

Honours at UQ Institutes



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Professor Irina Vetter

Director of HDR

NHMRC Leadership Fellow - Group Leader

Institute for Molecular Bioscience

Institute for Molecular Bioscience (IMB)



Choose from projects in:

- **Drug discovery** (chemistry, structural biology)
- **Chronic disease** (cell biology of heart disease, cancer, stroke, inflammatory diseases, vascular diseases, neurological diseases, developmental disorders)
- **Genetics and genomics** (population health and disease)
- **Infection** (antimicrobial resistance, immunology, microbiology)



16
New Patents
Families
2018-2025



20
Spin-out & Startup
Companies
2025



\$9.8bn
Valuation
(market capitalisation
or acquisition)
2026



14
Highly Cited
Researchers

11
Academy Fellows



**Staff
Locations**
St Lucia
Pinjarra Hills
Prince Charles Hospital



\$80.9m
External Revenue
2025



HDR Students
2025
Total: 146 EFTSL
Female: 60%
Male: 40%
Domestic: 35%
International: 65%



100+
Research Partners



\$3bn
Invested in IP
2025



**HERDC Research
Income**
2024
HERDC CAT 1: \$37.3M
HERDC CAT 2: \$0.4M
HERDC CAT 3: \$15.3M
HERDC CAT 4: \$0.8M



4
Centres



40
Groups



500+
Researchers
includes affiliates



**Staff FTE/
Headcount**

2025: 281.3/303
excl. Casual

Academic: 179.5 64%
Professional: 101.8 36%

Female: 170 56%
Male: 133 44%

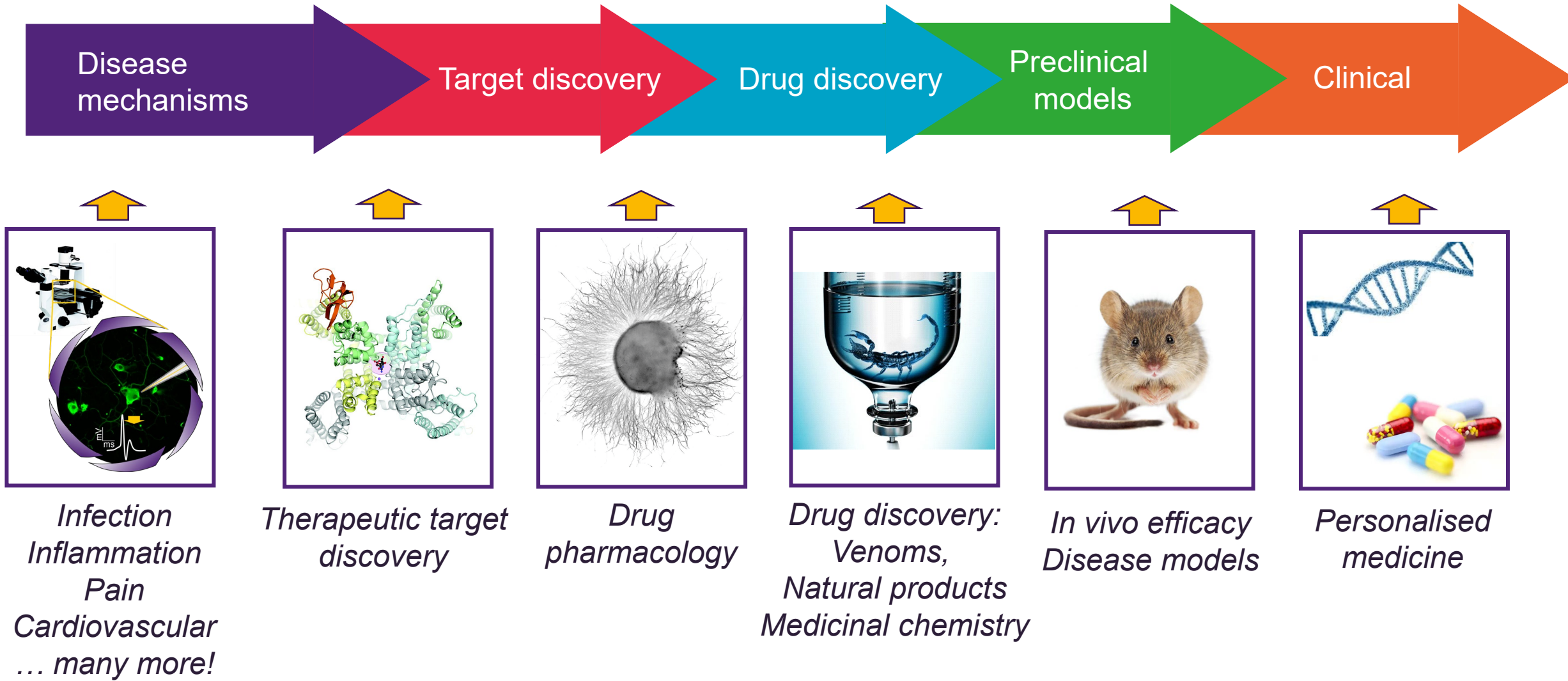


**Academic
Classification**

Level A: 89.3 50%
Level B: 46.3 26%
