

# Biosolve



Leader in:

- **DNA & RNA**  
Synthesis Reagents
- Ancillary Reagents
- Synthetic  
Phospholipids
- Dyes



- advancing biotechnology research
- developer of innovative DNA & RNA,  
synthetic lipids and dyes

Expertise in the specialist chemistry, purification and analytical techniques required to synthesise these challenging compounds.



# BIOSOLVE EXPERT IN DNA & RNA SYNTHESIS REAGENTS

Biosolve produces and distributes high purity fine organic chemicals from gram to multi kilo scale. Biosolve has developed unique and proprietary pathways to demanded molecules required for R&D or industrial production.

**B**iosolve takes advantage of its highly trained team of chemists which includes Ph.D's, chemical engineers and technicians and has access to most of the analytical techniques to ensure the purity and identity of the molecules produced. Multi-step syntheses follow established manufacturing master files (MMF) enabling batch reproducibility and easy scaling-up when needed.

Having produced and marketed such chemicals for over 30 years, we are well acquainted with the shipping procedures and cumbersome regulatory paperwork accompanying such activity.

## Leader in products, services and R&D projects dealing with:

- Standard Phosphoramidites
- RNA Phosphoramidites
- Speciality Amidites & Modifiers
- Synthesis Support
- Ancillary Reagents & Formulations for DNA & RNA synthesizers
- Fully Synthetic Sphingolipids
- Sphingosines
- Sphingosines derivatives and isomers
- Sphingomyelin
- Ceramides
- 2-Lyso-phospholipids
- Diacylglycerols
- Biomolecule Synthesis Service

## Nucleoside and Nucleotide Services

Biosolve has particular expertise in the specialised chemistry, purification and analytical techniques required to synthesise these challenging compounds.

## Capabilities

Led by highly experienced project managers, our team can undertake all aspects of nucleoside and nucleotide projects.

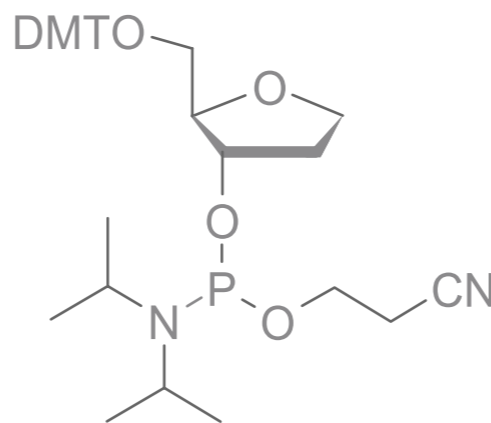
We have considerable experience in the relevant synthesis of nucleoside structure; for example:

- Novel sugars (hexitol analogues, cyclohexenyl analogues, ribose, TNA...)
- Novel purine and pyrimidine-derived bases such as pyrazolo-triazin derivatives
- Innovative use of couplings
- Incorporation of new linkages and further synthetic manipulation of nucleotides

Compound purification and characterisation are achieved by:

- HPLC and Ion exchange systems and methods specifically for nucleosides/nucleotides
- ELS & MS prep. HPLC detectors for purification of specific sugars
- Freeze dryer for isolation of purified material
- 250 & 400MHz NMR for stereochemistry determination experiments
- PAGE purification

biosolve-chemicals.eu



## Custom Synthesis

Biosolve's business has been built around its unique chemistry skills and experience in custom synthesis. By using novel chemical synthetic approaches alongside classical methodologies, Biosolve has earned a reputation for completing even the most challenging syntheses on time and to full requirement.

## Experience and innovation in chemistry

Over the years, Biosolve has developed its chemistry expertise by undertaking a large number of diverse projects. Customers will often supply a known synthetic pathway but Biosolve's chemists also use their own expertise and knowledge to devise innovative solutions or improve synthetic pathways to provide a higher quality end product.

## Expertise

The following examples are the kinds of projects that have been completed under a 'custom synthesis' arrangement: Scale-up and development of synthetic pathways to a novel series of Pyrazolo-triazin, Synthesis of dyes such as Bodipy, Cyanines..., Solid substrate synthesis including very complex conjugates, Resolution of enantiomers through salt formation, Milligram to kilogram scale-up through partnership.

## Analytical Chemistry

Biosolve operates state-of-the-art analytical labs equipped with the



best in modern instrumentation. The analytical labs offer open access, in-process and problem-solving support to Biosolve's synthesis labs as well as providing comprehensive independent analysis data for all final compounds before shipment.

## Chromatography

A range of analytical scale HPLC and GC equipment as well as semi-preparative scale HPLC equipment provides the following capabilities

- Reverse Phase, Normal Phase and HPLC methodology
- Isocratic and gradient HPLC elution
- UV/visible, diode array, light scattering and MS detection (HPLC)
- Isothermal and temperature ramp capillary GC column methodology (FID detection)
- High throughput rapid LCMS testing
- Purity determination methods developed for specific compounds
- Rapid preparative HPLC purification of multiple compounds
- Targeted preparative HPLC purification/separation of specific molecules

## NMR Spectroscopy

A fully automated high resolution 250 & 400MHz variable temperature, multinuclear NMR spectrometer provides the following capabilities

- Open access 1D spectra for <sup>1</sup>H, <sup>13</sup>C, <sup>19</sup>F and <sup>31</sup>P nuclei
- Open access 2D spectra such as COSY, HETCOR, NOESY
- On request, specialised experiments such as 1D nOe difference, other nuclei
- Structural confirmation/elucidation
- Purity determination

## Mass Spectrometry

The analytical labs are equipped with the latest state-of-the-art single quadrupole mass spectrometers equipped with ESI source. These can be coupled to HPLC in order to identify impurities and degradation components.

## About NucleoSyn

Since July 2006, NucleoSyn has been a new force in advancing biotechnology research, both as a developer of innovative DNA & RNA monomers and synthetic lipids & dyes.

A well-established collaboration with the University of Orléans (ICOA – Institut de Chimie Organique et Analytique) and the Centre de Biophysique Moléculaire (CNRS Orléans) affords NucleoSyn unprecedented expertise in many fields of organic chemistry.

## Innovations & on-going projects

Researchers at NucleoSyn combine expertise in synthetic chemistry, molecular biology and engineering. This expertise has led to research & development collaborations with many biotechnology, academic and pharma companies.

## Method development

Typical method development areas in which **Biosolve** specialises include:

- Purity and identity testing of products from discovery and development
- Purity and identity testing of raw materials, intermediates and final products
- Methods in support of synthetic organic reaction monitoring
- Preparative HPLC purification

## Biosolve is the leading company for products, services and R&D projects dealing with:

### DNA & RNA synthesis products

Standard Phosphoramidites  
RNA Phosphoramidites  
Speciality Amidites & Modifiers  
Synthesis Support  
Ancillary Reagents & Formulations for DNA & RNA synthesizers

### Fully Synthetic

Sphingolipids  
Sphingosines  
Sphingosines derivatives and isomers  
Sphingomyelin  
Ceramides

### Dyes

Cyanine  
Oxonol  
RH Dyes  
Styryl

### Biomolecule Synthesis Service

Transfection kits

# Biosolve

## SOLVENT IN PURE FORM

Solvents, reagents, formulations for research, pharmaceutical, chemicals, food processing industries and biotechnology.

Biosolve has been producing and distributing high purity, high quality products for 30 years.

ISO 9001

Biosolve  
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