



PROFESSOR JACOB GEORGE

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Biographical details

Professor Jacob George is a renowned hepatologist and liver research scientist who studies the causes of and mechanisms for the development of liver disease and liver cancer. He contributes to investigator-initiated and multicentre international clinical trials on therapeutics for liver diseases, and leads a program of research on viral hepatitis, fatty liver disease, liver fibrosis, host genetics/liver immunology and the epidemiology, prevention and management of liver cancer. His research has a strong translational component, linking laboratory and clinical research. Professor George's work has made significant contributions to clinical practice. His team first identified the role of interferon lambda 3 gene polymorphisms for predicting treatment response in chronic hepatitis C, and a second gene polymorphism that interacts with interferon lambda 3. These discoveries are considered major advances in the field and the finest examples of 'personalised medicine'. Professor George was an author on the groundbreaking study of combination telaprevir, pegylated interferon and ribavirin therapy for hepatitis C, which changed the landscape of hepatitis C

treatments, heralding the era of direct-acting antivirals. His work identifying insulin resistance as the universal underlying pathophysiological abnormality in fatty liver disease underpins the majority of research on this condition and is the cornerstone of current therapy (lifestyle intervention; exercise; insulin-sensitising agents). He also first described the association between hepatitis C and insulin resistance. Professor George is an advisor to Hepatitis Australia, the Transfusion Related AIDS and Infectious Diseases Service, and at state and national levels, on viral hepatitis. He oversees research for the Asian Pacific Association for the Study of Liver. He is a Fellow of the American Association for the Study of Liver Disease.

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Research interests

Professor George's research broadly covers liver disease and cancer, with specific themes in the fields of viral hepatitis, liver cancer, fatty liver disease, hepatic drug metabolism, and the contribution of host genetics and immunology to liver disease, liver injury and fibrosis. He has particular interests in basic and clinical research on non-alcoholic steatohepatitis and on the role of host genetics in treatment response and disease progression in viral hepatitis.

Professor George leads an international genetics hepatitis C consortium that includes 4,200 patients from Australia, Egypt, Germany, Italy, the UK, Hong Kong, etc. The consortium provides the opportunity to access patients with distinct genetic backgrounds to help identify host factors that are associated with treatment response and/or the development of liver fibrosis and disease progression. His team is attempting to develop diagnostic tests to non-invasively predict liver fibrosis stage, thereby avoiding liver biopsies. Additionally, with the aid of a major grant from the Cancer Council of NSW and the Cancer Institute, NSW, Professor George is undertaking a program of research investigating the epidemiology, pathogenesis and treatment of liver cancer, a malignancy that is rapidly increasing in incidence in NSW. The aim of the work is to develop new preventative and early detection strategies and treatments.

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Current research students

Project title	Research student
Understanding novel genetic determinants of disease progression in NAFLD	Ali BAYOUMI

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Themes

[Cancer](#); [Infection and Immunological Conditions](#); [Healthy Ageing](#)

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Keywords

[Liver Disease](#); [Cell biology](#); [Molecular Biology and Host Genetics](#); [Cancer](#); [Hepatitis Virology](#)

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Clinical Specialty

Gastroenterology and Hepatology

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PhD and master's project opportunities

- [Role of Notch signalling on the regulation of liver cancer stem cells](#)
- [Characterization of the biological role of ARL6IP5 in HCV-induced liver cancer](#)
- [Targeting liver cancer stem cells as a novel therapeutic approach for liver cancer](#)
- [Interaction between angiogenesis and cancer stem cells in liver cancer](#)
- [Nutrient regulation of the stem cell compartment](#)
- [Immuno-metabolism of macrophages in inflammatory diseases](#)

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Honours project opportunities

- [Role of Notch signalling in the maintenance of stroma in liver cancer](#)
- [Targeting cancer stem cells to overcome treatment resistance of liver cancer](#)
- [Exploring the role of epigenetic factors modulating the predisposition to tissue scarring \(fibrosis\) and cancer](#)
- [Nutrient regulation of stem cells in cancer](#)
- [Chemerin mediated CMKLR1 signalling on HCC tumorigenesis](#)
- [Exploring the genetic architecture of organ fibrosis](#)
- [Understanding the functional mechanisms of tissue fibrosis risk variants](#)

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Selected grants

2018

- *BD FACSymphony A5 High Parameter Cytometer: Enabling high quality research in the Westmead Precinct*; Cunningham A, Mann G, George J; National Health and Medical Research Council (NHMRC)/Equipment Grants.

2017

- *BD FACSymphony A5 High Parameter Flow Cytometer for Westmead Research Hub at Westmead Precinct*; Mann G, deFazio A, Bendall L, George J, Gottlieb D, Clarke C, Byrne J, Shaw P, Reddel R, Ling S; Cancer

Institute New South
Wales/Equipment Grant.

- *Implementing and enhancing evidence-based research and practice in hepatology*; George J; National Health and Medical Research Council (NHMRC)/Career Awards: Practitioner Fellowships.

2016

- *Sydney West Translational Cancer Research Centre (SW-TCRC)*; Harnett P, deFazio A, Shaw T, George J, Mann G, Balleine R, Flynn P; Cancer Institute New South Wales/Translational Cancer Research Centre.
- *Targeting metabolic and vascular health with high intensity exercise training in type 2 diabetes*; Johnson N, Baker M, Chuter V, Keating S, George J, Caterson I, Byrne N; Collaborative Research Network for Advancing Exercise & Sports Science (CRN-AESS)/Research Capacity Building Seeding Grant Scheme.