Level C: 20.0 11%
Level D: 4.4 2%
Level E: 19.5 11%
(2025)

UQ Institute for Molecular Bioscience:

Basic & translational research



IMB Research Facilities



Advanced Microscopy
Platform



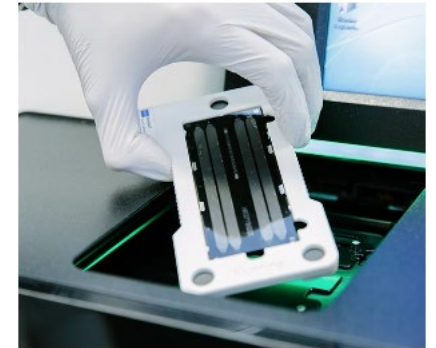
Mass Spectrometry
Facility



Clive & Vera Ramaciotti
Facility for Producing
Pharmaceuticals in Plants



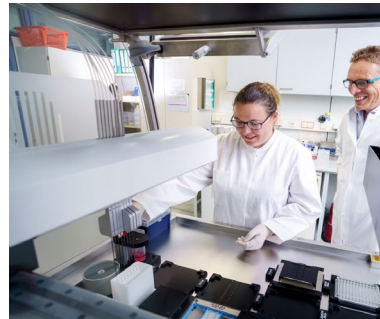
Queensland Emory Drug
Discovery Initiative



Sequencing Facility



High-throughput
screening



Automated patch-clamp
electrophysiology



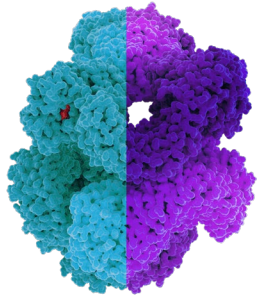
Centre for Solar
Biotechnology Facility



Queensland Facility for
Advanced Bioinformatics

Research at IMB

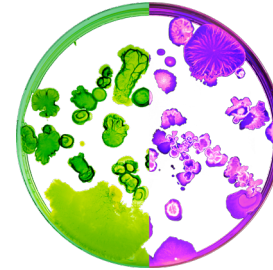
Australia's #1 research institute



Centre for Cell Biology of
Chronic Disease



Centre for Chemistry and
Drug Discovery



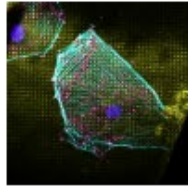
Centre for Superbug
Solutions



Centre for Population
and Disease Genomics

<https://imb.uq.edu.au/research-groups>

Centre for Cell Biology of Chronic Disease



3D structure of cells at molecular resolution

Dr Nick Ariotti



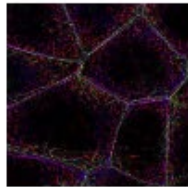
Membrane trafficking at atomic resolution

Professor Brett Collins



Critical Care Research Group

Professor John Fraser



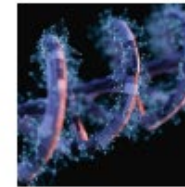
Cadherin cell-cell adhesion

Professor Alpha Yap



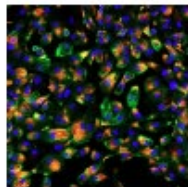
Cellular mechanisms to maintain a healthy vasculature

