Curriculum Vitae

Name: **Barbara Jane HOWLETT**
Appointment: Professor, School of Botany, the University of Melbourne
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Research Interests:

My main research interests are fungal genetics and diseases of Brassica species, particularly blackleg of canola caused by the fungus, *Leptosphaeria maculans*. I lead a team that exploits a multidisciplinary approach ranging from developing plant disease management strategies, to identifying disease-related genes in the blackleg genome. I collaborate with plant breeders and use molecular markers to monitor populations of the blackleg fungus for changes of virulence. My team is also analyzing genes involved in the biosynthesis and evolution of an important class of toxins. Many of our findings are of major significance to fungal biology, as well as plant and animal disease.

Awards and Fellowships:

2012	Elected Fellow of American Academy of Microbiology
2011	Inaugural Robert Lipp Plant Science Memorial Fellow, the University of Melbourne
1991-5	ARC Research Fellow
1991	Research Fellowship: Department of Industry, Trade and Commerce Collaborative, University of Cambridge, UK & British Council Academic Links & Interchange Award, University of Cambridge

Academic achievements (Research and Teaching):

1971-present	119 papers in refereed international journals, 2 co-edited books & 10 book chapters
1992-present	>$15 million in research grants from Australian Research Council and Grains Research and Development Corporation (as first-named researcher)
1991-present	Trained 17 Ph.D and 18 B.Sc (Hons) students
1998-9; 2007	Biotechnology Co-ordinator, Faculty of Science
1983-present	Lecturer in Plant Science courses

Editorial Responsibilities:

2008-present	Editorial Board: Eukaryotic Cell
2008-12	Academic Editor: PLoS Pathogens
2007	Editorial Board: PLoS One
2005-11	Senior Editor: Molecular Plant Pathology
2003-5	Editorial Board: Molecular Plant Pathology
1995-2001	Editorial Board: European Journal of Plant Pathology

Conference Organisation (since 2010):

2014	Symposium co-organizer and co-chair: International Plant Microbe Interactions meeting, Rhodes, Greece (July); International Mycological Congress, Bangkok, Thailand (August)
2013	Chair Policy Committee: which oversees the organization of 27th Fungal Genetics Conference (Asilomar, USA), which attracts 950 delegates; Joint co
2012	Symposium organizer and chair: Pathogens and biotic stress. International Congress on Plant Molecular Biology, Jeju, Korea
2011	Symposium organizer and co-chair: The role of modern biology in reducing pests and pathogens. International Botanical Congress, Melbourne; Symposium organizer and co-chair (with Dr G Doehlmann): 'Fungal-host signalling' 26th Fungal Genetics Meeting, Asilomar, USA
2010	Symposium organizer and co-chair: Plant-Microbe Interactions; OzBio2010, Melbourne, Australia; Symposium organizer and chair; Australasian Mycology Society meeting, Sydney – 'Molecular Aspects of Fungal Pathogenesis'
Since 2001	Joint co-ordinator (with Dr S Marcroft) Annual National Canola Pathology industry workshop, Melbourne

Invited international and national keynote lectures (since 2010):

2014	Symposium talks: International Plant Microbe Interactions meeting, Rhodes (July); International Mycological Congress, Bangkok, Thailand (August)
2013	Seminars: Johann Wolfgang Goethe-Universität Frankfurt; Talk; Technical meeting of Groupe Consultatif International de Recherche sur le Colza, Changins, Switzerland; Keynote address (Karling Lecture), joint meeting of American Mycological Society and American Plant Pathology Society
2012	Symposium talk; International Congress on Plant Molecular Biology, Jeju, Korea; Keynote lecture: Fuzhou International Symposium of Plant Pathology, Fuzhou, China; Plenary lecture: European Fungal Genetics Conference, Marburg, Germany
2011	Keynote closing lecture: FEBS Advanced Lecture Course on Human Fungal Pathogens, Nice, France
2010	Symposium talk: 'Fungal diseases: an emerging threat to human, animal and plant health' Institute of Medicine of the National Academies, Washington DC; Plenary lecture: 17th Crucifer Genetics Workshop, Saskatoon, Canada; Plenary lecture: Australasian Mycology Society meeting, Sydney.

Publication List:

I have published 119 refereed papers in scientific journals, ten book chapters and co-edited two books. My papers are published in journals in a range of fields reflecting the multidisciplinary nature of my research Ten of my most significant papers are below.

