

Curriculum Vitae

Dr Alexander TH Cocker, PhD

I completed my PhD studentship at Imperial College London researching the Immunology of Pregnancy and HIV, and previously worked as a Research Assistant at the St Stephens's AIDS Trust clinical trials unit setting up and running studies. I then worked at Stanford University investigating the impacts of chronic virus infections on the development and function of the immune system, focussing on the innate NK cell population. I am now I am working in the Davis Lab researching the organisation of immune cell nanostructures and how they affect cell function.

Contact Information

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Current Role

Postdoctoral Research Associate in the Davis Laboratory, Imperial College London, London, UK – June 2023 onwards

- Investigating nanostructure organisation of immune cells, primarily natural killer cells, using super resolution microscopy
- Mentoring PhD students and advising on their projects

Previous Roles

June 2020 – May 2023 Postdoctoral Scholar in the Department of Structural Biology, Parham Laboratory, Stanford University, California, USA

June 2020 – May 2023 Honorary Research Associate in the Department of Metabolism, Digestion, and Reproduction, Imperial College London, UK

December 2019 – May 2020 Postdoctoral Research Associate at Imperial College London, Pregnancy and Parturition Group, Chelsea and Westminster Hospital, London, UK

July 2015 – November 2019 PhD Student at Imperial College London, Pregnancy and Parturition Group, Chelsea and Westminster Hospital, London, UK

June 2013 – June 2015 Research Assistant at the St. Stephen's AIDS Trust Clinical Trials Unit, Chelsea & Westminster Hospital, London, UK

Skills and Training

Flow cytometry expertise
Microscopy
Category 3 laboratory trained
Clinical sample processing
ELISpot assays
Multiplex analysis
Cell culture
Grant writing
Clinical study recruitment
Teaching and supervision
Venepuncture
ICH GCP certified
GCLP certified

Papers

Cocker A, Guethlein L, Parham P, 2023, The CD56⁺CD16⁺ NK cell subset in chronic infections, *Biochem. Soc. Trans.* <https://doi.org/10.1042/BST20221374>

Huang Z, Lai P, **Cocker A**, Dell A, Brady H, Johnson M, 2023, The role of N-linked glycosylation in placentation: trophoblast infiltration, immunomodulation, angiogenesis, and pathophysiology, *Biochem. Soc. Trans.* <https://doi.org/10.1042/BST20221406>

Malik A, Sayed A, Han P, Tan M, Watt E, Constantinescu-Bercu A, **Cocker A**, Khoder A, Thorley E, Teklemichael A, Ding Y, Saputit R, Hart A, Zhang H, Mitchell W, Imami N, Crawley J, Sales I, Busse J, Zehnder J, Adams S, Zhang B, Cooper N, 2023, The role of CD8⁺ T cell clones in immune thrombocytopenia, *Blood*, <https://doi.org/10.1182/blood.2022018380>

Cocker A, Whettlock E, Browne B, Lai P, Li J, Sivarajasingam S, Imami N, Johnson M, Male V, 2022, Isolation of single cells from human uterus in the third trimester of pregnancy: myometrium, decidua, amnion and chorion, *Oxford Open Immunology*, <https://doi.org/10.1093/oxfimm/iqac010>

Cocker A, Liu F, Djaoud Z, Guethlein L, Parham P, 2022, CD56-negative NK cell frequency in peripheral blood, expansion in HIV-1 infection, function, and KIR expression, *Frontiers in Immunology*, <https://doi.org/10.3389/fimmu.2022.992723>

Liu F, **Cocker A**, Pugh J, Djaoud Z, Guethlein L, Parham P, 2022, Natural LILRB1 D1-D2 variants show frequency differences in populations and bind to HLA class I with various avidities, *Immunogenetics*, <https://doi.org/10.1007/s00251-022-01264-7>

Walwyn-Brown K, Pugh J, **Cocker A**, Beyzaie N, Singer BB, Oline D, Guethlein LA, Parham P, Djaoud Z, 2022, Phosphoantigen-stimulated $\gamma\delta$ T cells suppress natural killer cell responses to missing-self, *Cancer Immunology Research*, <https://doi.org/10.1158/2326-6066.CIR-21-0696>

