection of HHV-8 was performed by real-time PCR, and virus expression was evaluated by immunohistochemistry for latent and lytic HHV-8 antigens.

Results

Increasing amounts of HHV-8 DNA were detected in placental tissues and culture supernatants and immunohistochemistry analyses demonstrated that both cyto- and syncitiotrophoblasts, as well as placental endothelial cells, expressed latent (see Figure 1) and lytic antigens. In addition, relevant apoptotic phenomena were observed in infected histocultures.

Conclusions

We here demonstrated for the first time that HHV-8, like other human herpesviruses, may productively infect placental cells in vitro, thus providing evidence that this phenomenon might influence vertical transmission and pregancy outcome in HHV-8-infected women.

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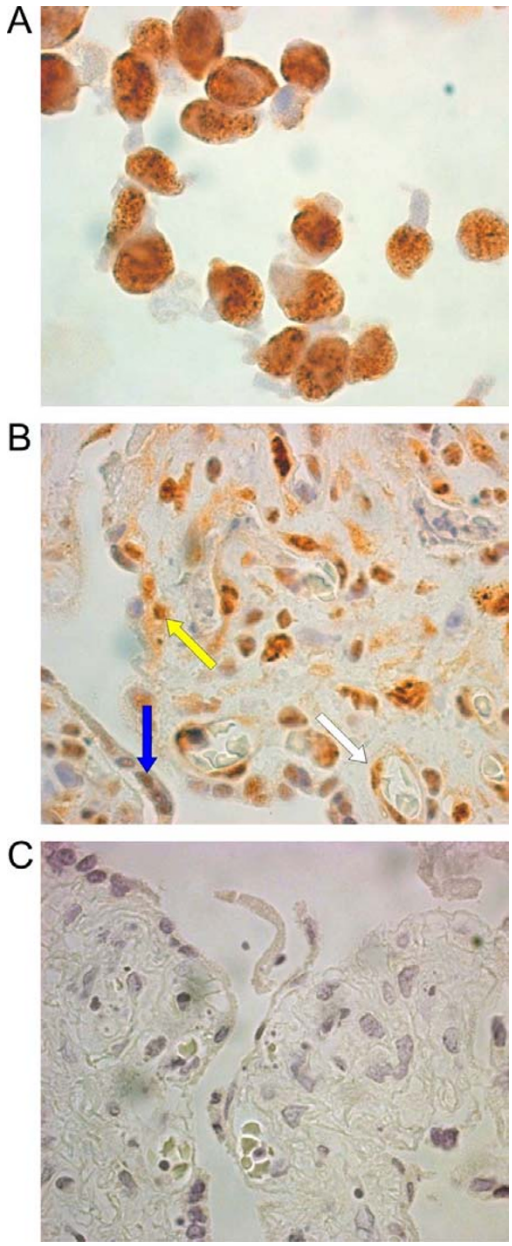

Figure 1
Immunohistochemical detection of the HHV-8 LANA protein in placental histocultures. Specific reactivity was visualized with immunoperoxidase staining using anti-LANA-1 monoclonal antibodies with a DAB developer (brown colour) and haematoxylin counterstaining. (A) HHV-8-infected CRO-AP/3 cells showed a strongly positive nuclear immunostaining. (B) HHV-8-infected placental histocultures showed positive immunostaining in cytotrophoblasts (yellow arrow), syncytiotrophoblasts (blue arrow) and endothelial cells (white arrow). (C) Mock-infected placental histocultures. Original magnifications, X100.