Dr Anne Lagendijk



Cellular reprogramming and ageing

Dr Christian Nefzger



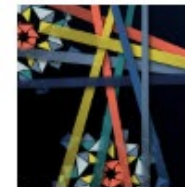
Stem cells and cardiovascular development

Prof Nathan Palpant



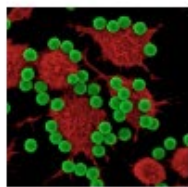
Multiscale analysis of cellular membrane function

Professor Rob Parton



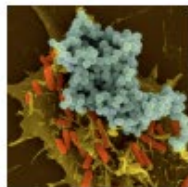
Inflammasomes

Professor Kate Schroder



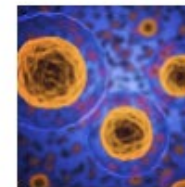
Protein trafficking and inflammation

Professor Jennifer Stow



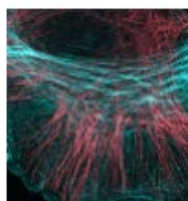
Innate immunity, infection and inflammation

Professor Matt Sweet



Dynamics of morphogenesis

Dr Mel White



Integrative mechanosensory mechanisms

Professor Sam Stehbens



Molecular Mechanisms of Neurological Disease

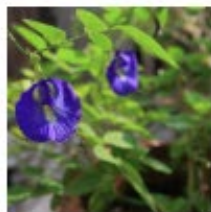
Professor Michael O'Sullivan

Centre for Chemistry and Drug Discovery



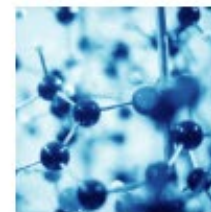
Molecular biodiscovery: learning from nature

Professor Rob Capon



Protein structure in drug and insecticide design

Professor David Craik



Chemistry and human therapeutics

Professor David Fairlie



Bioinspired design of solar biotechnology systems

Professor Ben Hankamer



Bugs and drugs

Professor Glenn King



Pharmacology of marine toxins

Professor Richard Lewis



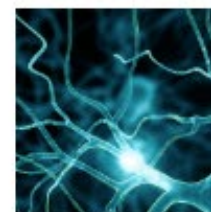
Neuropeptide research

Associate Professor Markus
Muttenthaler



Combinatorial chemistry and molecular design

Associate Professor Mark Smythe



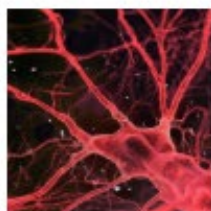
Pain pathways

Professor Irina Vetter



Discovering new ways to make better cancer drugs

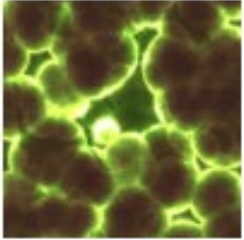
Dr Conan Wang



Molecular mechanisms of blood-brain barrier transport

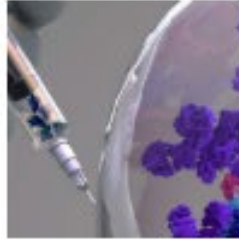
Dr Rosemary Cater

Centre for Superbug Solutions



Superdrugs vs Superbugs

Professor Mark Blaskovich



Immunology of infectious disease

Professor Denise Doolan



Bacterial infections and immunology

Professor Ian Henderson



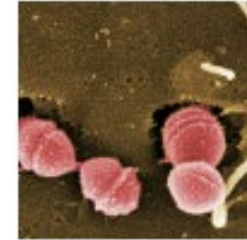
Bacterial pathogenesis and antibiotic resistance

