Herpes simplex virus type-1 induces IFN-alpha production via Toll-like receptor 9-dependent and -independent pathways.

Type I IFN production in response to the DNA virus herpes simplex virus type-1 (HSV-1) is essential in controlling viral replication. We investigated whether plasmacytoid dendritic cells (pDC) were the major tissue source of IFN-alpha, and whether the production of IFN-alpha in response to HSV-1 depended on Toll-like receptor 9 (TLR9). Total spleen cells or bone marrow (BM) cells, or fractions thereof, including highly purified pDC, from WT, TLR9, and MyD88 knockout mice were stimulated with known ligands for TLR9 or active HSV-1. pDC freshly isolated from both spleen and BM were the major source of IFN-alpha in response to oligodeoxynucleotides containing CpG motifs, but in response to HSV-1 the majority of IFN-alpha was produced by other cell types. Moreover, IFN-alpha production by non-pDC was independent of TLR9. The tissue source determined whether pDC responded to HSV-1 in a strictly TLR9-dependent fashion. Freshly isolated BM pDC or pDC derived from culture of BM precursors with FMS-like tyrosine kinase-3 ligand, produced IFN-alpha in the absence of functional TLR9, whereas spleen pDC did not. Heat treatment of HSV-1 abolished maturation and IFN-alpha production from all TLR9-deficient DC but not WT DC. Thus pDC and non-pDC produce IFN-alpha in response to HSV-1 via both TLR9-independent and -dependent pathways.
pathways.

Zeitschriftentitel / Abkürzung:
Proc Natl Acad Sci U S A

Jahr: 2004
Band: 101
Heft / Issue: 31
Seiten: 11416-21
Sprache: eng

Print-ISSN: 0027-8424

TUM Einrichtung:
Medizinische Mikrobiologie, Immunologie und Hygiene

Occurences:
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Institut für Medizinische Mikrobiologie, Immunologie und Hygiene > 2004

entries: