Case study | Cortellis Drug Discovery Intelligence

Accelerating drug discovery at the Melbourne Biomedical Precinct

Overview

The Melbourne Biomedical Precinct (the Precinct) is made up of over 40 hospitals, medical research institutes, biotechnology organisations and universities largely co-located to the north of Melbourne's Central Business District. With a rich history spanning more than 160 years, the Precinct employs 49,000 people, including 10,000 researchers and approximately 7,000 biomedical, health and medical students. The Precinct consistently attracts 23% of National Health and Medical Research Council (NHMRC) funding annually,[1] more than any other state in Australia, and has a publication citation rate twice the international average. But with all of these assets, why was the Precinct not identifying more viable drug targets, and why was it lagging its peers around the world?

With help from Clarivate, the Precinct is now better positioned to accelerate drug discovery and play a more prominent role locally and abroad.

33% of Australia's 2017-2018 drug discovery efforts occurred within the Precinct, and continues to grow.[2]

1.   www.melbournebiomed.com/the-precinct
2.   Total research split by drug discovery versus non-drug discovery programs, Cortellis Competitive Intelligence™, 2018

Melbourne Biomedical Precinct:
A growing interlinked community[3]

Precinct Leadership Group

Partners

- CSIRO
- CSL Limited
- The Florey Institute of Neuroscience and Mental...
- **Monash Institute of Pharmaceutical Science**
- Murdoch Children's Research Institute
- Peter Doherty Institute for Infection and Immunity
- Peter MacCallum Cancer Centre
- The Royal Children's Hospital
- The Royal Melbourne Hospital
- The Royal Women's Hospital
- St Vincent's Hospital Melbourne
- **The University of Melbourne**
- **Walter and Eliza Hall Institute**

- Aikenhead Centre for Medical Discovery
- Australian Genome Research Facility
- Baker Heart and Diabetes Institute
- Bio21 Molecular Science and Biotechnology Institute
- **BioCurate**
- BioGrid Australia
- Biomedical Research Victoria
- BioMelbourne Network
- Bionics Institute
- Cancer Therapeutics CRC
- Cancer Trials Australia
- Cell Therapies
- Centre for Eye Research Australia
- Centre for Palliative Care
- Convergence Science Network
- Deakin University
- Dental Health Services Victoria
- Diabetes Victoria
- Frances Perry House
- The Lowitja Institute
- Melbourne Academic Centre for Health
- Melbourne Bioinformatics
- Melbourne Brain Centre
- Melbourne Private Hospital
- Neuroscience Trials Australia
- National Ageing Research Institute
- Orygen, The National Centre of Excellence in Youth...
- Phoenix Australia, Centre for Posttraumatic Mental...
- PolyActiva
- RMIT University
- The Royal Victorian Eye and Ear Hospital
- St Vincent's Institute of Medical Research
- Swinburne University of Technology
- Victorian Comprehensive Cancer Centre

3. Melbourne Biomedical Precinct – *From research engine to economic powerhouse*, Victorian Government, April 2018

Challenge

Australia's medical research and biotechnology sector has lagged established life science clusters abroad in bringing new drug discoveries to the market. To quantify these challenges, the Clarivate team collaborated with Professor Andrew Wilks, Co-founder and Executive Chairman of SYNthesis. We determined that when it comes to the quality and output of scientific publications, Australia is world-class, with the Precinct ranked fourth in the world behind San Diego, Stanford University and San Francisco, but ahead of other life science clusters such as Boston and Cambridge, UK. However, the same is not true when it comes to translational research.

Wilks continues: "…there are 120 start-ups located within one square mile of Boston's Kendall Square, whereas you can count the start-ups within the Melbourne Biomedical Precinct on your hands." This collated data strikingly highlights that Australia is "… good at the discovery stuff, but very poor at the translation."[4] For Australia to be at the forefront of commercialisation initiatives, big data and innovative translational research models are required to accelerate the drug discovery process. Addressing this translation gap is now at the forefront of the Precinct's objectives.

With a greater focus on commercialisation, the Precinct has established a strategic plan, *From research engine to economic powerhouse*, highlighting a roadmap that articulates a 10-year vision in four key areas: increase impact through a greater focus on commercialisation; unlock value from digital health and big data; deliver the best facilities and infrastructure; and develop, attract and retain top talent.[5]

Solution

The Precinct's need to increase impact through a greater focus on commercialisation demonstrated an opportunity for Clarivate to showcase our Cortellis Drug Discovery Intelligence™ tools and embed these within the Precinct's research infrastructure.

In May 2019, we offered an opportunity for Precinct members to take part in a five-month trial of Cortellis Drug Discovery Intelligence to accelerate drug discovery and translational research efforts. Directors, therapeutic leadership group members, researchers (laboratory heads, post-doctoral fellows and PhD/honours students) and academic subject matter experts from the University of Melbourne, Monash University, BioCurate, and the Walter Eliza Hall Institute of Medical Research came together to participate in the trial, which helped them to identify, validate and prioritise novel targets for drug discovery across multiple therapeutic areas.

Trial participants were able to assess the competitive landscape from a scientific, therapeutic and intellectual property perspective for drugs specific to their research target interests using a single source of biological, chemical, and pharmacological data. Cortellis Drug Discovery Intelligence enabled trial users to access real-time manually curated information, enabling a fast, efficient and comprehensive view of a target or indication and its potential drug candidates.

Due to the trial's success, key champions and super users supported the decision to bring Cortellis Drug Discovery Intelligence to the Precinct's medical research institutes. Based on this, the Precinct signed a landmark agreement to provide Cortellis Drug Discovery Intelligence to its four largest precinct members to support their strategic research practices from early scientific research through drug discovery.

4. Director's Blog - 16 December 2019 - Lost in Translation, Bio21 Institute, https://www.bio21.org/directors-blog-16-december-2019-lost-translation

5. Melbourne Biomedical Precinct – *From research engine to economic powerhouse*, Victorian Government, April 2018

Results

The Precinct's adoption of Cortellis Drug Discovery Intelligence will help the group accelerate translational research initiatives, which will enable it to compete with leading drug developers around the world. It also positions the Precinct for long term success locally and abroad, and could set a precedent for attracting more funding for translational research in Melbourne.

Cortellis delivers the following benefits for the Precinct:

- Provides tools to rapidly enhance and improve competitive intelligence, target differentiation, and speed to translation.

- Enables world-class biomedical research across the Precinct to address the unmet medical need stemming from diseases that affect millions worldwide.

- Increases research collaborations between Precinct members at home and abroad.

- Creates a local channel of business partnerships between academic research institutions and other researchers and drug developers.

- Helps to increase the number of spin-out companies arising from the Precinct's research discoveries.

"I have used these tools in my former life at Sandoz and Novartis, and continue to do so in Melbourne. They are essential for drug discovery/translational outcomes for Melbourne. Target identification, validation and competitive landscaping can all be addressed more rapidly than in any literature searches, especially for those related to intellectual property, clinical trials, company updates, pathways and diseases."

Professor Daniel Hoyer,
Head of Department and Chair of Pharmacology at the University of Melbourne

clarivate.com/cortellis