

Anthony Purcell
Biochemistry & Molecular Biology
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Biography

Our laboratory specialises in targeted and global quantitative proteomics of complex biological samples, with a specific focus on identifying targets of the immune response and host-pathogen interactions. The laboratory has an outstanding track record in delivering high end outcomes including recent publications in highly regarded peer reviewed journals including Nature (4), Nature Immunol (4), Nat Struct Mol Biol, PNAS (12), J Exp Med (8), Immunity (8), Mol Cell Proteomics (3), Proteomics (4) and J Proteomics Res (3). We combine cutting edge proteomics with human immunology, molecular virology, structural and functional immunology to address a wide variety of immune questions.

Employment

Professor (Research)

Biochemistry & Molecular Biology
MONASH UNIVERSITY
2 Jul 2012 → present

Monash Biomedicine Discovery Institute

MONASH UNIVERSITY
1 Jan 2016 → present

Visiting Professor

University of Southampton
Southampton, United Kingdom
1 Jan 2016 → 31 Dec 2018

Research outputs

HLA-associated antiepileptic drug-induced cutaneous adverse reactions

Mullan, K. A., Anderson, A., Illing, P. T., Kwan, P., Purcell, A. W. & Mifsud, N. A., 20 Mar 2019, (Accepted/In press) In : HLA. 19 p.

Positive-unlabelled learning of glycosylation sites in the human proteome

Li, F., Zhang, Y., Purcell, A. W., Webb, G. I., Chou, K-C., Lithgow, T., Li, C. & Song, J., 6 Mar 2019, In : BMC Bioinformatics. 20, 1, 17 p., 112.

Most viral peptides displayed by class I MHC on infected cells are immunogenic

Croft, N. P., Smith, S. A., Pickering, J., Sidney, J., Peters, B., Faridi, P., Witney, M. J., Sebastian, P., Flesch, I. E. A., Heading, S. L., Sette, A., La Gruta, N. L., Purcell, A. W. & Tschärke, D. C., 19 Feb 2019, In : Proceedings of the National Academy of Sciences of the United States of America. 116, 8, p. 3112-3117 6 p.

Physical and toxicological profiles of human IAPP amyloids and plaques

Kakinen, A., Sun, Y., Javed, I., Faridi, A., Pilkington, E. H., Faridi, P., Purcell, A. W., Zhou, R., Ding, F., Lin, S., Ke, P. C. & Davis, T. P., 15 Jan 2019, In : Science Bulletin. 64, 1, p. 26-35 10 p.

Comparative metabolomics and transcriptomics reveal multiple pathways associated with polymyxin killing in *Pseudomonas aeruginosa*

Han, M-L., Zhu, Y., Creek, D. J., Lin, Y-W., Gutu, A. D., Hertzog, P., Purcell, T., Shen, H-H., Moskowitz, S. M., Velkov, T. & Li, J., 1 Jan 2019, In : mSystems. 4, 1, 18 p., e00149-18.

Amyloid Self-Assembly of hIAPP8-20 via the Accumulation of Helical Oligomers, α -Helix to β -Sheet Transition, and Formation of β -Barrel Intermediates

Sun, Y., Kakinen, A., Xing, Y., Faridi, P., Nandakumar, A., Purcell, A. W., Davis, T. P., Ke, P. C. & Ding, F., 2019, (Accepted/In press) In : *Small*. 10 p., 1805166.

Human CD8⁺T cell cross-reactivity across influenza A, B and C viruses

Koutsakos, M., Illing, P. T., Nguyen, T. H. O., Mifsud, N. A., Crawford, J. C., Rizzetto, S., Eltahla, A. A., Clemens, E. B., Sant, S., Chua, B. Y., Wong, C. Y., Allen, E. K., Teng, D., Dash, P., Boyd, D. F., Grzelak, L., Zeng, W., Hurt, A. C., Barr, I., Rockman, S. & 17 others Jackson, D. C., Kotsimbos, T. C., Cheng, A. C., Richards, M., Westall, G. P., Loudovaris, T., Mannering, S. I., Elliott, M., Tangye, S. G., Wakim, L. M., Rossjohn, J., Vijaykrishna, D., Luciani, F., Thomas, P. G., Gras, S., Purcell, A. W. & Kedzierska, K., 2019, (Accepted/In press) In : *Nature Immunology*. 15 p.

