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The life science business of Merck
operates as MilliporeSigma in the
U.S. and Canada.

Sigma-Aldrich®
Lab & Production Materials

contents

Disciplines:

**Synthetic
Chemistry**

**Polymer
Chemistry**

**Inorganic
Chemistry**

Biochemistry

Interdisciplinary Subjects:

**Available
Chemistry for
Productivity**

**Smart Up
Your Lab**

**Safety
Inside**

**Contact &
Technical Service**



With the most in-stock, available chemistry portfolio, we're supporting your productivity.



We know you work hard and want to help make you even more productive. Our extensive chemistry portfolio is more in-stock than other providers, paired with quick, reliable delivery, meaning you can advance your research faster. We also offer range of time saving solutions that allow you to focus more on the science.

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smart up your lab



EMSURE® products come with the new smart label and in unique packaging with suitable safety equipment. They offer highest quality and compliance to international norms. Thus, you will benefit from easy data access, safe and convenient use as well as reliable results, less number of analysis and compliance.

- **Smart Products** — We offer a comprehensive portfolio of EMSURE® products with reliable quality for trusted results
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- **Smart Labels** — Our new smart label is a 2D data matrix barcode that contains product data encoded using Global Standard One (GS1) specifications.

Note: Smart up your lab is currently limited to EMSURE® portfolio.

safety inside



Daily safety, risk prevention and emergency help that meet your high expectations. Our safety and essentials product portfolio combined with individual support makes it easy to work safely and conveniently, to save resources and to fully concentrate on daily lab work.

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- Maintain your daily safety with our tools and products designed for lab safety and easy handling

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lab-safety](https://SigmaAldrich.com/lab-safety)

