

Plant Technology Capability Statement



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Classical plant breeding uses deliberate interbreeding of closely or distantly related individual breeds to produce new crop varieties or lines with desirable properties. Plant breeding technology has developed rapidly over the last two decades with the introduction of advanced tissue culture, biochemical and molecular techniques, including marker assisted breeding, protoplast fusion, embryo rescue and mutagenesis. The technology has greatly reduced the time required to develop new plant varieties and improved the accuracy of crosses to produce desired morphological, physiological or genetic traits such as appearance, yield, and disease resistance. Some of the exciting advances that are currently being made in plant breeding are in the areas of crops with increased yield or improved nutritional characteristics, abiotic stress tolerance (drought, salt, cold), improved nitrogen utilisation and improved plant-based fibre and wood qualities.

Plant biotechnology is an emerging science with the potential to provide significant advances in a multitude of areas. Plant biotechnology has taken the traditional breeding practices of controlled cross-pollination to the next level in order to provide greater advances than were previously possible. Using molecular biology techniques, scientists are now able to engineer plants to express specific genes in a precise, controlled manner. In addition, recombinant plants comprising genetic combinations that were previously not possible have become available. An example of such a plant is Bt cotton, in which a bacterial gene from *Bacillus thuringiensis* was introduced into the plant to control *Lepidopteran* pests. Some of the exciting advances that are currently being made in plant biotechnology are in the areas of environmentally friendly production of biodegradable plastics, biofuels, industrial chemicals, vaccines and pharmaceuticals as well as improvements to the stress and disease resistance and nutritional content of crops.

In Australia, it is possible to obtain both patent protection and plant breeder's rights (PBR) for a new plant variety, provided certain conditions are met. Patent protection provides a 20 year monopoly, from the date that the patent application is filed, and allows the patentee to prevent others from exploiting the patented plant. PBR protection provides a 20 year monopoly, from the date that the application is granted, for most plants, and a 25 year monopoly for trees and vines. PBR protection applies to the propagating material of the protected variety and allows the PBR holder to prevent others from producing and selling propagating material of the protected variety. However, the protected variety may be used by others for non-commercial or experimental purposes, or for the breeding of other plant varieties.

As one of the largest patent attorney firms in Australia, Griffith Hack has expertise across a broad spectrum of technologies and industries. The ability to integrate this knowledge can be particularly important when a project involves several complementary disciplines. In addition, Griffith Hack has excellent relationships with a wide range of overseas patent attorney firms, particularly in the United States, Europe and Japan, enabling us to provide a seamless service both to our Australian clients doing business overseas and to our international clients seeking intellectual property protection in Australia.

The members of the Life Sciences and Chemical Group are able to draft and prosecute patent specifications, provide advice on patentability and infringement, provide litigation support, and assist with the filing of Plant Breeder's Rights applications. The Griffith Hack Life Sciences and Chemical Group includes professionals with high-level expertise in the areas of:

- Marker-assisted breeding
- Biological trait selection, including disease and abiotic stress resistance and macromolecule (starch, sugar and oil) modification
- Plant tissue culture including preparation of cytoplasmic hybrids
- Genetic lineage tracing
- Transgenic plants, including both nuclear and chloroplast transgenics, herbicide tolerant plants, pesticidal plants, functional foods, altered flower colour and delayed senescence
- Male sterility and hybrid seed production
- Plant-based production of industrial chemicals, antibodies and vaccines
- Second and third generation biofuel production
- Plant Breeder's Rights
- New herbicides, pesticides and fertilisers, including biological agents
- Soil microbiology including the production of enhanced rhizosphere microorganisms

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**Debbie Beadle, BSc (Chem)(Hons),
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*Principal – National Practice Group
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Debbie has more than 18 years of extensive experience specialising in the drafting and prosecution of both local and overseas patent applications. She has also been responsible for patent oppositions and other litigation matters, and advised clients on matters of patentability, validity and infringement. Debbie's clients range from leading Australian research organisations such as CSIRO, universities and start-up pharmaceutical, medical device and chemical companies to large multinational corporations. Debbie's areas of practice include herbicides, pesticides and fertilisers.



**Janelle Borham, BSc (Chem)(Hons),
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Principal

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Janelle provides the full range of patent services to a number of corporations and research organisations, with an emphasis on complex matters, drafting and opinion work. Janelle's areas of practice include food technology, sugars/sugar-derived products, fatty acids (plant and non-plant derived), confectionery, processing of plant-derived materials (such as extraction of actives from plants, and lignocellulosic material processing), windrow composting, plant-derived nutraceuticals, insecticides and parasiticides, cotton/natural fibre processing; and natural/synthetic polymers.