Cocker A, Shah N, Raj I, Dermont S, Khan W, Mandalia S, Imami N, Johnson M, 2020, Pregnancy gestation impacts on HIV-1-specific granzyme B response and central memory CD4⁺ T cells, *Frontiers in Immunology*, <https://doi.org/10.3389/fimmu.2020.00153>

Cocker A, Greathead L, Herasimtschuk A, Mandalia S, Kelleher P, Imami N, 2019, Short Communication: Therapeutic Immunization Benefits Mucosal-Associated Invariant T Cell Recovery in Contrast to Interleukin-2, Granulocyte-Macrophage Colony-Stimulating Factor, and Recombinant Human Growth Hormone Addition in HIV-1⁺ Treated Patients: Individual Case Reports from Phase I Trial, *AIDS Research and Human Retroviruses*, <https://doi.org/10.1089/aid.2018.0176>

Grants and Awards

Oct 2021; \$98,521 from Stanford University Discovery Innovation Fund in Basic Biomedical Sciences

Nov 2019; CROI New Investigator Scholarship

Feb 2019; £30,000 JRC Grant

Jul 2018; Miltenyi Biotec Travel Award

Jun 2018; British Society for Immunology Travel Bursary

Oct 2017; British Society for Immunology Travel Bursary

Jun 2017; Miltenyi Biotec Travel Award

Apr 2016; BHIVA Poster Commendation

Jul 2015; £66,000 JRC PhD Studentship Grant

Papers continued

Westrop S, **Cocker A**, Boasso A, Sullivan A, Nelson M, Imami N, 2017, Enrichment of HLA types and SNP associated with non-progression in a strictly defined cohort of HIV-1 controllers, *Frontiers in Immunology*, <https://doi.org/10.3389/fimmu.2017.00746>

Hardy GAD, **Cocker A**, Imami N, 2015, A stepwise advance out of the shadows: leading HIV to its clearance, *FUTURE VIROLOGY*, <https://doi.org/10.2217/fv.15.100>

Other Publications

Interview for Borne Charity Blog – “World AIDS Day: Investigating HIV and Pregnancy with a Borne Scientist” – 1st Dec 2016

Presentations & Seminars

Cocker A, Liu F, Djaoud Z, Guethlein L, Parham P, 2022, Chronic viral infection and CD56-negative NK cells - subsets and their function, BSI Congress 2022, Liverpool, 5-8 December 2022

Huang Z, **Cocker A**, Lai P, Johnson M, 2022, Native N-glycans are necessary for JEG-3 resistance to NK-mediated cytotoxicity, BSI Congress 2022, Liverpool, 5-8 December 2022

Malik A, Tan M, Sayed A, Han P, Watt E, Constantinescu-Bercu A, Khoder A, **Cocker A**, Thorley E, Teklemichael A, Ding Y, Saputit R, Hart A, Zhang H, Mitchell W, Imami N, Crawley J, Salles-Crawley I, Bussel J, Zehnder J, Adams S, Zhang B, Cooper N, 2022, CD8+ TEMRA clones cause platelet lysis in immune thrombocytopenia, *Blood*, 140 (S1), 2209-2210

Cocker A, The STEM Village Immunology Seminar, 26 September 2022 <https://youtu.be/nOHsORC81BA>

Cocker A, Parham P 2021, Meta-analysis of the CD56-negative NK cell subset indicates altered functional responses and unique KIR regulation, *Virtual Immunology* 2021, 10-15 May 2021

Cocker A, Dermont S, Khan W, Imami N, Johnson M 2020, Identifying central components of the HIV-1+ pregnancy immune network, Conference on Retroviruses and Opportunistic Infections (CROI), Boston Massachusetts, 8-11 March 2020

Cocker A, Greathead L, Herasimtschuk A, Mandalia S, Kelleher P, Imami N, 2019, MAIT cells benefit from therapeutic immunisation alone while IL-2, GM-CSF, and rhGH addition hinder recovery in HIV-1 positive treated patients, BSI Congress, Liverpool, 2-5 December 2019

Cocker A, Dermont S, Khan W, Mandalia S, Imami N, Johnson M, 2019, Pregnancy alters differentiation of the natural killer cell compartment while HIV-1 infection increases degranulation response, BSI Congress, Liverpool, 2-5 December 2019