1. Lowe RGT, **Howlett BJ** (2012) Indifferent, Affectionate and Deceitful: Lifestyles and Fungal Secretomes. *PLoS Pathogens* 8: e1002515 *Opinion piece that considers correlations between secreted proteins and lifestyle in a diverse range of fungi.*
2. Rouxel T, Grandaubert J, Hane JK, Hoede C, van de Wouw AP, Couloux A, Dominguez V, Anthouard V, Bally P, Bourras P, Cozijnsen AJ, Ciuffetti LM, Degrave A, Dilmaghani A, Duret

L, Fudal I, Goodwin SB, Gout L, Glaser N, Linglin J, Kema GHJ, Lapalu N, Lawrence CB, May KM, Meyer M, Ollivier B, Poulain J, Schoch CL, Simon A, Spatafora JW, Stachowiak A, Turgeon BG, Tyler BM, Vincent DM, Weissenbach J, Amselem J, Quesneville H, Oliver RP, Wincker P, Balesdent M-H, **Howlett BJ** (2011) Effector diversification within compartments of the *Leptosphaeria maculans* genome affected by repeat induced point mutations. *Nature Communications* ncomms1189 *Genome sequence of the blackleg fungus showing unique compartmentalization of genome into gene-rich and gene poor regions, which house effectors, disease-related genes. Howlett jointly led project with Rouxel, France.*

3. Van de Wouw AP, Cozijnsen AJ, Hane JK, Brunner PC, McDonald BA, Oliver RP, **Howlett BJ** (2010) Evolution of linked avirulence effectors in *Leptosphaeria maculans* is affected by genomic environment and exposure to resistance genes in host plants. *PLoS Pathogens* 6: e1001180 *First large scale study of evolutionary processes affecting effector genes in any fungus. Showed that evolution of linked avirulence effector genes is affected by genomic environment and exposure to resistance genes in canola.*
4. Fox EM, **Howlett BJ** (2008) Secondary metabolism: regulation and role in fungal biology. *Current Opinion in Microbiology* 11: 481-7 *First review to speculate that fungal secondary metabolites play a role in protecting the fungus against predators in the environmental niche of the fungus*
5. Elliott CE, Gardiner DM, Thomas G, Cozijnsen AJ, Van De Wouw A, **Howlett BJ** (2007) Production of the toxin sirodesmin PL by *Leptosphaeria maculans* during infection of *Brassica napus. Molecular Plant Pathology* 8: 791-802 *First paper to show that a fungal toxin is a virulence factor for a pathogen that colonises canola stems*
6. Patron NJ, Waller RF, Cozijnsen AJ, Straney DC, Gardiner DM, Nierman WC, **Howlett BJ** (2007) Origin and distribution of epipolythiodioxopiperazine (ETP) gene clusters in filamentous ascomycetes. *BMC Evolutionary Biology* 7: e174 *First large scale analysis of fungal genomes for presence of ETP secondary metabolite gene clusters. Horizontal gene transfer was proposed as the mechanism responsible for the distribution and origin of the clusters.*
7. Sprague SJ, Hayden HL, Marcroft SJ, **Howlett BJ** (2006) Breakdown of major gene resistance of *Brassica napus* to *Leptosphaeria maculans* in south eastern Australia. *Plant Disease* 90: 190-8 *Described breakdown of disease resistance in canola in the Eyre Peninsula, SA.*
8. **Howlett BJ** (2006). Secondary metabolite toxins and nutrition of plant pathogenic fungi. *Current Opinions in Plant Biology* 9: 371-5 (Impact factor 9.23) *First review describing role of fungal secondary metabolites in fungal nutrition.*
9. Sexton AC, **Howlett BJ** (2006) Parallels between fungal pathogenesis on plants and animal hosts. *Eukaryotic Cell* 5: 1941-9 *First review to consider differences/parallels in fungal pathogenesis of plants and animals.*
10. Gardiner, DM, Waring P, **Howlett BJ** (2005) The epipolythiodioxopiperazine (ETP) class of fungal toxins: mode of action, functions and biosynthesis: a review. *Microbiology* 151: 1021-32 *First review of important group of secondary metabolite toxins that are produced by animal and plant pathogenic fungi*

Books

1. Evolution of Virulence in Eukaryotic Microbes (2012) Editors Sibley DL, **Howlett BJ**, Heitman J (Wiley-Blackwell, USA)
2. Strategies for managing *Brassica napus* (oilseed rape) resistance to *Leptosphaeria maculans* (phoma stem canker). (2006) Editors Fitt BDL, Evans N, **Howlett** BJ, Cooke M. (Springer, the Netherlands). 126 pp.