**Dr. Stuart Boyer, BSc (Hons), PhD,
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Stuart has been in the patent profession for 15 years and works in all areas of biotechnology with a focus on patent drafting, prosecution and strategic advice. He routinely works on complex prosecution and opposition matters, where his extensive research experience enables him to quickly and effectively understand the commercially significant aspects of his clients' inventions so that he can tailor the right strategy. Stuart has a range of clients in the agribiotech area and has worked on projects ranging from genetically modified cotton plants and salt tolerant wheat to herbicide & pest resistant plants. Stuart's clients include major Australian biotechnology companies, leading research institutes, and research centres, as well as major biotechnology companies in Europe, United States and Japan. Stuart's areas of practice include

transgenic crops, plant male sterility, hybrid seed production, biological trait selection including disease resistance, genetic engineering, nutraceuticals, plant-produced proteins including vaccines, herbicides and pesticides and biological pest control.



**Brendan Nugent, BSc (Chem),
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Brendan has been working in patent law for over 20 years, serving a range of clients from start-ups to large Australian biotechnology and pharmaceutical companies, as well as Australian universities, public research organisations and overseas agencies. His practice focuses on drafting patents in the fields of organic chemistry, drug discovery, pharmaceuticals and biotechnology. Brendan has advised a prominent Australian university in a native plant breeding project and another research organisation in a cotton breeding project. He has also managed the patent portfolio for a significant biological control product in cotton. Brendan has filed patent applications covering male sterile hybrid plants, and has significant experience in preparing and filing patent applications for biological markers. He also handles patent prosecution and oppositions for both Australian and foreign clients.



**Amanda Stark, BSc (Hons), CPA, EPA,
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Amanda is a qualified UK and European patent attorney, with over 17 years experience as a patent attorney in the field of biotechnology, 10 years of which were as a patent attorney in the UK prior to joining Griffith Hack in 2003. Amanda's postgraduate work was in developing biological herbicides. She has been involved in drafting and prosecuting patents and advising in the areas of plant marker-assisted selection, biological herbicides, plant male sterility, plant promoters, use of transgenic plants as systems for producing products of interest, plant-derived nutraceuticals, algal culture and biofuel technology. She advises large multinational plant biotechnology companies as well as smaller companies, research institutes and universities, both in Australia and overseas. Amanda has considerable experience in Plant Breeder's Rights and particular experience in providing due diligence reports and patent attorney reports for IPOs. She also has considerable expertise in company mergers involving the transfer of IP.

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Rosie Stramandinoli,
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Rosie handles all aspects of patenting including patent drafting, prosecution, opposition and management of clients' intellectual property portfolios for a range of individual inventors, small and large Australian companies, local and overseas universities and multinational corporations. Rosie's areas of practice include pesticides and herbicides as well as processing of plant-derived materials (such as extraction of actives from plants) and plant-derived nutraceuticals.



Dr. Peter Brown, BSc (Hons), PhD
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Peter specialises in the patenting of inventions in the field of biotechnology. Peter has extensive research experience in microbiology, molecular biology, immunology and cell biology which provides him with an in-depth understanding of his clients' technology. Peter's practice comprises Australian universities, institutes and small to medium size companies. He also has a large international practice comprising multinational firms. Peter's areas of practice include transgenic cereal plants and inter-specific hybridisation in ornamental plants (Euphorbia).



Dr. Malcolm Lyons, BSc (Hons), PhD
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Malcolm joined Griffith Hack in 2007 and is newly qualified as a patent attorney. He is involved in drafting and prosecution of Australian and foreign patent applications. He has also conducted pro bono drafting for an Australian charity. Malcolm has experience in validity and infringement opinions and re-examination of granted pharmaceutical and medical use patents. His background is predominantly in medical research, but recently he has become involved with algal culture and biofuel technology. His areas of practice also include marker assisted selection of genetic traits.



Dr. Belinda McKenzie,
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Belinda joined Griffith Hack in 2008 and assists with the drafting and prosecution of patents for both Australian and International organisations as well as having experience in validity and infringement opinions and patent oppositions. She also has experience with Plant Breeder's Rights registration and litigation. Prior to joining Griffith Hack, Belinda was a university researcher and taught several undergraduate courses in plant biotechnology and botany. She completed her Ph.D. on biofuels research working with both nuclear and chloroplast transformation technologies for the enzymatic conversion of waste biomass. Belinda provides expertise in a large range of plant based technologies and her specialised areas of practice include transgenic crops, plant male sterility, hybrid seed production, biological trait selection including abiotic and biotic stress resistance, genetic engineering, nutraceuticals, plant-produced proteins including vaccines, chloroplast transformation, biofuels and genetic lineage tracing.