



# A/Professor Mireille Lahoud

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Monash Biomedicine Discovery Institute  
Infection and Immunity Program

## OTHER PROGRAM AFFILIATIONS



Cancer

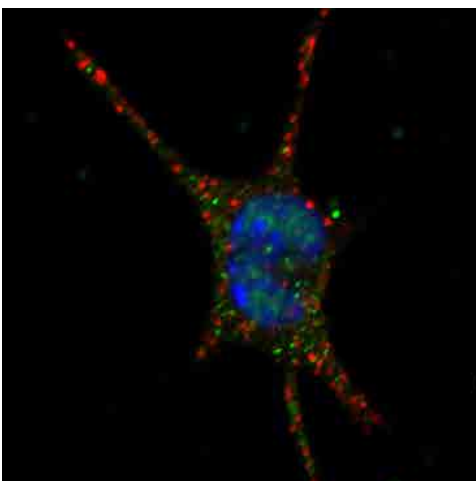
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Our research focus is understanding how the sentinels of the immune system, the dendritic cells (DC), sense and respond to “danger” in their environment, and to use this knowledge for improving vaccines and immunotherapies. DC have an array of receptors designed to detect pathogen-associated and damage-associated molecular patterns. These receptors enable DC to sense invading pathogens or other danger (eg. damaged or dead cells) and to direct the type of protective immune response required. Importantly, there are multiple DC subsets which are tailored for different functions. DC subsets can recognise different pathogens and damage signals, and respond accordingly. Our focus is to determine the receptors that enable the DC to sense and respond to such signals, and their role in inducing immune responses.

## Research Projects

1. The dendritic cell receptor Clec9A: dead cell recognition and immune modulation
2. Molecular mechanisms that underpin dendritic cell cross-presentation



Subcellular localisation of dendritic cell receptor-interacting proteins.

## Selected significant publications:

1. Li J, Ahmet F, Sullivan LC, Brooks A, Kent S, De Rose R, Salazar AM, Reis E Sousa C, Shortman K, **Lahoud MH\***, Heath WR\* and Caminschi I\*. 2015. Antibodies targeting Clec9A promote strong humoral immunity without adjuvant in mice and non-human primates. *Eur. J. Immunol.* 45: 854-64.
2. **Lahoud MH**, F Ahmet, JG Zhang, S Meuter, AN Policheni, S Kitsoulis, CN Lee, M O’Keeffe, LC Sullivan, AG Brooks, R Berry, J Rossjohn, JD Mintern, J Vega-Ramos, JA Villadangos, NA Nicola, MC Nussenzweig, KJ Stacey, K Shortman, WR Heath, and I Caminschi. 2012. DEC-205 is a cell surface receptor for CpG oligonucleotides. *Proceedings of the National Academy of Sciences of the United States of America* 109:16270-16275.
3. Zhang J-G\*, Czabotar PE\*, Policheni AN, Caminschi I, Wan SS, Kitsoulis S, Tullett KM, Robin AY, Brammananth R, van Delft MF, Lu J, O’Reilly LA, Josefsson EC, Kile BT, Chin WJ, Mintern JD, Olshina MA, Wong W, Baum J, Wright MD, Huang DCS, Mohandas N, Coppel RL, Colman PM, Nicola NA, Shortman K #, and **Lahoud MH #**. 2012. The Dendritic Cell Receptor Clec9A Binds Damaged Cells via Exposed Actin Filaments. *Immunity.* 36: 646-57.
4. **Lahoud MH**, F Ahmet, S Kitsoulis, SS Wan, D Vremec, CN Lee, B Phipson, W Shi, GK Smyth, AM Lew, Y Kato, SN Mueller, GM Davey, WR Heath, K Shortman, and I Caminschi. 2011. Targeting antigen to mouse dendritic cells via Clec9A induces potent CD4 T cell responses biased toward a follicular helper phenotype. *Journal of immunology* 187:842-850.
5. Caminschi I, Ai Proietto, F Ahmet, S Kitsoulis, J Shin Teh, JC Lo, A Rizzitelli, L Wu, D Vremec, SL van Dommelen, IK Campbell, E Maraskovsky, H Braley, GM Davey, P Mottram, N van de Velde, K Jensen, AM Lew, MD Wright, WR Heath, K Shortman, and **MH Lahoud**. 2008. The dendritic cell subtype-restricted C-type lectin Clec9A is a target for vaccine enhancement. *Blood* 112:3264-3273.