synthetic chemistry Research Fields



Small Molecule Synthesis

Total Synthesis Workflow

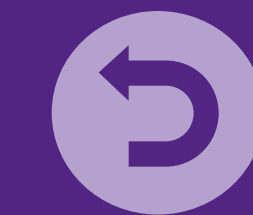
Medicinal Chemistry Workflow

Catalysts Workflow

Synthetic Biochemistry

Peptide Synthesis

Oligonucleotide Synthesis



Small Molecule synthesis



Total Synthesis Workflow

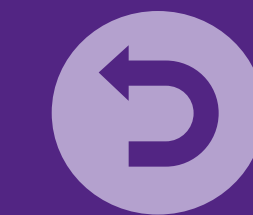
Retrosynthetic
Analysis

Synthetic
Methods

Analysis

Workup

Purification



Small Molecule synthesis



Total Synthesis Workflow

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

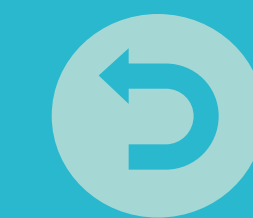
Workup

Purification

Synthia



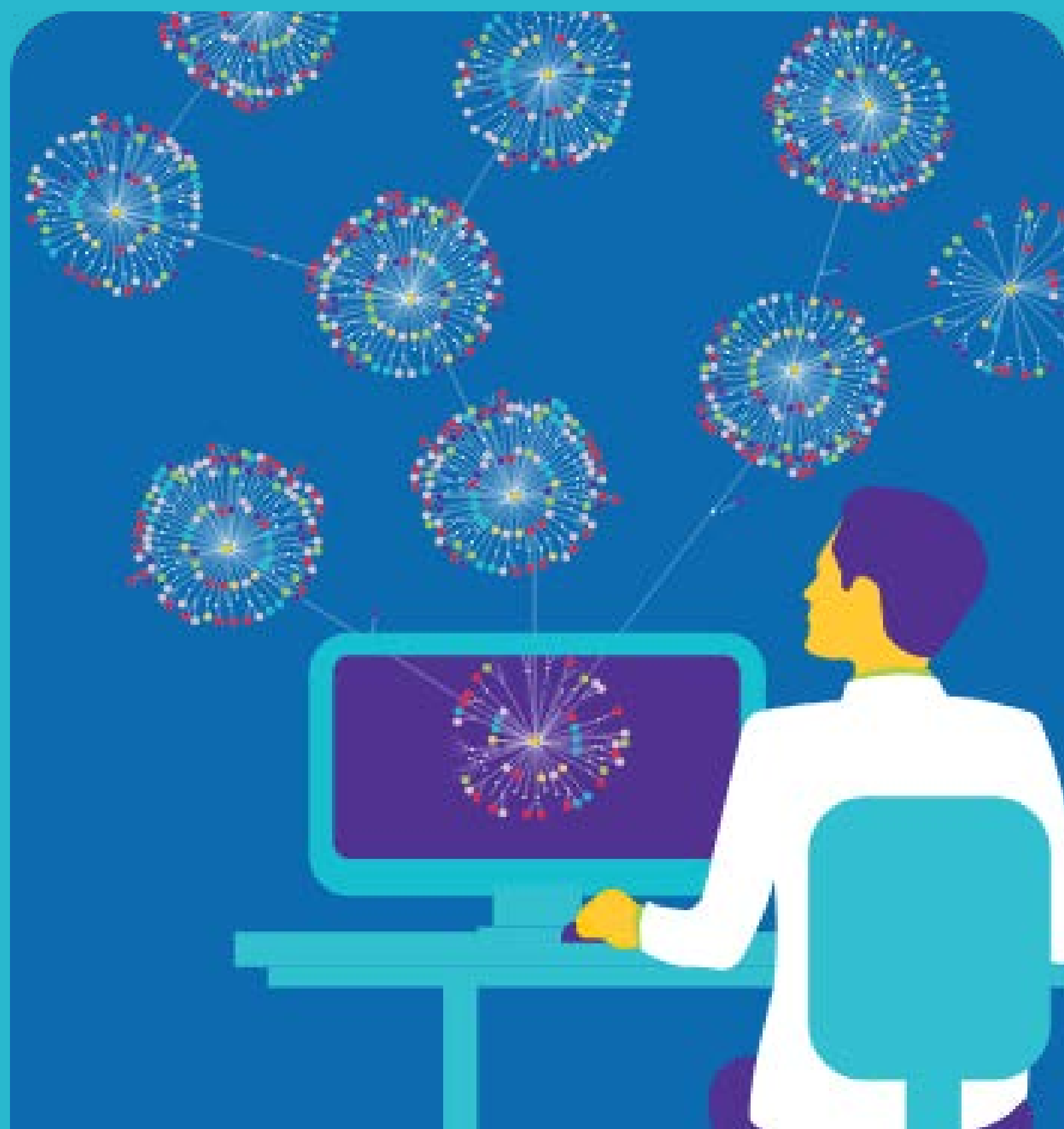
synthia™ Retrosynthesis software



- Easily analyze tens of thousands of pathways for known and novel molecules against search criteria
- Combines powers of network theory, advanced computing and chemical expertise
- Speeds up pathway design from weeks to minutes, reduces costs by half
- Coded by chemists
- Proven, published and peer-reviewed by six chemists

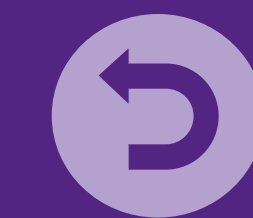
Products

- **Synthia™ Evaluation software license (3 months)**
- **Synthia™ Enterprise software license (12-36 months)**



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Small Molecule synthesis



Total Synthesis Workflow

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

Workup

Purification

Building Block
Explorer

Catalysts



Building
Blocks

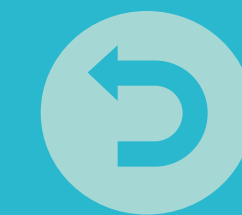


Solvents



Synthetic
Reagents

Stable Isotopes
Reagents &
Intermediates



Increase the rate of your reactions with our unparalleled portfolio of catalysts for your organic and organometallic chemistry breakthroughs. The field of catalysis is a wide and diverse field that attempts to emulate the refined function of enzymes, nature's own catalysts. We supply a large variety of catalysts and metals that are of increasing importance to synthetic organic chemist. Our extensive portfolio of catalysts are ready to ship today and arrive fast with industry leading shipping times.

