Séminaire de l'IPBS

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Salle des séminaires

CNRS Campus, 205 route de Narbonne – TOULOUSE

Interferons: Tug of War between Host and Pathogen

Mucosal surfaces form the first barrier and the first line of defense against invasive pathogens. Protection of epithelial barriers and early detection of microbes are fundamental aspects of immunity and enable the eradication of pathogens before they establish a successful infection. Epithelial cells sense the presence of microbes through many innate immune receptors and induce the expression of cytokines including interferons (IFNs) of the type III family. Also known as IFNλs, these were identified recently, and are best known for their antiviral functions. Unlike the better characterized type I IFNs that act systemically, type III IFNs are most active at mucosal surfaces and are emerging as major contributors of antiviral immunity in epithelia. However, their roles and regulation in response to bacterial infections have not been studied.

We have found that IFNλs are potently induced in response to bacterial challenges, including those that do not induce type I IFNs. We also show that type III IFNs protect the epithelial barrier against bacterial infection. Finally, we find that pathogenic bacteria block the expression of type III IFNs. A better understanding of type III IFN regulation and functions in the context of bacterial infections will greatly enhance our comprehension of host pathogen interactions at mucosal surfaces.

References

- Odendall C, Kagan JC. The unique regulation and functions of type III interferons in antiviral immunity. **Curr Opin Virol**. 2015 Jun;12:47-52.
- Odendall C, Dixit E, Stavru F, Bierne H, Franz KM, Durbin AF, Boulant S, Gehrke L, Cossart P, Kagan JC. Diverse intracellular pathogens activate type III interferon expression from peroxisomes. **Nat Immunol.** 2014 Aug;15(8):717-26.
- Odendall C, Kagan JC. Peroxisomes and the antiviral responses of mammalian cells. **Subcell Biochem**. 2013;69:67-75.
- Odendall C, Rolhion N, Förster A, Poh J, Lamont DJ, Liu M, Freemont PS, Catling AD, Holden DW. The Salmonella kinase SteC targets the MAP kinase MEK to regulate the host actin cytoskeleton. **Cell Host Microbe**. 2012 Nov 15;12(5):657-68.
- Dixit E, Boulant S, Zhang Y, Lee AS, Odendall C, Shum B, Hacohen N, Chen ZJ, Whelan SP, Fransen M, Nibert ML, Superti-Furga G, Kagan JC. Peroxisomes are signaling platforms for antiviral innate immunity. **Cell**. 2010 May 14;141(4):668-81.

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