MONASH INSTITUTE OF MEDICAL RESEARCH

AN INITIATIVE OF MONASH UNIVERSITY AND SOUTHERN HEALTH

Media Backgrounder

Interfering with RNA interference

- Professor Bryan Williams and his team are using RNA interference to target specific proteins to attack cancer and viruses.
- Ribonucleic acid (RNA) is produced by every cell in the human body. RNA interference, or RNAi, is a naturally-occurring process that enables the body to develop normally and protect it against diseases.
- Professor Williams has exploited this natural process by creating short interfering RNA, or siRNA, that can be developed as drugs to combat virus infection and cancer.
- The development of siRNA-based therapies carries a risk that the drugs may induce a dangerous immune response.
- In some cases, the immune response may be beneficial, and attack and destroy the infection. However, this response can also be dangerous, as it may trigger further infection.
- Professor Williams and his team have overcome this, with their discovery that the structure of the siRNA plays a key role in whether a beneficial or harmful response takes place.
- By manipulating the siRNA to create short or blunt-ended strands, scientists can now dictate how the immune system's 'gatekeeper', an enzyme called helicase, is able to differentiate between the good and bad immune responses.
- Human trials using siRNA are currently underway, and Professor Williams believes his research will have a significant impact on how siRNA is used to develop cancer and virus-fighting drugs.