New technique offers potential for more affordable drugs

Dr Bob Reid.

5 December 2013

University of Queensland researchers have pioneered a drug development technique that could pave the way for a new class of low-cost medicines.

The researchers, led by Professor David Fairlie and Dr Robert Reid from UQ ' s Institute for Molecular Bioscience (IMB), designed a technique that reduces large proteins to small molecules suitable for use as drugs.

Professor Fairlie said the result was a smaller, more affordable version of a powerful human inflammatory protein, complement protein C3a, that helps defend against disease.

C3a costs thousands of dollars per milligram to manufacture commercially and degrades in minutes in blood, making it too expensive and unstable to be easily used in medicines.

The researchers have designed a small molecule that retains the same potent activities of C3a but is much cheaper and more stable for drug development.

" Despite the importance of proteins to nearly every function in the body, their use in science, industry and medicine is significantly restricted by their high cost and instability, " Professor Fairlie said.

" A holy grail in chemistry has been to find a way to reduce large proteins down to much smaller, simpler and cheaper molecules with the same activities.

" We have done exactly that, opening up exciting new avenues for chemists to downsize valuable human proteins and obtain affordable new diagnostics and drugs for the detection and treatment of human diseases, " he said.

Dr Reid said the team had identified the key components of the protein that fought disease.

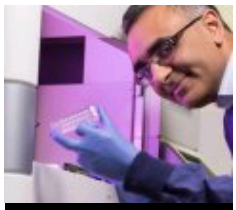
" We have developed a way of using chemical scaffolds to control the molecule ' s shape and reproduce protein functionhe said.

The research, published in leading scientific journal *Nature Communications,* was supported by the National Health and Medical Research Council and the Australian Research Council.

To discuss commercial opportunities around this research, contact Dr Mark Ashton on 07 3346 2186 or m.ashton@uniquest.com.au

To donate to Professor Fairlie ' s drug discovery research, visit www.imb.uq.edu.au/donate or call (07) 3346 2134.

HEALTH + MEDICINE, INDUSTRY COLLABORATION

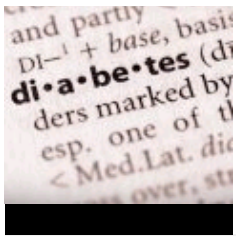


Research program targets blood cancer 12 August 2014

HEALTH + MEDICINE, RESEARCH

HEALTH + MEDICINE

Expert available for Dental Health Week, 4-10 August 2014 5 August 2014



UQ experts for National Diabetes Week 11 July 2014

Scientists do

Queensland proud in global

The Institute for Molecular Bioscience (IMB) is a research institute of The University of Queensland that aims to improve quality of life by advancing medical genomics, drug discovery and biotechnology.

Media: IMB Communications Manager Bronwyn Adams, 0418 575 247, 07 3346 2134 or b.adams@imb.uq.edu.au

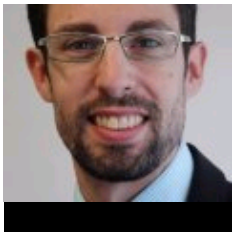
Share link:

http://tinyurl.com/osqdkg3

Subscribe to the UQ News weekly newsletter

Subscribe

fight against cancer 8 July 2014



UQ pharmacist scoops second national award 30 June 2014

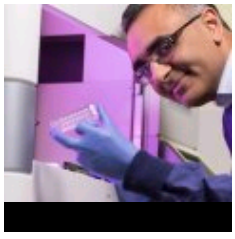
UQ and Siemens collaboration to advance MRI technology 27 June 2014

Study could lead to better treatment for child brain injuries 26 June 2014

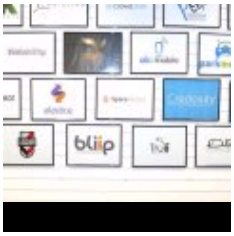
HEALTH + MEDICINE, INTERNATIONAL PROJECTS

Young ‘superbugs’ innovator receives prestigious Rolex Laureate 25 June 2014

RECENT HEADLINES



- 

  UQ students to become Disney World interns 12 August 2014
- 

  Start-ups to benefit from new capital fund 12 August 2014
- 
- More headlines

Brisbane St Lucia, QLD 4072
+61 7 3365 1111

Other Campuses: UQ Ipswich,
UQ Gatton, UQ Herston

Maps and Directions

A MEMBER OF

Privacy & Terms of use | Feedback

Authorised by: Director, Office of Marketing and Communications
ABN: 63 942 912 684
CRICOS Provider No: 00025B

QUICK LINKS

- For Media
- Emergency Contact

SOCIAL MEDIA

NEED HELP?

EMERGENCY

3365 3333

EXPLORE

- Giving to UQ
- Faculties & Divisions
- UQ Jobs
- UQ Contacts
- Services & Facilities
- Login