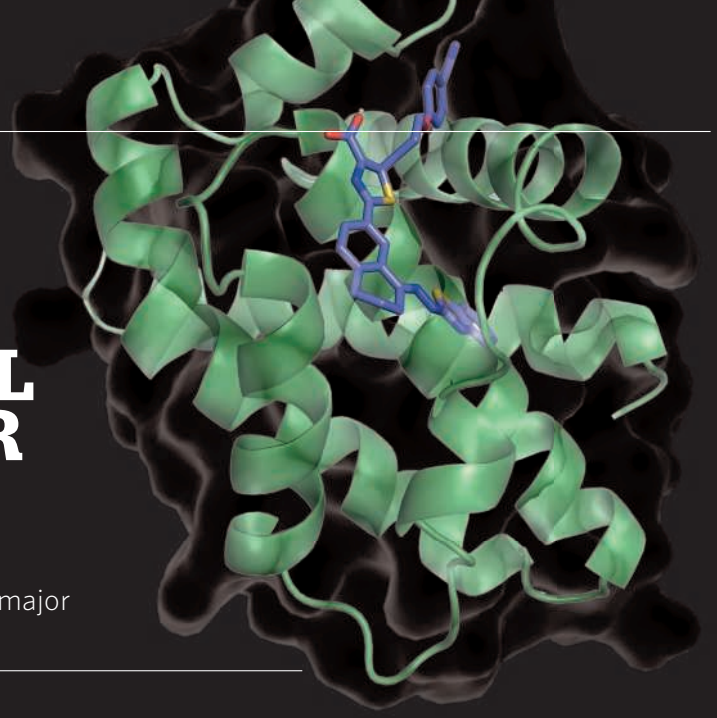

MAKING MEDICAL DISCOVERIES FOR HUMANITY

A supportive environment and access to superb facilities pave the way for researchers to have a major impact in the search for treatments.

The Walter and Eliza Hall Institute (WEHI) is a world-class medical research institute located in Melbourne's Parkville biomedical hub. More than 800 researchers at the institute strive for breakthroughs to be translated into better treatments for improved health around the world.

Its scientists work in collaborative, multidisciplinary teams to develop new approaches to preventing and treating diseases. The institute focuses on three critical areas: cancer, including blood, breast, brain, gastrointestinal and rare cancers; immune disorders, including asthma, coeliac disease, diabetes and lupus; and infectious diseases, particularly malaria, hepatitis B and HIV.

Institute scientists have access to a range of technologies including high-throughput screening, genomics and gene editing, proteomics and microscopy. The strong collaborative culture gives researchers access to additional infrastructure, such as the Australian Synchrotron.

The synchrotron was critical to recent discoveries by institute structural biologist Dr Peter Czabotar (pictured). His research focuses on proteins that control apoptotic cell death, the process which determines the number of cells in the body. "Dysregulated apoptosis has been implicated in a range of diseases, including cancer, autoimmune diseases and neurodegenerative conditions," he explains. "For example, in some cancers, disruptions in normal apoptotic cell death enable cancer cells to survive when they should die."

Part of Dr Czabotar's research considers molecular changes in BAX, a protein that drives cell death. The Australian Synchrotron enabled his team to create three-dimensional images of BAX to understand how it changes from an inactive form to an active, pro-apoptotic form.

"Knowing what was happening to the proteins gave us a new way of understanding how they induce cell death," Dr Czabotar says. He comments that the focus on translating research into clinical outcomes was a highlight of working at the institute.

"One exciting field has been the development of compounds that block pro-survival proteins, which may have applications for treating cancers or other conditions," he says. "Engineering new compounds that prevent cell death could also revolutionize the treatment of other diseases."

In addition to its international reputation for fundamental and translational research, the institute strongly advocates for gender equity and has implemented initiatives to build diversity in its workforce. Many exciting opportunities for research faculty, postdoctoral research and study are available at the institute: www.wehi.edu.au/about/career-opportunities. ■

BY NUMBERS

#1 TOP RANKED NON-PROFIT ORGANIZATION INSTITUTION IN AUSTRALIA EVERY YEAR FROM 2012 TO 2016 (ALL SUBJECTS, WFC)

NUMBER OF DOMESTIC AND INTERNATIONAL COLLABORATING INSTITUTIONS 2016*

- **40** domestic
- **331** international

*excludes joint institutions
WFC = weighted fractional count

TOP 10 COLLABORATORS (2016 FC)

1. The University of Melbourne (UniMelb) 19.79
2. Monash University 4.69
3. La Trobe University 3.46
4. Vienna Biocenter (VBC), Austria 2.62
5. Melbourne Health 2.05
6. Peter MacCallum Cancer Centre (Peter Mac) 1.65
7. Case Western Reserve University (CWRU) 1.59
8. Imperial College London (ICL) 1.44
9. University of New South Wales (UNSW) 1.13
10. The University of Sydney (USYD), Australia 1.05

Source: Nature Index