Insights: Publications

Type III interferons produced by human placental trophoblasts confer protection against Zika Virus Infection

Cell Host and Microbe

APRIL 1, 2016 Written by Avraham Bayer, Ph.D.

During mammalian pregnancy, the placenta acts as a barrier between the maternal and fetal compartments. The recently observed association between Zika virus (ZIKV) infection during human pregnancy and fetal microcephaly and other anomalies suggests that ZIKV may bypass the placenta to reach the fetus. This led us to investigate ZIKV infection of primary human trophoblasts (PHTs), which are the barrier cells of the placenta. We discovered that PHT cells from full-term placentas are refractory to ZIKV infection. In addition, medium from uninfected PHT cells protects non-placental cells from ZIKV infection. PHT cells constitutively release the type III interferon (IFN) IFNl1, which functions in both a paracrine and autocrine manner to protect trophoblast and non-trophoblast cells from ZIKV infection. Our data suggest that for ZIKV to access the fetal compartment, it must evade restriction by trophoblast-derived IFNl1 and other trophoblast-specific antiviral factors and/or use alternative strategies to cross the placental barrier.

Related People



Avraham Bayer, Ph.D.
t 206.224.2859
abayer@ktslaw.com