

# Antimicrobial Resistance

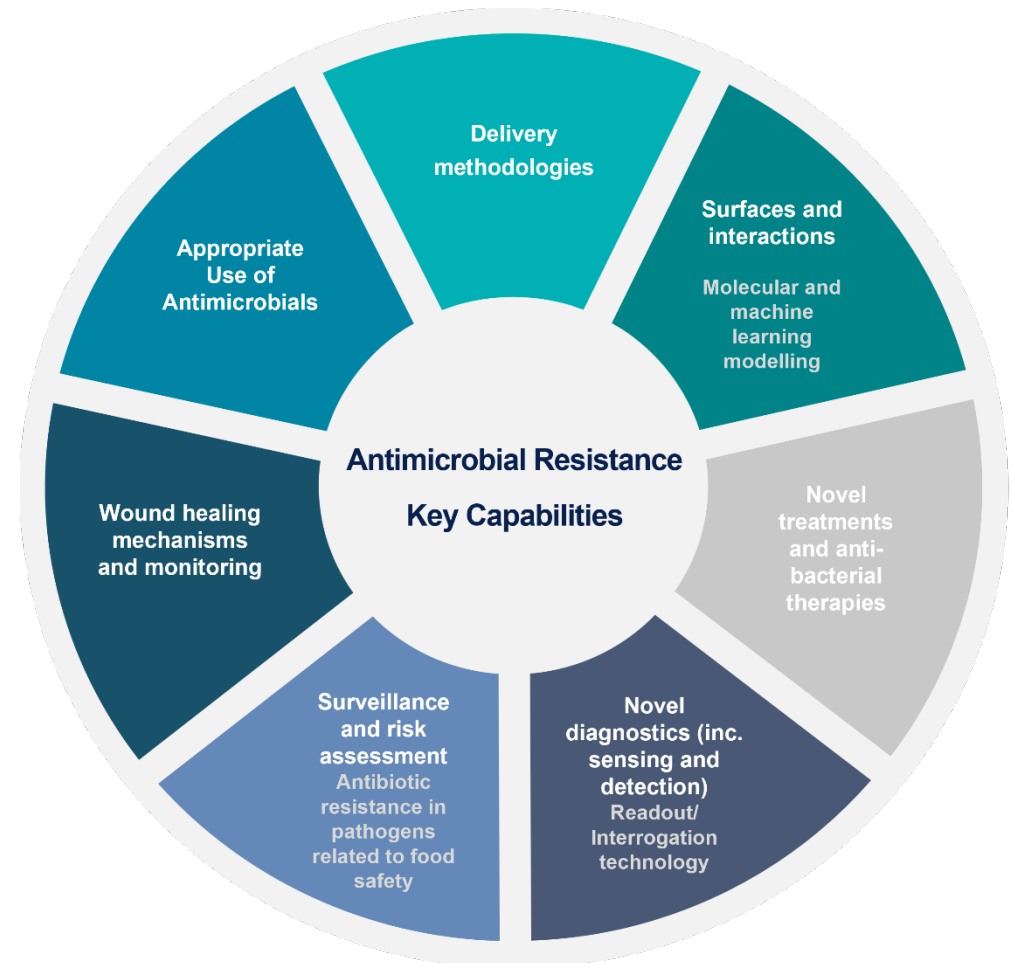
## RESEARCH

RMIT stands as a leader in Antimicrobial Resistance (AMR) research. Leveraging cutting-edge technologies and interdisciplinary expertise, our researchers are at the forefront of combating AMR through innovative approaches.

Cutting-edge Research and Innovation includes:

- **New therapies:** discovery and development of new “nano-drugs” against various diseases, including new antibiotics to fight microbial resistance
- **Appropriate use of Antimicrobials:** effective use of antimicrobials post-operatively and in cancer patients and defining bacteria modulating properties of anti-thrombotic and cancer drugs; shedding light on vaccine-induced protection and therapeutic interventions against pathogens.
- **Surfaces and Interactions:** biomimetic approaches to design advanced textured materials resistant to microbial colonisation, offering a promising solution to industrial and medical contamination challenges
- **Delivery Technology** including lipid-based nanocarriers for antimicrobial delivery, using high-throughput experimentation to develop effective treatments for infections, including tuberculosis; other technologies including stimuli responsive systems.
- **Wound Healing and Monitoring:** smart wound dressings integrated with quantum sensing technology, revolutionising wound care.
- **Novel Diagnostics:** Biomarker and sensing platform technologies to facilitate point-of-care detection; new devices and systems for detection (including photonics).
- **Surveillance and Risk assessment:** including wastewater monitoring and antibiotic resistance for food safety.

Our collaborative efforts have also led to the discovery of novel therapeutics, such as peptide-based antimicrobial agents capable of combating resistant strains. With a track record of impactful research and a dedication to innovation, RMIT is committed to advancing the field of Antimicrobial Resistance research, driving tangible outcomes for global health.



RMIT's Enabling Impact Platforms are the University's unique mechanism to assemble researchers and industry experts to rapidly respond to large-scale, complex issues in society.

