



# A/Professor Meredith O'Keeffe

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Head, Dendritic Cell in Health and Disease Research Group



Monash Biomedicine Discovery Institute  
Infection and Immunity Program

## OTHER PROGRAM AFFILIATIONS



Cancer

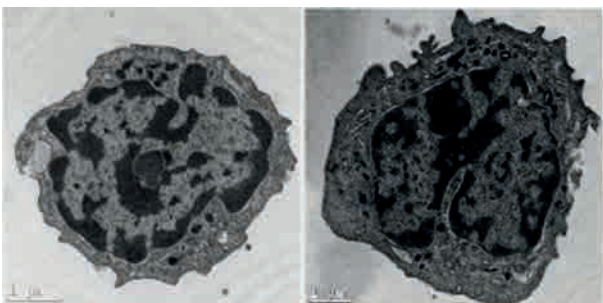
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Dendritic cells are sentinels of the immune system that produce cytokines and interferons upon sensing danger. They are also professional antigen presenting cells, thereby connecting the innate and adaptive immune systems. Our laboratory investigates how pathogens and their products and/or self-nucleic acids activate dendritic cells. We aim to decipher how this activation influences the function of dendritic cells. We investigate how this process may differ in different body locations, at different ages and in different disease settings. Major aims are to understand the role of dendritic cells in bone marrow malignancies and in autoimmune diseases such as Lupus.

## Research Projects

1. The role of checkpoint inhibitors in dendritic cell activation
2. The role of bone marrow dendritic cells in the transition of myelodysplasia to leukemia
3. The contribution of interferon-lambda to disease in lupus
4. The response of dendritic cells to antibiotic-resistant strains of *Staphylococcus aureus*
5. The interaction of dendritic cells with malaria parasites



Electron micrographs of the major anti-viral type I interferon-producing dendritic cells of the bone marrow.

## Selected significant publications:

1. Luber CA, Cox J, Lauterbach H, Fancke B, Selbach M, Tschopp J, Akira S, Wiegand M, Hochrein H, **O'Keeffe M\***, Mann M\*. 2010. Quantitative proteomics reveals subset-specific viral recognition in dendritic cells. *Immunity*. 32:279-89. \*Equal contributors
2. Lauterbach H, Bathke B, Gilles S, Traidl-Hoffmann C, Luber CA, Fejer G, Freudenberg MA, Davey GM, Vremec D, Kallies A, Wu L, Shortman K, Chaplin P, Suter M, **O'Keeffe M**, Hochrein H. 2010. Mouse CD8alpha+ DCs and human BDCA3+ DCs are major producers of IFN-lambda in response to poly IC. *J Exp Med*. 207:2703-17.
3. Fancke B, Suter M, Hochrein H, **O'Keeffe M**. 2008. M-CSF: a novel plasmacytoid and conventional dendritic cell poietin. *Blood*. 111:150-9.
4. Naik SH, Metcalf D, van Nieuwenhuijze A, Wicks I, Wu L, **O'Keeffe M**, Shortman K. 2006. Intrasplenic steady-state dendritic cell precursors that are distinct from monocytes. *Nat Immunol*. 7:663-71.
5. **O'Keeffe M**, Hochrein H, Vremec D, Caminschi I, Miller JL, Anders EM, Wu L, Lahoud MH, Henri S, Scott B, Hertzog P, Tatarczuch L, Shortman K. 2002. Mouse plasmacytoid cells: long-lived cells, heterogeneous in surface phenotype and function, that differentiate into CD8(+) dendritic cells only after microbial stimulus. *J Exp Med*. 196:1307-19.