Professor Mark Schembri



Bacterial cell wall

Professor Waldemar Vollmer



Strep A pathogenesis and treatment

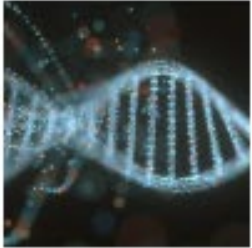
Professor Mark Walker



Microbial Genomics and Bioinformatics

Dr Brian Forde

Centre for Population and Disease Genomics



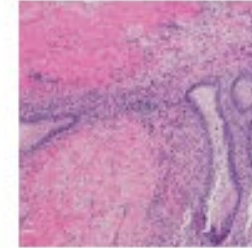
Genetic Epidemiology

Professor David Evans



Systems Genomics

Associate Professor Allan McRae



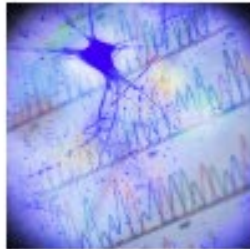
Genomics of reproductive disorders

Professor Grant Montgomery



Genomics and Machine Learning

Dr Quan Nguyen



Program in complex trait genomics

Professor Peter Visscher,
Professor Naomi Wray



Statistical Genomics

Professor Loic Yengo



Genomics in Health

Dr Sonia Shah

IMB Honours Projects

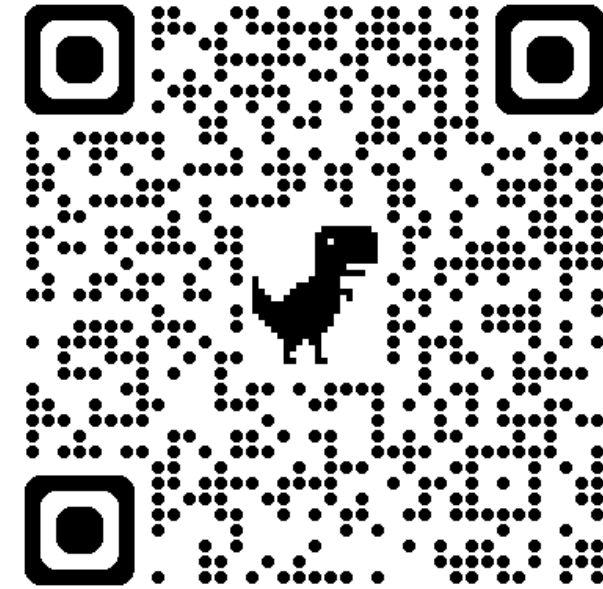
Centre for Cell Biology of
Chronic Diseases

Centre for Chemistry and
Drug Discovery

Centre for Superbug
Solutions

Centre for Population and
Disease Genomics

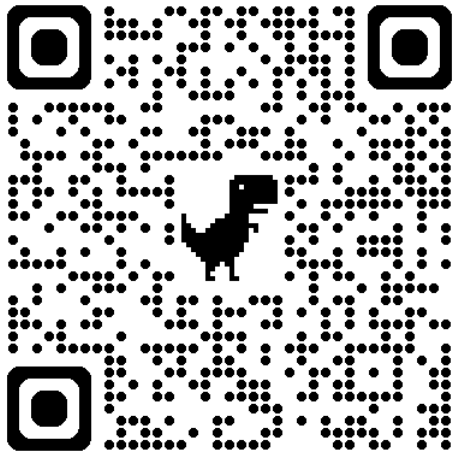
AEP-mediated biosynthesis of orally active cyclotide-based antagonists for bradykinin B1 receptor	⊕
Benchmarking deep learning methods for designing active peptides	⊕
Boosting accumulation of cyclisation-stabilised peptide-based pharmaceuticals in plant seeds	⊕
C-fos: a measure of pain in chemotherapy induced neuropathy	⊕
Characterization of blood-brain barrier nutrient transporters	⊕
Chemical strategies to deliver peptide drugs into cells	⊕
Chemical synthesis and structure-activity-relationship studies of the trefoil factor family	⊕
Computational design of targeted cancer therapeutics guided by machine learning	⊕
Defining cyclotide membrane interactions using nanodisc	⊕
Dehydrating microalgal to extend their shelf-life for medical and agricultural use.	⊕
Design and characterisation of a new generation of anti-obesity peptides	⊕
Design and characterisation of a next-generation antimicrobial peptide	⊕
Designing experimental drugs using computers and structure-based drug design	⊕
Designing protein drugs for the treatment of cancer and inflammatory diseases	⊕



