An innate antiviral pathway acting before interferons at epithelial surfaces.

Mucosal surfaces are exposed to environmental substances and represent a major portal of entry for microorganisms. The innate immune system is responsible for early defense against infections and it is believed that the interferons (IFNs) constitute the first line of defense against viruses. Here we identify an innate antiviral pathway that works at epithelial surfaces before the IFNs. The pathway is activated independently of known innate sensors of viral infections through a mechanism dependent on viral O-linked glycans, which induce CXCR3 chemokines and stimulate antiviral activity in a manner dependent on neutrophils. This study therefore identifies a previously unknown layer of antiviral defense that exerts its action on epithelial surfaces before the classical IFN response is operative.