

The Faine/Adler/Boyce Research Group: a brief history

Solly Faine joined Monash University in 1968 from the University of Sydney and established the leptospirosis research group in the Department of Microbiology. Leptospirosis research during this pre-molecular era was focused on the characterisation of leptospiral antigens with potential roles in immunity to infection and on trying to understand pathogenesis.

Ben Adler was appointed to the academic staff in 1981 and leptospirosis research continued under the joint leadership of Solly Faine and Ben Adler until the former's retirement in 1991. Once tools for genetic manipulation of pathogenic *Leptospira* were developed research continued under the direction of Ben Adler, with major advances including the development of mutagenesis systems (collaboratively with Mathieu Picardeau, Institut Pasteur, Paris) which allowed a range of key virulence factors to be identified and studied, and the first Australian bacterial genome sequence. Key contributors included Tu Vinh, Susan Ballard, Dieter Bulach, Paul Cullen, Miranda Lo and Gerald Murray.

Work on *Pasteurella multocida*, the cause of fowl cholera and other important animal diseases, was initiated in 1988 and developed in collaboration with Alan Frost and Ian Wilkie (University of Queensland) and Andrew Cox (National Research Council, Canada). Significant achievements over the next 25 years included the development of genetic exchange systems, the first transcriptome of a bacterial pathogen in its natural host, improved diagnostic and typing systems and elucidation of the major surface components of *P. multocida*. Key contributors included Carmel Ruffolo, Marina Harper and John Boyce.

1988 also saw the start of work on bacillary dysentery in collaboration with Chihiro Sasakawa, University of Tokyo. Major discoveries included the genetic organisation of *Shigella* genomic pathogenicity islands, the identification of a novel toxin, and the elucidation of gene regulatory networks involved in pathogenesis, with key contributions from Kumar Rajakumar and Harry Sakellaris. The project concluded in 2004.

John Boyce was appointed to the academic staff in 2007 and the group continued under the joint leadership of John Boyce and Ben Adler until the latter's retirement in 2014. The lab is currently headed by John Boyce. New ongoing projects initiated during this period included an investigation of how *Burkholderia pseudomallei*, the cause of the lethal disease melioidosis, invades and survives inside host cells. This work involved collaboration with Rod Devenish, Department of Biochemistry and Molecular Biology, with significant contributions from Meabh Cullinane and Lan Gong. Additionally, work commenced on a project to understand the mechanisms of resistance to colistin, a last choice antibiotic, in the important hospital-acquired pathogen *Acinetobacter baumannii*. In collaboration with Roger Nation and Jian li, Monash Institute of Pharmaceutical Sciences, a unique resistance mechanism was identified.

Listing of students and staff

Graduate students

Ben Adler	Keith Al-Hasani	Priyangi Alwis
Susan Ballard	David Boucher	Annabella Chang
Antony Chapman	Wayne Christopher	Jing Chung
Paul Cullen	Tanya D'Cruze	Sadia Deen
Alejandro de la Peña Moctezuma	Deanna Deveson	Timothy Fitzsimons
Stephen Graves	Marina Harper	Tamas Hatfaludi
Rebekah Henry	Preecha Homchampa	Meredith Hunt
Lynette Ireland	Helen Jost	Thareraat Kalambaheti
Amy King	Alicia Lai	Natalie Lazar Adler
Miranda Lo	Shelley Luck	Duncan McGillivray
Marianne Mégroz	Anne Midwinter	Jennifer Moffat
Cecilia Pang	Kumar Rajakumar	Ramdani
Carmel Ruffolo	Maria Serrano	Jennifer Sexton
Amporn Srikrum	Jason Steen	Phutayalai Treerat
Sally Turner	Angela van Zanden	Tu Vinh
Dianne Wapling	Timothy Witchell	Kunkun Zhang

Post Doctoral Research Fellows

Ben Adler	Keith Al-Hasani	Susan Ballard
John Boyce	Dieter Bulach	Paul Cullen
Meabh Cullinane	Stephen Doughty	Angela Fones
Xenia Gatsos	Marina Harper	Rebekah Henry
David Hoke	Preecha Homchampa	Helen Jost
Miranda Lo	Renee Marcisin	Roland McGready
Gerald Murray	Kumar Rajakumar	Carmel Ruffolo
Harry Sakellaris	Tu Vinh	Yamei Zhang

Research Assistants

Ben Adler	Susan Ballard	Margaret Bills
Wayne Christopher	Todd Collinson	Scott Coutts
Judy Doherty	Mark Edmonds	Helen Farrelly
Ralph Frank	Julie Hall	Rebekah Henry
Meredith Hunt	Marietta John	Lucie Kapetanovski
Chenai Khoo	Jennifer Moffat	Ian McPherson
Jonathan Medd	Marina Mitchison	Carla Osinski
David Percy	Kate Rainczuk	Margarita Rawson
Kerith Sharkey	Susan Thomas	Vicki Vallance
Amy Wright		

Visiting Scientists

Jesús Aranda Rodriguez, Spain
Ragnhild Bager, Denmark
Anders Bojesen, Denmark
Ricky V L Chan, Canada
Isabelle da Piedade, Denmark
Margareta Go, The Netherlands
Tareraat Kalambaheti, Thailand
S Kawayasakul, Thailand
Bodil Kristensen, Denmark
Anneloes Mensinga, The Netherlands
Wouter Nijenhuis, The Netherlands
Jesper Ottesen, Denmark
Ming J Pan, Taiwan
Kanitha Patarakul, Thailand.
Leanne Saker, The Netherlands
Jirarat Songsri, Thailand
Amporn Srikram, Thailand
Jamunarani Vadivelu, Malaysia
Bernard van der Zeijst, The Netherlands

Major International Collaborators

David Haake, USA
Richard Zuerner, USA
Mathieu Picardeau, France
Chihiro Sasakawa, Japan
Claudia Toma, Japan
Albert Ko, Brazil/USA
Vivek Kapur, USA
Andrew Cox, Canada
Miki Bojesen, Denmark
Rasana Sermswan, Thailand
Jesús Aranda, Spain
Patrick Tan, Singapore
Caroline Cameron, Canada
Rudy Hartskeerl, The Netherlands
John Albert, Kuwait