MEDICAL COUNTERMEASURES PROGRAM

NATIONAL PRIORITY, GLOBAL OUTLOOK

The aim of the DMTC Medical Countermeasures (MCM) Program is to deliver MCM product solutions and strategies to support Australian defence, health and national security.

The program addresses both defence and public health concerns and encompasses a range of vaccine, therapeutic and diagnostic solutions to chemical, biological and radiological threats, emerging infectious diseases and pandemics.

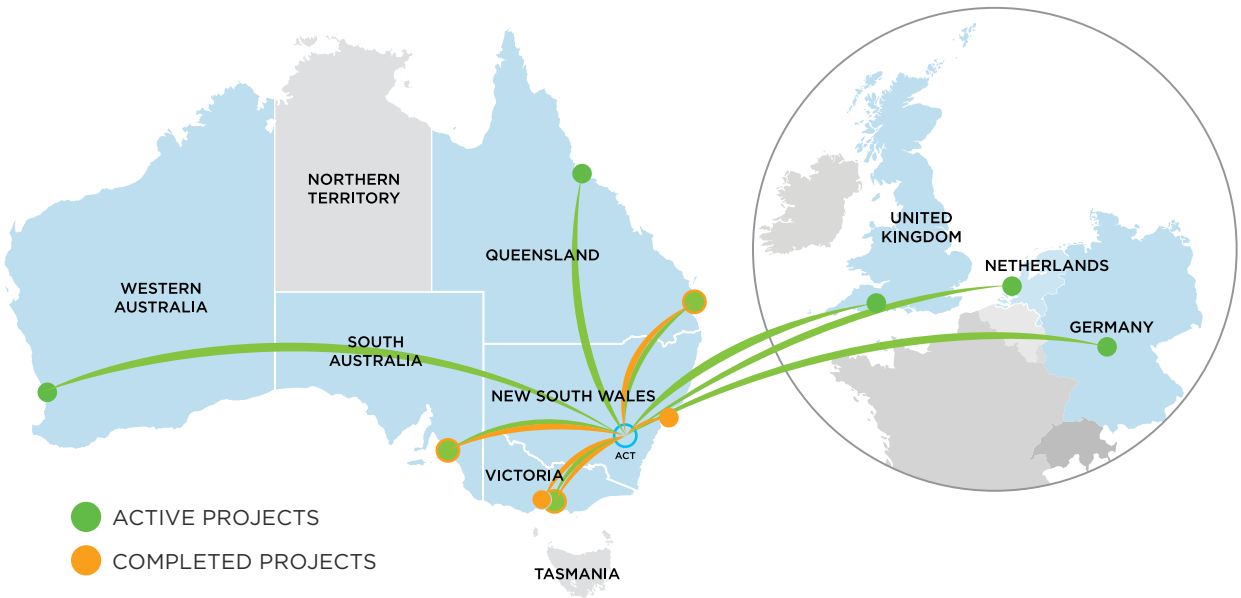
Active engagement with the international community, especially under the Medical Countermeasures Consortium (USA, UK, Canada and Australia), is an important part of the program to ensure that priority areas for development are aligned and that investments in Australian industrial capability are contributing to international outcomes as well as to our own sovereign requirements.

The DMTC MCM Program is the only program that brings together key national stakeholders including:

- the Department of Defence represented by Joint Health Command and the Defence Science and Technology Group;
- the Department of Health represented by the Office of Health Protection;
- the Department of Home Affairs;
- the Commonwealth Science and Industrial Research Organisation (CSIRO);
- the Department of Industry, Innovation and Science represented by the Medical Technology and Pharmaceutical Growth Centre (MTP Connect); and
- The Department of Foreign Affairs and Trade represented by the Indo-Pacific Centre for Health Security.

MCM PROGRAM PARTNERS: AS AT AUGUST 2019

NATIONAL AND INTERNATIONAL ENGAGEMENT



Case Study:

Pharmaceutical Development of Antivirulence Compounds against BW Pathogens

DMTC has partnered with the University of Western Australia, DST Group, the University of Melbourne, the University of Wuerzburg (Germany) and the University of Exeter (United Kingdom), to develop novel anti-virulence compounds against a range of biological warfare (BW) pathogens. The project team has made significant advances in refining their anti-virulence inhibitors and the next stage of development will involve identification of their lead compound through preclinical trials and pharmaceutical profiling. This new therapeutic is currently showing activity against a number of pathogens and has the potential to have broad-spectrum capability.

Case Study:

Rapid Diagnosis of Microbial Infections without Culture

DMTC is working with the University of Queensland, industrial partner BiosparQ BV and DST Group to develop a sensitive rapid diagnostic that uses magnetic nanotechnology with either integrated genetic sequencing or a novel mass-spectrometry method to identify bacterial pathogens from platelets, urine or blood. The aim of this diagnostic development project is to identify a bacterial species, strain and antibiotic resistance profile in a single test. The speed of diagnosis will provide invaluable information to clinicians that may lead to better patient outcomes.

Case Study:

Rapid Identification of Bacterial Agents of Defence Interest in Clinical Samples Using InfectID

DMTC, QUT, industrial partner Microbio Pty Ltd and DST Group are working together to develop a sensitive and rapidly deployable diagnostic which targets security sensitive biological agents (SSBAs). The diagnostic, called InfectID®, uses novel and innovative bioinformatic tools to genetically identify blood/plasma borne bacteria. InfectID® has been shown to distinguish between more than 10 closely related pathogens without the generation of false positives. Rapid and reliable field-deployable diagnostics are critical for the military to respond to both outbreaks of infection or deliberate biological attacks.

Case Study:

Synthesis and Scale-Up of Novel Antibiotic Drug

The development of novel antibiotics is a critical aspect of addressing the current global antibiotic resistance crisis. DMTC has partnered with Boulos & Cooper Pharmaceuticals and CSIRO to scale up the production of a novel antibiotic effective against a range of gram-positive bacteria. This antibiotic, Ramizol®, has an effect against *Clostridioides difficile* infection (CDI) –a hospital acquired infection and one that is rapidly becoming antibiotic resistant. The project is particularly important as it continues to develop a national capability in the manufacturing of antibiotics.

For more information, please contact:

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