<https://imb.uq.edu.au/honours-projects>

Further Information

- <https://imb.uq.edu.au>
- <https://imb.uq.edu.au/study/honours>
- General enquiries
imb@imb.uq.edu.au
Phone: +61 7 3346 2222
- Contact Prof Irina Vetter
i.vetter@imb.uq.edu.au





THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Queensland Alliance for Agriculture and Food Innovation (QAAFI)

Presenter: Dr. Vijaya Singh

QAAFI HONOURS PROGRAM

Contact

Dr Vijaya Singh

QAAFI Honours Coordinator

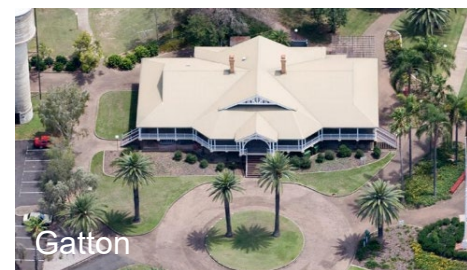
at v.singh@uq.edu.au

Queensland Alliance for Agriculture and Food Innovation Honours program



Who is QAAFI?

- Queensland Alliance for Agriculture and Food Innovation is a research institute at UQ
- Established in 2010 as an alliance between UQ and the Queensland Government.
- Researchers and staff are located across 11 shared UQ and Queensland Government facilities in Qld.
- In 2010 QAAFI had 34 researchers. Now we have over 400+ staff, students and researchers.
- Over the first decade, QAAFI's total income has grown from \$7.6 Million to \$70 Million



The University of Queensland is a global leader in agriculture and food research

INCOME

\$58 M

Total external income 2025

\$458 M

Total external income 2010
to 2025

\$791 M

Total actual and projected
income 2009-2026

PEOPLE



426 People in
2024



174 Higher
degrees
awarded since
2010



142 Higher
degrees awarded
since 2014

ENGAGEMENT



400+ Active
projects 2021



256 industry
presentations and
reports in 2025



11 facilities in
Queensland

UQ RANKINGS



#1 agriculture
institution in Australia
2025*



#6 in agriculture
research in the
world, 2025*



#5 Excellence in
Research in
Australia***

QAAFI Research Centres

Animal Science

Prof Timothy Mahony



Animal Science

- Pest and diseases
- Production systems
- Animal welfare

Crop Science

Prof Ian Godwin



Crop Science

- Crop Improvement
- Crop physiology and modelling
- Farming systems and agronomy

Horticultural Science

Prof Christine Beveridge



Horticultural Science

- Horticulture crop breeding and agronomy
- Plant protection
- Emerging technologies

Nutrition and Food Sciences

Prof Yasmina Sultanbawa



Nutrition and food sciences

- Smart selections
- Naturally nutritious
- Uniquely Australian foods

QAAFI Centre for Animal Science

Pests and diseases



Improving productivity of systems through minimising losses due to pest and diseases

- Control of internal and external parasites
- Development of biomarkers to identify disease resistant animals
- Development of vaccines for major pests and diseases

Production systems



Research to improve productivity, profitability, health and sustainability of livestock production systems

- Ruminant nutrition and pasture nutrition
- Genetics and genomics
- Livestock production management systems
- Meat quality, physiology and genetics

Animal welfare



Research to address the priority areas in animal welfare in livestock industries

- Translation of animal welfare science into informative decision tools
- Objective assessment of animal welfare
- Integrated animal welfare research across nutrition, disease and genetics

QAAFI Centre for Animal Science

Gene editing of livestock and use of organoids to improve welfare and prevent disease

Using microbiome information at the point of management to manage disease in chickens and pigs, and in beef cattle to reduce methane emissions and improve feed efficiency

