

NMR sheds new light on polymorphic forms in pharmaceutical compounds

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Scientists at the University of Warwick have used state-of-the-art nuclear magnetic resonance (NMR) techniques to shed new light on how pharmaceutical molecules pack together in the solid state.

Researchers made use of the UK's largest solid-state NMR magnets, housed at the University of Warwick, to carry out the study in collaboration with Astra Zeneca and GlaxoSmithKline.

The analytical methods look directly at the hydrogen and [nitrogen atoms](#) that are at the heart of so-called [hydrogen bonds](#) which control how organic molecules self-assemble into different three-dimensional solid-state structures.

Professor Steven P. Brown from the Department of Physics at the University of Warwick said: "Screening polymorphic forms of [active pharmaceutical ingredients](#) is a key part of pharmaceutical development."

"The combination of high magnetic field and novel rf pulse methodologies are allowing us to look by NMR with high precision at the distinct intermolecular hydrogen bonding arrangements that help us understand why pharmaceutical molecules adopt different polymorphic forms."

"By using the University of Warwick's state-of-the-art facilities we are able to shed new light on this complex area."

More information: The two papers are available to view at the following links:

Bradley et al. *J. Pharm. Sci.* [onlinelibrary.wiley.com/doi/10 ...
2/jps.23078/abstract](https://onlinelibrary.wiley.com/doi/10.1002/jps.23078/abstract)

Tatton et al., *CrystEngComm* [pubs.rsc.org/en/Content/Articl ...
g/2012/CE/c2ce06547a](https://pubs.rsc.org/en/Content/ArticleView/2012/CE/c2ce06547a)

Provided by University of Warwick

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