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***For immediate release...***

### **BioTools celebrates growth of VCD at Chirality Meeting**

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Vibrational circular dichroism (VCD), a new tool for determining the absolute configuration of chiral molecules, was a key highlight of the recent 24<sup>th</sup> International Symposium on Chirality, held June 10-13 in Fort Worth, Texas. VCD pioneer, BioTools (Jupiter, FL) was on hand, not only sponsoring the exhibitor's luncheon and the poster awards, but also proudly awarding the Best Poster Given by a Young Scientist for the thirteenth year.

VCD is especially important for the pharmaceutical industry because the sooner the specific chiral structure is defined, the sooner the bioactivity can be determined. The drug can then come to market more rapidly, saving money and, often, lives. Many of today's blockbuster drugs are chiral molecules, including Lipitor, Plavix, and Nexium. NASA's Mars program is also interested in VCD because chirality is the ultimate differentiator between just a soup of organic molecules and life.

However, VCD experiments were difficult until BioTools developed the first commercial vibrational circular dichroism spectrometer in partnership with ABB Bomem in 1997. "We commercialized a new technology that solves fundamental questions which organic chemists encounter every day", stated BioTool's president, Dr. Rina Dukor.

Chiral molecules exist widely, both in nature and among man-made materials. Like our own left and right hands, they are non-superimposable mirror images of each other and form pairs of "stereoisomers" or "enantiomorphs." Proteins, amino and nucleic acids, carbohydrates and many pharmaceuticals exhibit chirality. Because our chemistry and that of all biological organisms recognizes and responds only to specific chiral patterns (just the right or just the left stereoisomer), chiral molecules define critical biological activities such as metabolism and drug uptake.

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While the VCD experiment to characterize chirality has been challenging, the principle is straightforward. When plane polarized light is passed through a chiral material, this molecular “handed-ness” causes the plane of polarization to rotate. The direction and amount of rotation are key optical properties. If instead circularly polarized infrared light is used, delicate differences in IR absorption can be measured between the right versus left circularly polarized beams. These differences arise from vibrational changes (ex: bending and stretching) in the molecular geometry as the material interacts with the IR illumination, providing definitive information about the molecule’s three-dimensional chiral structure and its potential bioactivity.

A quick scan of the Chirality meeting program reveals VCD’s dramatic growth. Originally, the program contained only one technical talk. Now multiple sessions offer over a dozen presentations. In addition to a symposium dedicated specifically to molecular chirality there are also two sessions on chiral spectroscopy, primarily devoted to VCD or its sister technology, ROA (Raman Optical Activity) which uses the selective scattering of circularly polarized light to make a chemical “fingerprint” of the molecule. The patent record adds further credence to the spread of this new technology: VCD has been mentioned as the source for the determination of absolute configuration in over 100 patent applications for new chiral molecular entities.

For further information about this valuable new tool, visit [BTOOLS.com](http://BTOOLS.com)

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*About BioTools:*

BioTools is the recognized leader in advanced chiroptical instrumentation, software, and services. We provide solutions for critical molecular structure characterization, from basic research to finished products, for biopharmaceutical and chiral drug research in both academe and pharma.

Founded in 2000, BioTools has R&D, sales, customer support, contract research lab and manufacturing facilities in Jupiter, Florida, and a division, BioTools Europe, headquartered in the United Kingdom. Additionally, we enjoy a partnership with the Ghent University and the University of Antwerp in the recently commissioned European Centre for Chirality (EC2) ([www.chiralitycentre.eu](http://www.chiralitycentre.eu)).

*About the Chirality meeting:*

The 24<sup>th</sup> International Symposium on Chirality (Chirality 2012: ISCD-24) is the largest and most complex meeting covering all developments related to molecular chirality and its associated impact on science and technology. Begun in 1988, it is an international forum which alternates between the United States, Europe, and Asia.