

Key Organics

Chemistry | Innovation | Quality

The Home of **BIONET**

Analytical Services



T: +44 (0)1840 212137 E: enquiries@keyorganics.net

Analytical Services



Chemistry Services & Support

Key Organics provides access to high quality analytical services and support for the pharmaceutical, agrochemical, petrochemical and allied industries, including;

- Compound identification and structure elucidation
- Compound purity screening
- Compound purification
- HPLC and GC method development and/or optimisation
- Time effective turn around

Compound Storage and Stability Testing

Many of our clients have made use of our storage and testing facilities. Compounds can be weighed out on request, in preferred vials and shipped to the client's desired location. We can also perform regular QC checks (LCMS, NMR) to provide valuable stability data to monitor compound stability during storage.

NMR Spectroscopy

Bruker 400MHz AVIII NMR equipped with a $^1\text{H}/^{13}\text{C}$ multinuclear probe. Utilising Topspin and IconNMR software, the instrument is capable of performing routine 1D experiments and 2D experiments such as COSY, HSQC, HMBC, and NOESY –plus variable temperature and solvent suppression experiments. Quantitative NMR (qNMR) is available as an alternative method of purity determination, especially for samples unable to be tested via HPLC/LCMS or GC.

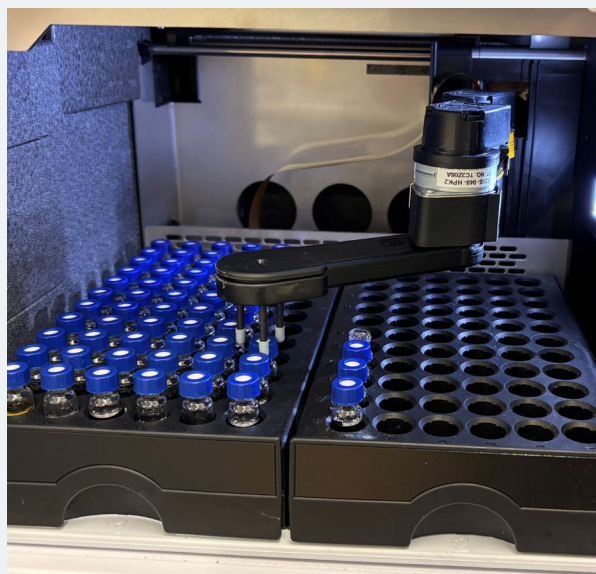
Liquid Chromatography

LCMS

Agilent LCMS, 1260 LC Infinity I and a 1260 LC Infinity II, both equipped with binary gradient pumps and multiple wavelength UV/Vis detectors. Coupled with an Agilent 6130 Single Quadrupole Mass Spectrometer and an ELSD; and an Agilent MSD IQ Single Quadrupole Mass Spectrometer respectively. Our instruments can analyse a wide range of samples using multimode APCI and ESI ionisation methods and mass ranges from 70–3000 M/Z, as well as being capable of analysing compounds without chromophores.

HPLC and Chiral LC

Agilent 1100/1200 HPLC systems, equipped with binary gradient pumps and diode array detectors.



ANALYTICAL DEPARTMENT CASE STUDY:

Identification and Synthesis of an Active "Unknown"

Key Organics was approached by a project manager in a start-up company that was seeking to develop a platform to identify potential active compounds from fragment-based assays. It appeared that a known fragment was decomposing to an unknown product that bound strongly to the target enzyme. The customer wanted our assistance in identifying the structure of the unknown and then synthesising it in pure form for further testing.

The project was managed by one of our Senior Chemists, in close collaboration with our analytical department. Throughout the project, the customer was in direct email contact with the project chemist enabling the smooth communication of results and project deliverables. At key points in the project, brief teleconferences were arranged to set the direction of future work.

Firstly, our Agilent LC-MS system was used to follow the decomposition process. The mass difference observed during the process indicated that a slow oxidation was taking place. The chemist found that the process could be accelerated by the addition of a mild oxidising agent, enabling the isolation of around 2 mg of the pure unknown using our Teledyne Isco preparative HPLC system and MechaTech LyoDry freeze drier. The unknown was then analysed using a variety of NMR techniques, enabling our chemist to propose a structure that would fit the NMR and MS data. The proposed target molecule was then synthesised in a larger quantity via an unambiguous route. All the spectral data perfectly matched the unknown, indicating a correct structural assignment.

Why choose us?

Advanced technology:

Our analytical laboratory is equipped with a variety of instruments to ensure the highest level of accuracy and sensitivity.

Expert team:

Our chemists have extensive experience and are committed to providing insightful and reliable data. We tailor our services to meet the needs of your project, ensuring optimal results.

Fast turnaround:

We understand the importance of timely results and strive to deliver our services promptly without compromising quality.

Our customers can expect same-day results for ^1H -NMR and LCMS samples. ^{13}C -NMR samples are generally run overnight and the results are available the following day.

Why you can count on Key Organics:

Our dedication to Quality Management is demonstrated by our ISO 9001:2015 Accreditation supported by BSI and UKAS.



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Gas Chromatography

Agilent 7890 GC, equipped with autosampler, split/splitless inlet and flame ionisation detector.

Coulometric Karl Fischer Titration

Moisture and water content analysis by KF titration using our Mettler-Toledo C30s.

Differential Scanning Calorimetry

Differential Scanning Calorimetry (DSC) Thermal analysis and heat flow measurement using our DSC 25 from TA Instruments.

Optical Rotation

Optical Purity determination of samples through the use of our Bellingham + Stanley ADP220 (Automatic Digital Polarimeter) system.

Key Organics Facts:

Who are we?

An international CRO based in the UK with over 38 years of expertise in synthetic organic chemistry.

Our customers:

We work with clients in the pharma, biotech, consumer health, agrochemical and petrochemical industries. We also have extensive experience of working with academic groups at universities and spin-out companies.

Our Services:

We offer a wide-range of bespoke chemistry solutions, from the custom synthesis of a single compound to multiple, long-term FTE projects.



- Collaborative R&D
- FTE Services
- Custom Synthesis
- Process R&D/Scale up
- Analytical Chemistry
- Consultancy

Flexibility:

We work closely with our customers through the entire process – especially as project milestones often change and resources must be adjusted along the way.

Why work with us?

With established fragment libraries, our extensive BIONET product portfolio and a proven track record in synthetic organic chemistry, Key Organics can support your discovery and development chemistry needs. Our Project Managers and Scientists are highly experienced at managing complex projects. We utilise ELN, Reaxys, DataWarrior and other software tools to facilitate projects and information exchange.



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