



THE FLORIDA STATE UNIVERSITY OFFICE OF IP DEVELOPMENT & COMMERCIALIZATION



Technology Opportunity

Flow-Through Lipid Nanotube Arrays for Structure-Function Studies of Membrane Proteins by Solid State NMR

This is new solid state NMR based technology that takes advantage of a recent finding in using Anodic Aluminum Oxide (AAO) nano-porous filters to uniformly align membrane proteins in the NMR spectrometer.

Applications

This novel NMR approach can be applied to all membrane proteins with well aligned membrane protein samples in bicelles or AAO filters. This approach can be used for drug development for all infectious diseases, including Mycobacterium Tuberculosis.

Advantages

- This NMR technique can be used for target-based screening for membrane proteins
- Allow pharmaceutical research to identify which protein targets may respond to drugs and which targets are relevant to disease.

Technology

The technology is similar to SAR by NMR but is applicable to Membrane Proteins, a class of proteins that accounts for more than 60% of all current drug targets. The membrane proteins are immobilized in Anodic Aluminum Oxide (AAO) nanoporous filters or in bicelles within a porous container and uniformly aligned with respect to the magnetic field. Mixtures of potential drugs are flowed over the membrane proteins and binding is assessed by solid state NMR spectroscopy. The drugs are washed out of the sample while the sample remains in the NMR spectrometer and a new mixture of drugs is flowed over the membrane proteins. The spectroscopy to access binding will utilize PISEMA-class experiments that correlate anisotropic spin interactions.

Technology Opportunity

The Inventors

T.A. Cross is the Earl Frieden Professor of Chemistry and Biochemistry and the Director of the NMR Spectroscopy and Imaging Facility at the National High Magnetic Field Laboratory. He received his PhD from the University of Pennsylvania in 1981 and became an Assistant Professor here at FSU in 1984. He has been funded by the National Science Foundation and National Institutes of Health for more than 20 years. He has over 160 publications and is an internationally recognized NMR spectroscopist as indicated by recent invitations to speak in Taiwan, Russia, Germany, Italy and India.



W.W. Brey leads the NMR Instrumentation program at the National High Magnetic Field Laboratory. Under his direction, the NHMFL has become a world leader in biological solid state probes and highly sensitive superconductive probes. Prior to joining the NHMFL in 1999, Dr. Brey was part of the Conductus/Varian team that developed the superconductive NMR spectroscopy probe. He received his PhD in 1994 at the University of Florida.



Jian Hu received his PhD in Medicinal Chemistry from Peking University in Beijing in 2004. He joined this reach at NHMFL in 2005.

For Licensing Opportunities Contact

Office of IP Development & Commercialization
2010 Levy Avenue, Suite 276-C
Tallahassee, FL 32306-2743
Jack Sams / E-mail: jsams@fsu.edu
Ph: (850) 645-0048
Fax: (850) 644-3675



THE FLORIDA STATE UNIVERSITY
OFFICE OF IP DEVELOPMENT & COMMERCIALIZATION

www.techtransfer.fsu.edu