

# Mass Media

## JEOL

Mass Spectrometry News and Applications  
JEOL USA, Inc.  
August 2007  
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3rd Ed. Applications Notebook Online

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## Do It All at ACS Fall



### Demo the JEOL AccuTOF-DART™ and the New ECS NMR Spectrometer

Follow your reaction from start to finish: analyze your starting products, synthetic intermediates, reaction products and byproducts. JEOL USA will feature and demonstrate our new compact high-sensitivity ECS NMR spectrometer along with our AccuTOF mass spectrometer utilizing Direct Analysis in Real Time (DART) open air analysis each day of the ACS Fall 2007 Conference, booth #919-921.

#### NEW! ECS-400 MHz NMR Demonstrations

JEOL will showcase our new ECS series of Nuclear Magnetic Resonance Spectrometers, featuring advanced digital architecture, a compact console (the footprint is reduced to half the size of a conventional system), compatibility with both Windows and Mac operating systems, and our unsurpassed free site license Delta software package. See why JEOL has the most advanced cyber-enabled NMR for multiple users as our spectrometer can be controlled from any computer on the network worldwide.

#### [More information on the new ECS](#)

#### *AccuTOF-DART Mass Spectrometer*



AccuTOF-DART is cutting edge technology for real-time monitoring of chemical reactions, analysis of TLC plates, and characterization of synthetic and natural products. Analyze reaction mixtures by simply dipping a glass rod in the reaction pot



### Midwest Forensics Resource Center Uses AccuTOF-DART to build library of forensic ink profiles

"The great thing about the DART system is that it can sample the ink straight off the paper. You don't have to extract a sample first. Before DART, we had to cut a little bit of sample out and dissolve it in solvent for analysis. So, now we can look at the document without visibly altering it, which is good for forensic science. We don't destroy the evidence."

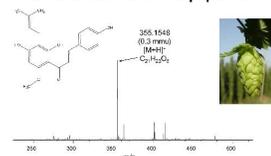
[Read the press release from Ames Laboratory.](#)

## Antioxidants Detected in Beer



Hops contain antioxidants, which means, beer can be good for you! See the spectra here.

### Xanthohumol in hop pollen



- Antioxidant present in beer.
- May have cancer chemopreventive activity.

Gerhauser et. al. *Molecular Cancer Therapeutics* v.1, pp. 956-959 (2002)

## See JEOL at These Events

### Fall ACS

Aug 19-23, 2007  
Booth #919/921  
Boston, MA

### SOFT

Society of Forensic  
Toxicologists  
Oct 13-20, 2007  
Chapel Hill, NC

### EAS

Nov 12-14, 2007  
Somerset, NJ



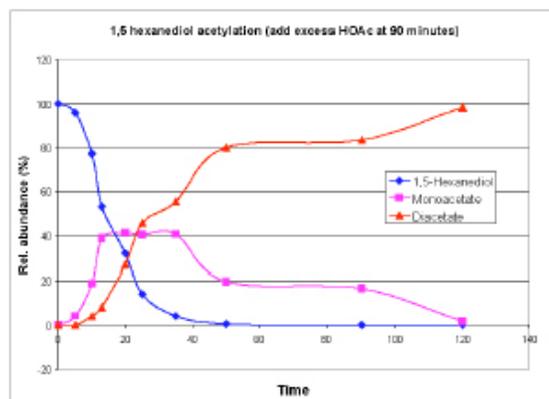
and dangling the rod in the DART source. Because DART analysis occurs in a stream of inert gas, even reactions involving air or moisture-sensitive reagents or products need not be compromised.

Our AccuTOF-DART mass spectrometer allows you to determine elemental compositions with ease and perform qualitative and quantitative analysis for both known and unknown compounds.

### [More information on AccuTOF-DART](#)

Please stop by our booth #919-921, call or email your [local representative](#) for additional information.

## Reaction Monitoring with AccuTOF-DART



Synthesis of 1,5-hexanediol diacetate monitored by AccuTOF-DART

*New technology makes it possible to monitor a reaction while it is in progress, so that the chemist can know whether a problem has occurred, when a reaction is complete, what the products and byproducts are, and whether the reaction conditions should be modified for better yield and efficiency.*

Using the direct analysis capability of the AccuTOF-DART™, the chemist can check the reaction at any time by simply dipping a glass rod or melting point tube into the reaction mixture and placing the rod in front of the ion source. Accurately measured masses and isotopic abundances are obtained in seconds, allowing the chemist to identify the elemental compositions and relative abundances of starting materials, reaction intermediates, products and byproducts.