Cocker A, Shah N, Raj I, Dermont S, Khan W, Mandalia S, Imami N, Johnson M, 2019, HIV-1-specific response and T-cell memory subsets are impacted by gestation in HIV-1 positive pregnancy, BSI Congress, Liverpool, 2-5 December 2019

Cocker A, Sivarajasingam S, Sassine A, Raj I, Dermont S, Khan A, Imami N, Johnson M, 2018, Regulatory T-cell compartment in HIV-1+ pregnancies loses gestation adaptations and function, European Congress for Immunology (ECI) 2018, Amsterdam, 2-5 September 2018

Sooranna G, Shah N, **Cocker A**, Singh N, Johnson M, 2018, Progesterone Suppresses the Inflammatory State of Innate Cells in Peripheral Blood and Cervical Mucous, European Congress for Immunology (ECI) 2018, Amsterdam, 2-5 September 2018

Cocker A, Sivarajasingam S, Dermont S, Khan W, Imami N, Johnson M, 2018, Gestational Immunological Adaptations and Anti-Viral Responses are Disrupted in HIV-1+ Pregnancies, Society for Reproductive Investigation (SRI) 65th Annual Scientific Meeting, San Diego CA, 7-10 March 2018

Sivarajasingam S, **Cocker A**, Sassine A, Imami N, Johnson M, 2018, Disrupted Immunological Equilibrium of Decidual Natural Killer Cells and Regulatory T Cells with Onset of Labour, Society for Reproductive Investigation (SRI) 65th Annual Scientific Meeting, San Diego CA, 7-10 March 2018

Sassine A, Sivarajasingam S, **Cocker A**, Wang Y, Imami N, Crawford MA, Johnson M, 2018, Erythrocyte oleic acid is correlated with increasing natural killer cells in maternal blood, Society for Reproductive Investigation (SRI) 65th Annual Scientific Meeting, San Diego CA, 7-10 March 2018

Cocker A, Sivarajasingam S, Dermont S, Khan W, Imami N, Johnson M, 2017, Amplified CMV-specific responses are reflective of excessive immune exhaustion in HIV-1+ pregnancies, BSI Congress, Brighton, 4-7 December 2017

Cocker A, 2017, Disruption of Gestational Immunological Adaptations in HIV-1+ Pregnancies, Oral Presentation at the London Cytometry Club, Chelsea and Westminster Hospital, 30 November 2017

Sivarajasingam S, **Cocker A**, Sassine A, Imami N, Johnson M, 2017, Regulatory T cells maintain comparable frequency in decidua and placenta albeit higher than in maternal blood as gestation advances, 3rd Annual UK Preterm Birth Conference, Leeds, 7-8 September 2017

Sivarajasingam S, **Cocker A**, Sassine A, Imami N, Johnson M, 2017, Decidual NK cells initiate the inflammatory trigger of human labour, 3rd Annual UK Preterm Birth Conference, Leeds, 7-8 September 2017

Cocker A, Shah N, Dermont S, Khan W, Imami N, Johnson M, 2017, NK Cell Subset Frequency and Developmental Markers are Altered in HIV-1+ Pregnancies, 9th International AIDS Society (IAS) Conference on HIV Science, Paris, 23-26 July 2017

Cocker A, Dermont S, Khan W, Imami N, Johnson M, 2017, HIV-1+ pregnancies demonstrate altered IFN γ and IL-10 responses to Flu and CMV and disrupted DC, NK and T-cell profiles, 23rd Annual Conference of the British HIV Association (BHIVA), Manchester, April 2017

Cocker A, Dermont S, Khan W, Imami N, Johnson M, 2017, Altered CD4 and NK Cell Profile with Inverse IFN γ and IL-10 Antiviral Response in HIV-1+ Pregnancies, Society for Reproductive Investigation (SRI) 64th Annual Scientific Meeting, Orlando FL, 15-18 March 2017

Greathead L, **Cocker A**, Herasimtschuk A, Mandalia S, Kelleher P, Imami N, 2017, No Recovery of V α 7.2 MAIT Cells after Therapeutic Immunisation plus IL-2/GM-CSF/rhGH, 24th Conference on Retroviruses and Opportunistic Infections (CROI 2017), Seattle Washington, 13-16 February 2017