## Antimicrobial Resistance Research Community

### Research Domains

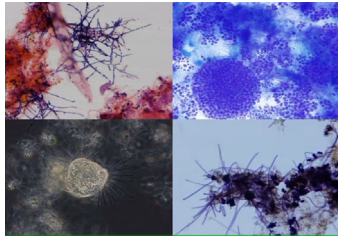
Research Domain	Relevant researchers	Research Domain	Relevant researchers
Surfaces and interactions Inc. Molecular and machine learning modelling	<a href="#">Elena Ivanova</a> <a href="#">Brant Gibson</a> <a href="#">Andrew Greentree</a> <a href="#">Calum Drummond</a> <a href="#">Charlotte Conn</a> <a href="#">Andrew Christofferson</a> <a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a> <a href="#">Vipul Bansal</a>	Surveillance and risk assessment Inc. Antibiotic resistance in pathogens related to food safety	<a href="#">Magdalena Plebanski</a> <a href="#">Thi Thu Hao Van</a> <a href="#">Peter Coloe</a> <a href="#">Peter Smooker</a> <a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a> <a href="#">Andy Ball</a> <a href="#">Chris Krohn</a> <a href="#">Kraiwut Jansrihibul</a> <a href="#">Vipul Bansal</a> <a href="#">Anna Walduck</a>
Delivery methodologies	<a href="#">Taghrid Istivan</a> <a href="#">Elena Pirogova</a> <a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a> <a href="#">Shadi Houshyar</a> <a href="#">Vipul Bansal</a> <a href="#">Céline Valery</a> <a href="#">Calum Drummond</a> <a href="#">Charlotte Conn</a>	Novel diagnostics (inc. sensing and detection) <ul style="list-style-type: none"> <li>• Inc. Readout/Interrogation technology</li> </ul>	<a href="#">Céline Valery</a> <a href="#">Brant Gibson</a> <a href="#">Andrew Greentree</a> <a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a> <a href="#">Vipul Bansal</a> <a href="#">Shadi Houshyar</a>
Novel treatments and anti-bacterial therapies	<a href="#">Magdalena Plebanski</a> <a href="#">Taghrid Istivan</a> <a href="#">Elena Pirogova</a> <a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a> <a href="#">Shadi Houshyar</a> <a href="#">Vipul Bansal</a> <a href="#">Céline Valery</a> <a href="#">Calum Drummond</a> <a href="#">Charlotte Conn</a>	Wound healing mechanisms and monitoring	<a href="#">Brant Gibson</a> <a href="#">Andrew Greentree</a> <a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a> <a href="#">Shadi Houshyar</a> <a href="#">Vipul Bansal</a>
			<p>Appropriate use of antimicrobials</p> <p>Other: Bacteria as risk factors and targets in cancer patients-influencing the outcomes from chemotherapy and vice versa)</p> <p>Lung disease and therapies Inflammation and Pathogenesis caused by human pathogens</p> <p>Biomarker discovery relevant to AMR pathogens to facilitate targeted detection and therapy</p> <p>Chemometrics and machine learning in the context of AMR detection</p>

## Antimicrobial Resistance Research Community

### Researcher Groups and Leaders

<p>Nanotechnology &amp; Biopharmaceutics Research Group</p>	<p>Multifunctional Mechano-biocidal Materials Research Group</p>	<p>Molecular Assembly Research Group</p>	<p>Cancer, Ageing and Vaccines Research Group</p>	<p>Microbes in Health and Disease</p>	<p>CNBP Gibson &amp; Greentree Research Group</p>
<p><a href="#">Céline Valery</a></p>	<p><a href="#">Elena Ivanova</a></p>	<p><a href="#">Charlotte Conn</a> <a href="#">Calum Drummond</a></p>	<p><a href="#">Magdalena Plebanski</a></p>	<p><a href="#">Thi Thu Hao Van</a> <a href="#">Peter Coloe</a> <a href="#">Peter Smooker</a></p>	<p><a href="#">Brant Gibson</a> <a href="#">Andrew Greentree</a></p>
<p>Visualisation and Chemical Model Production Group</p>	<p>Transforming Biosolids Centre</p>	<p>Therapies</p>	<p>Polymer and Biomaterials</p>	<p>Soft Matter and Antimicrobial Nanotechnology Group</p>	<p>Sir Ian Potter NanoBioSensing Facility</p>
<p><a href="#">Andrew Christofferson</a></p>	<p><a href="#">Andy Ball</a> <a href="#">Chris Krohn</a> <a href="#">Kraiwut Jansrihibul</a></p>	<p><a href="#">Taghrid Istivan</a> <a href="#">Elena Pirogova</a></p>	<p><a href="#">Shadi Houshyar</a></p>	<p><a href="#">Sumeet Walia</a> <a href="#">Aaron Elbourne</a> <a href="#">Gary Bryant</a> <a href="#">Saffron Bryant</a></p>	<p><a href="#">Vipul Bansal</a></p>

## Media



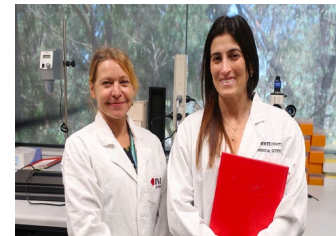
[How the weird and wonderful microbes in wastewater can make our cities more sustainable](#)

COVID-19 showed us how useful monitoring wastewater can be. But the genetic material in our wastewater, namely DNA and RNA, is a treasure trove of other useful information. It reveals the presence of thousands of different types of weird and wonderful wastewater microbes.



[Rapid test for common infection could save thousands of newborn lives](#)

A new test, similar to COVID-19 rapid antigen tests, could detect a common infection in expecting mothers within minutes, potentially saving the lives of 150,000 newborns around the world every year.



[Antibiotic innovation helps fight against superbugs - RMIT University](#)

RMIT scientists have created a new type of antibiotic that can be rapidly re-engineered to avoid resistance by dangerous superbugs.



[Smart stitches to reduce infection, simplify post op monitoring](#)

A new antimicrobial suture material that glows in medical imaging could be a promising alternative for mesh implants and internal stitches.

2 **CONTACT US**  
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