



## Patricia Illing

**Address:** Monash Universit

**Country:** Australia

### Education:

INSTITUTION AND LOCATION	AND	DEGREE	Completion Date	FIELD OF STUDY
The University of Melbourne, Parkville, Victoria, Australia		BSc(Hons)	2008	Majors: Biochemistry and Molecular Biology, Cell Biology Honours: Immunology
The University of Melbourne, Parkville, Victoria, Australia		PhD	2014	Immunology/Biochemistry

### Personal Statement:

Patricia received her PhD in Immunology from the University of Melbourne in 2014 where she undertook studies centred on the Human leukocyte antigen (HLA)-associated adverse drug reaction abacavir hypersensitivity syndrome. These studies provided a new paradigm for presentation of drugs by HLA molecules (Nature 2012) and were recognised with a Commendation for the Victorian Premier's Awards for Health and Medical Research in 2013. As a postdoctoral researcher, she has continued to investigate HLA-associated disease, utilising a combination of mass spectrometry, structural biology and functional immunology. Her current research focuses on the interplay between genetic factors (HLA polymorphisms, antigen processing machinery) and environmental factors (therapeutic drugs, infection) that shapes peptide presentation by the HLA molecules and impacts the susceptibility/resistance of individuals to hypersensitivity, infectious and autoimmune disease.

### Positions:

**Current:** Research Fellow, Immunoproteomics Laboratory, Department of Biochemistry & Molecular Biology, Monash University, Clayton

**2014-2017:** NH&MRC Peter Doherty Research Fellow, Immunoproteomics Laboratory, Department of Biochemistry & Molecular Biology, Monash University, Clayton

**2013(Aug-Dec):** Monash Medical Faculty Research Fellow, Immunoproteomics Laboratory, Department of Biochemistry & Molecular Biology, Monash University, Clayton

**2008-2013:** Deputy Director of Biology Program, Australian Science Olympiads, Australian Science Innovations

**Select Publications:**

\*Joint first author.

Ramarathinam, S. H., Gras, S., Alcantara, S., Yeung, A. W. S., Mifsud, N. A., Sonza, S., Illing, P. T., Glaros, E. N., Center, R. J., Thomas, S., Kent, S. J., Ternette, N., Purcell, D. F. J., Rossjohn, J., Purcell, A.W. Identification of native and post-translationally modified HLA-B\*57:01-restricted HIV envelope derived epitopes using immunoproteomics. *Proteomics*, 1700253, doi:10.1002/pmic.201700253 (2018)

Mobbs, J. I., Illing, P. T., Dudek, N. L., Brooks, A. G., Baker, D. G., Purcell, A. W., Rossjohn, J. & Vivian, J. P. The molecular basis for peptide repertoire selection in the human leucocyte antigen (HLA) C\*06:02 molecule. *Journal of Biological Chemistry* **292**, 17203-17215, doi:10.1074/jbc.M117.806976 (2017).

\*Pymm, P., \*Illing, P. T., \*Ramarathinam, S. H., O'Connor, G. M., Hughes, V. A., Hitchen, C., Price, D. A., Ho, B. K., McVicar, D. W., Brooks, A. G., Purcell, A. W., Rossjohn, J. & Vivian, J. P. MHC-I peptides get out of the groove and enable a novel mechanism of HIV-1 escape. *Nature Structural & Molecular Biology* **24**, 387-394, doi:10.1038/nsmb.3381 (2017).

Giam, K., Ayala-Perez, R., Illing, P. T., Schittenhelm, R. B., Croft, N. P., Purcell, A. W. & Dudek, N. L. A comprehensive analysis of peptides presented by HLA-A1. *Tissue Antigens* **85**, 492-496, doi:10.1111/tan.12565 (2015).

Trujillo, J. A., Croft, N. P., Dudek, N. L., Channappanavar, R., Theodossis, A., Webb, A. I., Dunstone, M. A., Illing, P. T., Butler, N. S., Fett, C., Tschärke, D. C., Rossjohn, J., Perlman, S. & Purcell, A. W. The Cellular Redox Environment Alters Antigen Presentation. *Journal of Biological Chemistry* **289**, 27979-27991, doi:10.1074/jbc.M114.573402 (2014).

Dudek, N. L. Tan, C., Gorasia, D. G., Croft, N. P., Illing, P. T. & Purcell, A. W. Constitutive and Inflammatory Immunopeptidome of Pancreatic  $\beta$ -Cells. *Diabetes* **61**, 3018-3025, doi:10.2337/db11-1333 (2012).

Illing, P. T., Vivian, J. P., Dudek, N. L., Kostenko, L., Chen, Z., Bharadwaj, M., Miles, J. J., Kjer-Nielsen, L., Gras, S., Williamson, N. A., Burrows, S. R., Purcell, A. W., Rossjohn, J. & McCluskey, J. Immune self-reactivity triggered by drug-modified HLA-peptide repertoire. *Nature* **486**, 554-558, doi:10.1038/nature11147 (2012).

Reantragoon, R., Kjer-Nielsen, L., Patel, O. Chen, Z., Illing, P. T., Bhati, M., Kostenko, L., Bharadwaj, M., Meehan, B., Hansen, T. H., Godfrey, D. I., Rossjohn, Jamie & McCluskey, J. Structural insight into MR1-mediated recognition of the mucosal associated invariant T cell receptor. *Journal of Experimental Medicine* **209**, 761-774, doi:10.1084/jem.20112095(2012).