No-D NMR *as low-cost and high-throughput measurements*

No-D NMR is a technique for measuring NMR signals of organic compounds without deuterated solvents but with normal solvents.

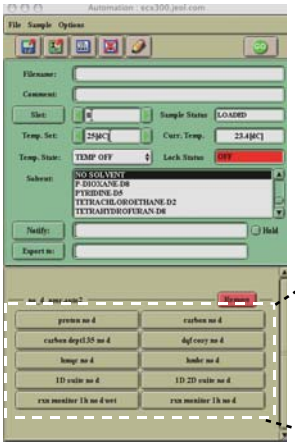
No-D NMR does not require deuterated solvents and so can save costs. Also, the process of dissolving samples in deuterated solvents is omitted, or reaction solution or distillation solution can be measured, as it is, in no-D NMR. Thereby, it can save total experimental time and can be applied to the samples unstable in preparation.

Processes of no-D NMR measurements

1. Resolution adjustments by ^{1}H-selective FG shimming for normal solvent signals.
2. Automatic detection and suppression of normal solvent signals.
3. Automatic referencing using normal solvent signals.

* NMR lock is not executed.

All the processes automatically run in ECA/ECX series.



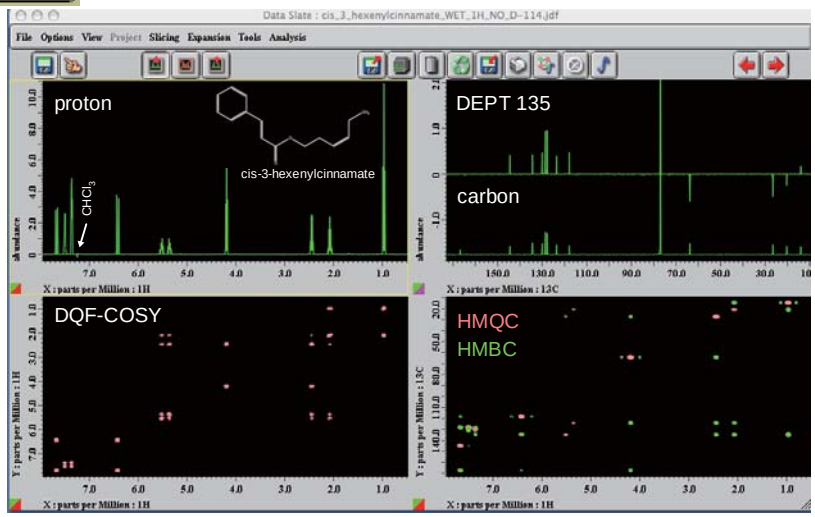
Automation tool

Method menu for no-D NMR

Click 

Samples are dissolved in chloroform.

Resolution adjustment, solvent peak suppression, and reference setting are automatically executed.



Results from “1D 2D suite no d”

< Reference >

No-D NMR Spectroscopy: A Simple Yet Powerful Method for Analyzing Reaction and Reagent Solutions

Thomas R.Hoye, Brian M.Eklow,Troy D. Ryba, Mikhail Voloshin, and Letitia J.Yao

Org.Lett.,6.953-956 2004

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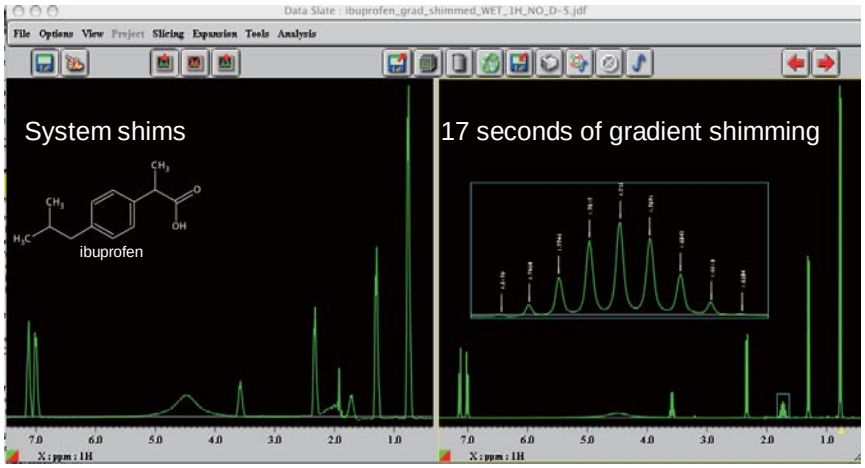
< Resolution adjustment by ^{1}H-selective FG shimming >

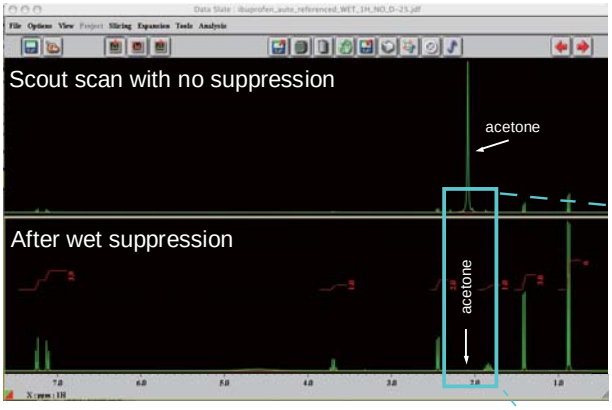
Resolution can be adjusted by FG shimming for a selected ^{1}H signal of the sample, such as a normal solvent signal. The result of ^{1}H-selective FG shimming is shown below.



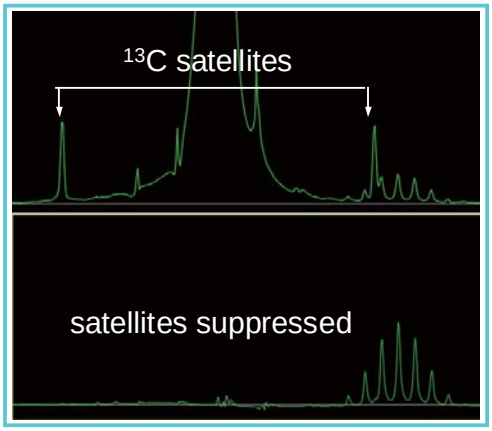
Before FG shimming After FG shimming

< Automatic detection and suppression of a normal solvent signal >

An automatic measurement of no-D NMR executes a scout scan to find a solvent signal to be suppressed.



WET solvent suppression is performed by setting a solvent peak position detected automatically (left).



WET can suppress ^{13}C satellites as well as a main peak (right).

- Note -
When solvent peaks are suppressed in no-D NMR, overlapped or adjacent peaks may be lost or reduced. In such cases, solvents should be chosen properly.

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