Quokka: A comprehensive tool for rapid and accurate prediction of kinase family-specific phosphorylation sites in the human proteome

Li, F., Li, C., Marquez-Lago, T. T., Leier, A., Akutsu, T., Purcell, A. W., Smith, A. I., Lithgow, T., Daly, R. J., Song, J. & Chou, K-C., 15 Dec 2018, In : *Bioinformatics*. 34, 24, p. 4223-4231 9 p., bty522.

The use of proteomics to understand antiviral immunity

Woon, A. P. & Purcell, A. W., 1 Dec 2018, In : *Seminars in Cell and Developmental Biology*. 84, p. 22-29 8 p.

Mitigating Human IAPP Amyloidogenesis In Vivo with Chiral Silica Nanoribbons

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A subset of HLA-I peptides are not genomically templated: Evidence for cis- and trans-spliced peptide ligands

Faridi, P., Li, C., Ramarathinam, S. H., Vivian, J. P., Illing, P. T., Mifsud, N. A., Ayala, R., Song, J., Gearing, L. J., Hertzog, P. J., Ternette, N., Rossjohn, J., Croft, N. P. & Purcell, A. W., 12 Oct 2018, In : *Science Immunology*. 3, 28, 12 p., eaar3947.

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Immunopeptidomics Special Issue

Ternette, N. & Purcell, A. W., 1 Jun 2018, In : *Proteomics*. 18, 12, 4 p., 1800145.

In Immunopeptidomics We Need a Sniper Instead of a Shotgun

Faridi, P., Purcell, A. W. & Croft, N. P., 1 Jun 2018, In : *Proteomics*. 18, 12, 4 p., 1700464.

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Lill, J. R., Van Veelen, P. A., Tenzer, S., Admon, A., Caron, E., Elias, J. E., Heck, A. J. R., Marcilla, M., Marino, F., Müller, M., Peters, B., Purcell, A., Sette, A., Sturm, T., Ternette, N. & Vizcaino, J. A., 1 Jun 2018, In : *Proteomics*. 18, 12, 7 p., 1800110.

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T cell autoreactivity directed toward CD1c itself rather than toward carried self lipids

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Comparative transcriptomics highlights the role of the activator protein 1 transcription factor in the host response to Ebola virus

Wynne, J. W., Todd, S., Boyd, V., Tachedjian, M., Klein, R., Shiell, B., Dearnley, M., McAuley, A. J., Woon, A. P., Purcell, A. W., Marsh, G. A. & Baker, M. L., 1 Dec 2017, In : *Journal of Virology*. 91, 23, 21 p., e01174-17.

The molecular basis for peptide repertoire selection in the human leucocyte antigen (HLA) C*06: 02 molecule

Mobbs, J. I., Illing, P. T., Dudek, N. L., Brooks, A. G., Baker, D. G., Purcell, A. W., Rossjohn, J. & Vivian, J. P., 20 Oct 2017, In : *Journal of Biological Chemistry*. 292, 42, p. 17203-17215 13 p.

The role of HLA genes in pharmacogenomics: unravelling HLA associated adverse drug reactions

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Huntingtin Inclusions Trigger Cellular Quiescence, Deactivate Apoptosis, and Lead to Delayed Necrosis

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Hormone-like peptides in the venoms of marine cone snails

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HIVed, a knowledgebase for differentially expressed human genes and proteins during HIV infection, replication and latency

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HLA and Drug Hypersensitivity

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An open-source computational and data resource to analyze digital maps of immunopeptidomes

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