

New drugs treatment to help Parkinson's patients



Science & Technology
Facilities Council



STFC-funded Diamond Light Source is working with UK industry to better understand Parkinson's disease, which affects seven million people worldwide

BACKGROUND

Every hour someone in the UK is told they have Parkinson's disease, this equates to around 10,000 people diagnosed each year. This neurological condition causes tremors, slowness of movement and stiff muscles, making it difficult to walk, write or talk. There is currently no cure for the disease but drugs are the main treatment to control the symptoms and maintain quality of life.

DIAMOND LIGHT SOURCE & HEPTARES THERAPEUTICS

Diamond Light Source (the UK's national synchrotron facility funded by STFC and the Wellcome Trust) is being used by scientists from Heptares Therapeutics in search of a way forward. Experiments have led to a better understanding of the structure of a protein involved in Parkinson's disease and other neurological disorders. Their findings also suggest that coffee could be the key ingredient which paves the way for a new generation of targeted drug treatments.

Researchers from Heptares used one of Diamond's macromolecular crystallography beamlines to reveal the complex structure of the vital receptor in the brain and show how xanthine-based drugs such as caffeine bind to their target. Understanding more of what is happening at the molecular level is a major advancement. These receptors regulate the effects of neurotransmitters in the brain, cardiovascular and immune systems, and are of particular interest as a drug target for Parkinson's disease.

This research could also have broader clinical implications, presenting a wide range of opportunities as therapeutic targets in other areas including cancer, diabetes, obesity and pain management.

FAR REACHING

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“ Along with novel chemotypes discovered by our team, the structural data we collected at Diamond is enabling us to develop highly optimised next-generation drug candidates for Parkinson's disease and other neurological disorders –Dr Fiona Marshall, Chief Scientific Officer at Heptares ”