

# CASE STUDY 7: MONASH INSTITUTE OF PHARMACEUTICAL SCIENCES – CENTRE FOR DRUG CANDIDATE OPTIMISATION

**Victorian Government investment in the Centre for Drug Candidate Optimisation created a footprint in drug discovery in Victoria. Since then, the Centre has been self-funded and has become part of the national infrastructure in drug discovery, contributing to the growth of the Monash Institute of Pharmaceutical Sciences (MIPS).**

## INVESTMENT RATIONALE

Drug candidate optimisation is a critical part of the medical research system, working to identify drug candidates with necessary properties for successful progression into pre-clinical and clinical development. The Centre for Drug Candidate Optimisation was formed to fill a critical gap in the Australian drug discovery system by providing expertise and infrastructure in pharmaceutical drug candidate optimisation for improved compound design, selection and progression.

Prior to the establishment of the Centre, access to pharmaceutical lead optimisation did not exist in Australia in a consistently coordinated, validated and high-quality way. As individual companies tend not to require lead optimisation regularly, there was not sufficient incentive to invest in the

required costly infrastructure and equipment. Researchers were forced to either work with overseas contract research organisations that typically provide only minimal data interpretation or utilise ad hoc local expertise of varying quality, limiting product development and commercialisation activities.

## OVERVIEW OF THE INVESTMENT

The Centre was established in 2002 with \$4 million in funding through the Second Round of the STI First Generation Infrastructure Program. This funding provided for the purchase of new equipment and infrastructure, the development of new R&D programs and the appointment of scientific and administrative staff. Since the initial Victorian Government investment, the Centre has leveraged a further \$52.6 million in funding to 2020 from other sources, including \$44.1 million in funding from research projects.

## IMPACT

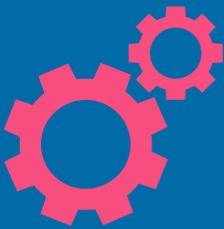
The Centre for Drug Candidate Optimisation, located within MIPS in Monash University, has provided a rigorous and successful model for national and international collaboration. It plays an important role within the system, providing expertise and infrastructure to advance basic Australian biological discoveries into drug candidates that are well-positioned for further clinical development, investment and commercialisation.



IMAGE CREDIT: MONASH INSTITUTE OF PHARMACEUTICAL SCIENCES

### OVER THE PAST 18 YEARS THE CENTRE HAS:

- Contributed to over 260 drug discovery projects across Australian companies, Australian and international academic groups, and international not-for-profit and commercial drug discovery organisations.
- Contributed to the progression of 34 novel drug candidates into human clinical development by partner organisations, of which 26 candidates are from Australian companies.
- Contributed to more than nine successful licencing deals for Australian companies with large pharmaceutical companies, with upfront payments to companies of over \$175 million and total potential milestone payments of over \$2 billion.
- Contributed to two academic collaborations in the past three years that have spun out to form new companies.
- Played a major role in the progression of seven novel drug candidates into international clinical trials for the treatment of malaria. One candidate, Arterolane, has been registered in India and used in India and Africa to treat millions of malaria patients, while the others are still undergoing clinical development.



A total of 87 staff have spent time working at the Centre since 2003. The Centre has served as a training ground for industry and research organisations, with the majority moving into industry roles, research or academic roles within universities or medical research organisations, or future education. The initial Victorian Government investment has also had an indirect impact on job retention in Victoria and Australia through the 15 to 20 commercial partner organisations that are supported by the Centre each year. The success of these organisations depends heavily on their ability to advance compounds through a discovery pathway.

The strengths of the Centre contributed to the establishment of the MIPS in 2008, and the strength of MIPS as a beacon for attracting talent to Melbourne and anchoring

Monash University's global strengths in pharmaceutical research and training. MIPS has been ranked within the top-two universities in the world for pharmacy/ pharmacology since 2016. Access to the Centre and MIPS was a critical driver in the formation of the Cooperative Research Centre for Cancer Therapeutics in 2007, the attraction of a significant internationally renowned Metabolic G Protein-Coupled Receptor biology research group to MIPS in 2009, and a major initiative to form the Australian Translational Medicinal Chemistry Facility at MIPS in 2012. The Centre is also part of the Monash University Technology Research Platform Network and continues to support the internal drug discovery activities of the Institute.