An example of the use of the AccuTOF-DART Time-of-Flight MS to follow the progress of a simple reaction, the diacetylation of 1,5-hexanediol, is described in the JEOL USA applications note [MS-070307](#), available under Documents and Downloads on our [AccuTOF-DART page](#), our visit our website at [www.jeolusa.com](http://www.jeolusa.com).

## Quick Links

[Our Website](#)

[Mass Spec Products](#)

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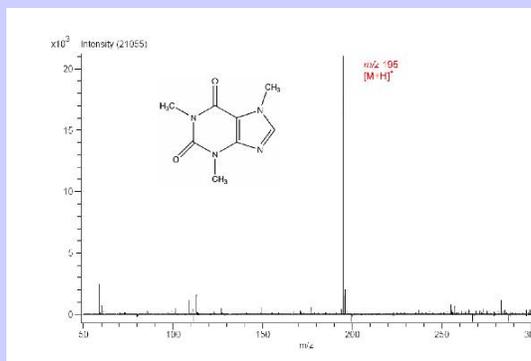
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## REALab Spotlights Researchers and Their Work

Interesting profiles of researchers and their work are the subject of a new section of JEOL USA's website. Check to see if someone you know is featured, or to learn how researchers are approaching routine or groundbreaking analysis. We continually update this section. Look for REALab on [www.jeolusa.com](http://www.jeolusa.com). Have an idea or suggestion for REALab? Contact us at [jeolink@jeol.com](mailto:jeolink@jeol.com).

## Open Air Analysis of TLC Plates



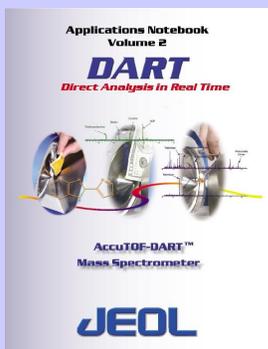
Analysis of spots on TLC plates is time-consuming and cumbersome, and carries with it the risk of material loss. Coupling high performance thin layer chromatography (HPTLC) with mass spectrometry typically employs electrospray ionization techniques. *Recently, HPTLC using direct analysis in real time, time-of-flight mass spectrometry (DART-TOF-MS) was used for food analysis.*

Substance zones positioned on the plate edge were directly introduced into the DART gas stream. Mass signals were obtained instantaneously within seconds. Read more in [LCGC Magazine June 2007](#)....

## Tutorials and Applications Notes

Bookmark [www.jeolusa.com](http://www.jeolusa.com) for complete access to useful mass spec [tutorials](#) and [applications notes](#).

The tutorials have been updated and include useful reference tables for day-to-day DART operation.



New! The 3rd Edition of the AccuTOF-DART Applications Notebook is now available online. To download the pdf file of this booklet, visit our [webpage](#). This booklet is also available as a color printed, spiral bound printed document that can be requested by contacting us at [jeolink@jeol.com](mailto:jeolink@jeol.com).

## JEOL Mass Spectrometers

All JEOL mass spectrometer systems feature exact mass, high-resolution capability.

### Open Air Analysis - No GC, No LC!

**AccuTOF™ DART™** The AccuTOF DART seamlessly integrates the AccuTOF time-of-flight mass spectrometer with the revolutionary DART ion source. Collect mass spectra by simply placing your sample in the ionization source gap, under completely ambient conditions. Also comes standard with an ESI source.

### LC/MS

**AccuTOF™ LC** A time-of-flight mass spectrometer system designed for

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LC/MS. Available ion sources include ESI, APCI, micro ESI, nano ESI, corona ESI and dual ESI.

#### **GC/MS**

**AccuTOF™ GC** A time-of-flight mass spectrometer system designed for GC/MS. Available ion sources include EI, CI, DEP/DIP and FD/FI.

**GCmate™ II** A benchtop size, high-resolution, double-focusing magnetic sector system. EI and CI sources come standard. FAB and linked scan capability are also available.

#### **High-Performance Magnetic Sector**

**MStation™** A full-featured, magnetic sector mass spectrometer available for both LC/MS and GC/MS analyses.

### **JEOL USA Captures 7th Award for Customer Support**

JEOL USA has been recognized for outstanding service and support of its customers for seven consecutive years. To learn more about our award-winning service, visit our [webpages](#).