Using black soldier fly biomass as a source of protein in feedlots

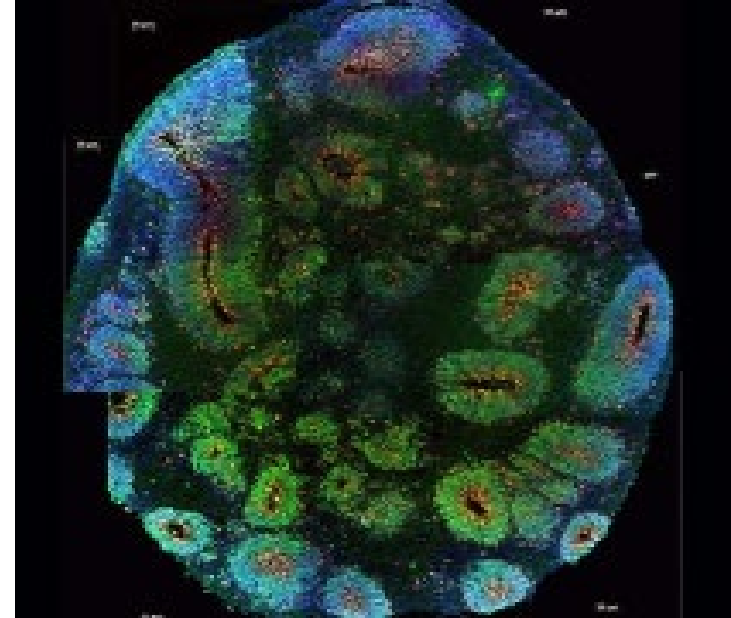
Implementing block chain technology to track livestock products from paddock to plate for both provenance and fraud (substitution) prevention.

Strategies to reduce methane emissions from grazing cattle

Microbiology / Molecular biology / Biochemistry & Molecular

Biology / Chemistry / Biotechnology / Genetics /

Bioinformatics / Computer sciences / Veterinary medicine



QAAFI Centre for Crop Science

- **Crop Improvement:** Integrated pre-breeding research programs delivering advance lines to industry. Germplasm development with structured populations, advance phenotyping, trait delivery adaption to water limited environments and resistance to pest and disease.
- **Crop Physiology and Modelling:** Physiological and molecular bases of drought adaptation in major cereals, combining Phenotype-to-gene and gen-to-phenotype, resource use efficiency (radiation, water and nutrient)
- **Farming Systems and Agronomy:** Designing farming systems better able to deal with climate and market risks, working with farmers to reduce yield gap and strengthen resilience and enhance productivity and sustainability production systems



QAAFI Centre for Horticultural Science

Crop Breeding and Agronomy



Improved Genetics

Plant Protection



Productivity

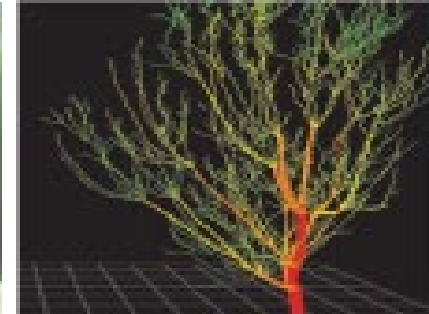


Quality

Emerging Technologies



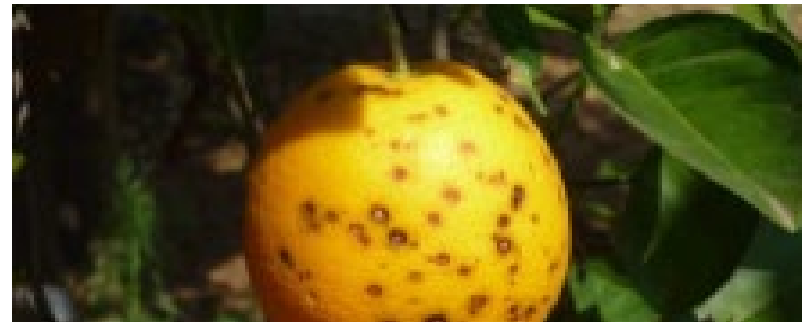
AgNano innovations



Modelling/Digital
Horticulture



Orchard Production Systems



Biosecurity



Propagation



Cryopreservation

Centre for Nutrition and Food Science

“A sustainable **premium quality products** achieved through **world-leading research and innovation**”

Naturally Nutritious

Maximising the intrinsic nutritional properties of agricultural products in foods and ingredients.

- Explore bioactivity/bioavailability of phytonutrients in biofortified fruits and vegetables such as high zeaxanthin capsicum, high folate strawberries and purple sweet corn

Uniquely Australian

Identify and validate opportunities for elite products from foods and ingredients that can only have come from Australia.