Cocker A, Dermont S, Khan W, Imami N, Johnson M. Inverse IFN-gamma and IL-10 antiviral responses reflect higher CD4 effector memory cell exhaustion and altered NK tolerogenic profile in HIV-1+ pregnancies, BSI NVVI Congress, Liverpool, 6-9 December 2016

Presentations & Seminars *continued*

Sivarajasingam S, **Cocker A**, Imami N, Johnson M. Increased Anergic CD56⁺CD16⁺ Decidual and Cytokine Producing CD56^{Bright}CD16⁻ Placental NK Cell Frequencies Observed in Term, Non-Labouring Women, BSI NVVI Congress, Liverpool, 6-9 December 2016

Cocker A, Hardy G, Herasimtschuk A, Imami N, Nelson M, 2016, Gag- and Nef-specific responses are associated with increased proportions of regulatory T cells in treated chronic HIV-1 infection, HIV MEDICINE, Vol; 17 (S1), 29-30

Shah N, **Cocker A**, Imami N, Johnson M. Premature delivery in HIV-1+ mothers is associated with a longitudinal fall in the CD56 NK cell population that significantly expands in patients delivering vaginally. 8th Blizard Institute HIV Symposium, Barts & The London School of Medicine and Dentistry, London June 2016

Gordon H, Orchard T, Ng S, Steel A, **Cocker A**, Harbord M, 2015, PWE-042 20 year follow up of British twin pairs with inflammatory bowel disease. GUT Abstract PWE-042 Table 1, Pages: A229.2-A230

Barber T, Hill A, Yapa H, Higgs C, **Cocker A**, Moyes A, Boffito M, Moyle G, 2014, Neurocognitive function in patients with high bilirubinaemia receiving ritonavir-boosted protease inhibitors, HIV MEDICINE, Vol: 15, Pages: 72-73

Public Engagement and Research Promotion

18th Nov 2024 LGBTQIA+ Immunology Symposium – Organising symposium with The STEM Village to promote queer scientists' work

26th Sep 2022 The STEM Village Immunology Seminar - <https://youtu.be/nOHsORC81BA>

2nd Mar 2017 BORNE to Dance Charity Dinner – Fund raising event highlighting importance of the groups research

1st Dec 2016 Interview for Borne Charity Blog – “World AIDS Day: Investigating HIV and Pregnancy with a Borne Scientist”

12th Nov 2015 The Wonderland Narnia Dinner – Discussed importance of funding research with guests at Borne charity fundraiser

Academic Services

Leadership/Teaching/Mentoring

- As a Research Associate, and in my role as an Honorary Research Associate for Imperial College London, I have guided the following PhD students in elements of their practical lab work, data acquisition and analysis, writing, presentations, and assessments: Olatz Niembro Vivanco, Judit Gali Moya, Cathal Hosty, Murray Cox, Zhengyang Huang, Zainab Saeed, Orene Greer, Emily Whettlock, Priya Sivarajasingam, and Veronica Preda

Diversity, Equity, and Inclusion work

- I work with The STEM Village, a group with the aim of promoting LGBTQIA+ scientists. My involvement has included organising and chairing seminar sessions, finding and inviting speakers, and helping to organise an in-person symposium to take place in November 2024
- As a Postdoctoral Fellow at Stanford University, I was involved in the Inclusive Mentoring program, and was the Chair of the LGBTQIA+ Postdoc affinity group where we organised community networking events, identified and collected resources for LGBTQIA+ scientists, as well as meeting with the Office for Postdoctoral Affairs and Vice Provost for Graduate Education to advocate for Postdoc support

Education

2015-2019 Imperial College London PhD in Immunology

2009-2012 University of Leeds BSc (Hons) Biology 2:1

- Modules taken include Immunology, Advanced Human Genetics, Genetic Engineering, Cell Biology, Statistics, Bioinformatics, Parasitology, and Physiology
- Achieved 75% in research project on how a mutated vacuolar sorting protein in *Nicotiana tobaccum* affected vacuolar sorting pathways

2005-2008 Dulwich College A-Levels; Biology A, French B, Chemistry C
AS-Levels; Physical Education A, General Studies B
9 GCSEs; Grades A* - C including Maths A* and English A

Referee details available on request