- Explore food applications of Australian native foods such as wattle seeds, native honeys, and Kakadu plum

Food Quality and product development

Commercial products eg beverages, plant based “meat” beef

Food quality and sensory services provides for over 50 clients

Developing markers of quality for 7 national breeding program (cereal, legumes and horticulture)

Smart Selections

Identifying the right combinations of raw material and processing to deliver consumer preferred foods.

- Identify key flavour components of tropical fruits, grain quality of cereals and legumes for export market requirements.





*Enriching the professional
and social experience of
QAAFI students*

Ways to connect with the QSA:

Become a member at:

<https://qsamembership.getqpay.com/>

Get in touch and stay up to
date!



qsa@uq.edu.au



@qsaqaafi



QAAFI's Honours program resources




The Queensland Alliance for Agriculture and Food Innovation

HONOURS PROGRAM



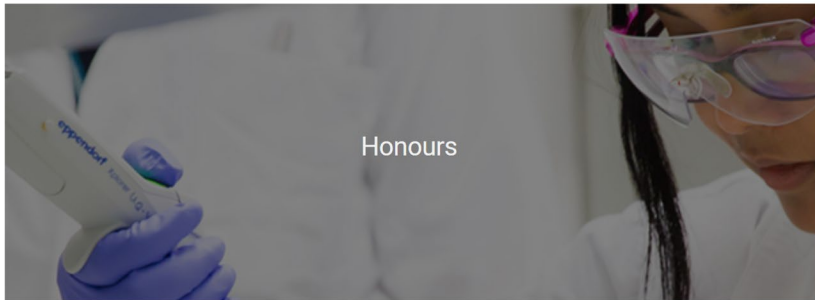


qaaifi.uq.edu.au
qaaifi@uq.edu.au
+61 7 3346 0550




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Honours

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QAAFI encourage students to participate in an honours program at UQ

Students enrolled through a UQ Faculty may undertake an Honours project supervised by a QAAFI researcher.

Participation allows students to engage with and experience the rich intellectual resources and facilities available to the Institute.

QAAFI is spread among various sites across Queensland and is comprised of four research centres, the Centre for Animal Science, Centre for Crop Science, Centre for Horticultural Science and Centre for Nutrition and Food Sciences.

You are encouraged to contact a researcher directly about which projects are available. A list of available projects may be found below. If you are not sure which Centre suits your research interest, you can view a list of potential supervisors below.



For further information about undertaking Honours with a QAAFI supervisor please contact:

QAAFI Honours Co-ordinator
Dr Vijaya Singh

+61 7 336 52036
honours.qaaifi@uq.edu.au

Please remember that you will remain enrolled in your faculty during Honours so please direct all enrolment and assessment enquiries to your faculty. Additionally, you will also be eligible to apply for Honours scholarships offered by your enrolling school (SAFS, SCMB, SBS etc).

[Back to study options](#)

QAAFI facilities and locations




QAAFI 2020 HONOURS INFO SESSION

An Honours year is a chance for you to follow your passion by completing an independent research project under the guidance of an experienced researcher at the end of your undergraduate degree.

More info:
qaaifi.uq.edu.au/honours



Contacts and information

QAAFI Honours projects: <https://qaafi.uq.edu.au/honours>

Multidisciplinary - chemistry, biochemistry, molecular biology, bioinformatics, genetics, microbiology, biotechnology, computational science, agriculture, crop physiology and modelling, farming systems and agronomy, horticulture crops, breeding and agronomy, plant protection, emerging technologies, food science.

For general enquiries about doing Honours in QAAFI, please contact the QAAFI Honours Co-Ordinator, Dr Vijaya Singh at v.singh@uq.edu.au

Dr Vijaya Singh
QAAFI Honours Coordinator
at v.singh@uq.edu.au





THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Q&A Session

Next Steps

Look at the projects available at each institute

Reach out to a potential supervisor

If you have any questions, let us know

AIBN	i.blakey@uq.edu.au
IMB	i.vetter@uq.edu.au
QAAFI	v.singh@uq.edu.au
QBI	collaborators@qbi.uq.edu.au