Photoredox Catalysis

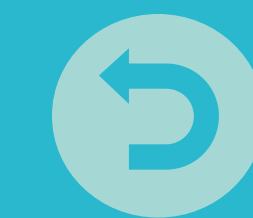


KitAlysis



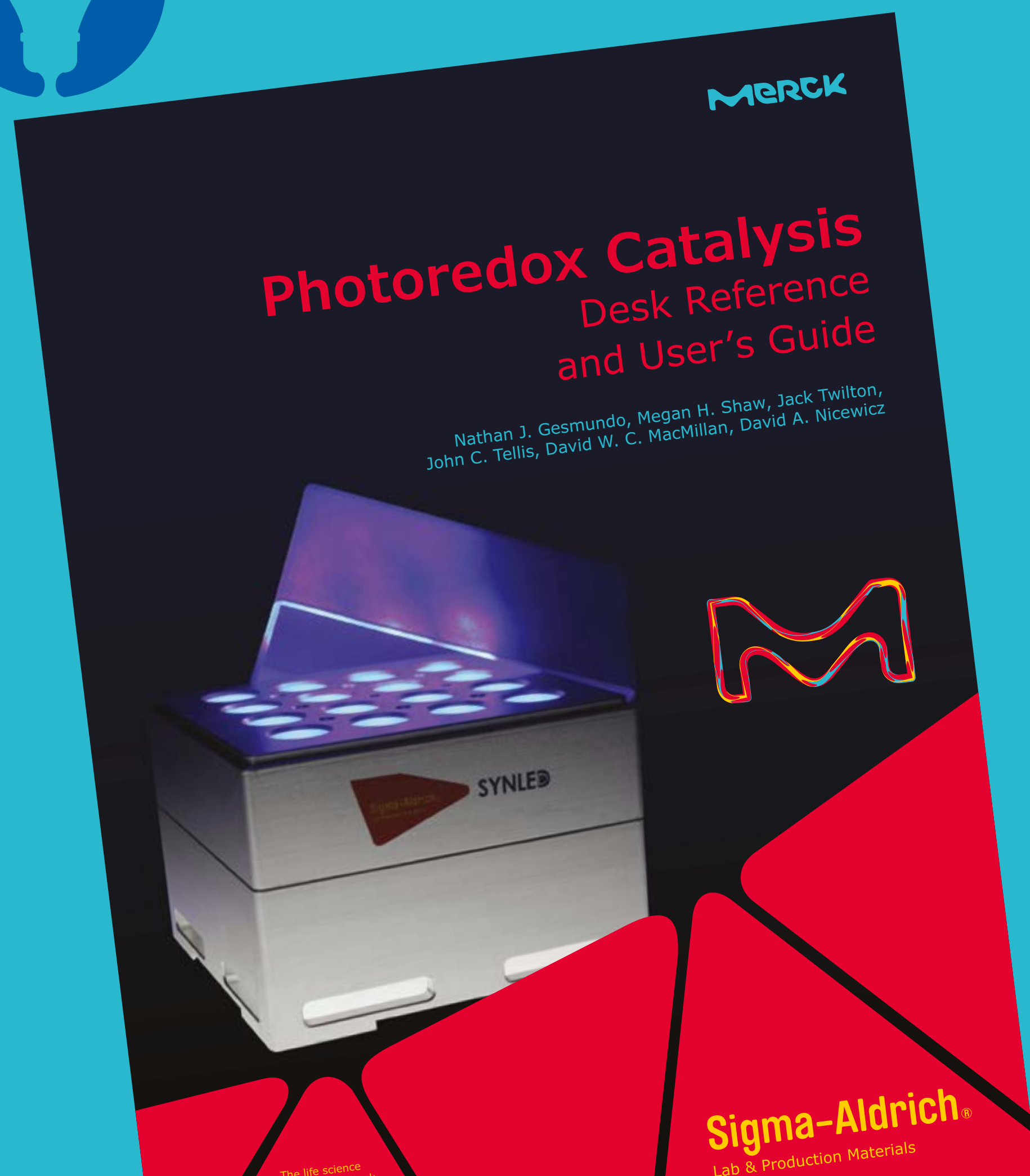
Catalyst Catalog

photoredox catalysis Reactors



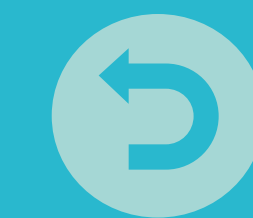
Photoredox catalysis is a powerful tool in organic chemical synthesis that utilizes visible light to power a chemical reaction. Widespread adoption of visible light photoredox catalysis has been dependent on access to photocatalysts and a reliable light source. We're pleased to support your photocatalysis endeavors to create new bonds and rapidly assemble complex products.

- Complete solution for photoredox catalysis to illuminate syntheses
- Powerful iridium- and ruthenium-based photocatalysts popularized in the last decade
- Photoreactors offering consistency and reproducibility in every stage of reaction development



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Photocatalysis Portal:

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photocatalysis](https://SigmaAldrich.com/photocatalysis)



In optimizing chemical reactions, flexibility, precision and reproducibility are required of the synthesis tools with which the experiments are carried out.

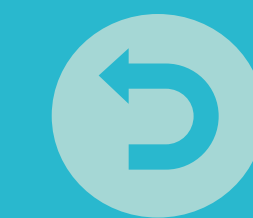
- Pre-plated high-throughput screening kits
- Allow chemists to run 24 unique microscale reactions in parallel under tailored conditions (no glovebox required)
- Help chemists quickly optimize important reactions with minimal use of costly intermediates
- Drastically reduce number of discrete reactions required for optimization, thus saving costs

High-Throughput Screening Kits

- Buchwald-Hartwig amination
- Suzuki-Miyaura cross coupling
- 24x1 Pd catalysts
- Metathesis
- Photoredox catalysis
- Borylation
- And more

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Product Details:

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We've been your trusted source for chemical building blocks for over 50 years. Our catalog products are tested in-house to meet stringent quality standards and ship at industry leading speeds. Find the basic components needed to drive your research forward in our unparalleled portfolio of building blocks.

In addition, we continue to expand our chemistry portfolio by offering partner products via SigmaAldrich.com. With the ability to search and order from 21 preferred reliable suppliers we have created a one stop shop for finding and ordering in-stock organic building blocks.

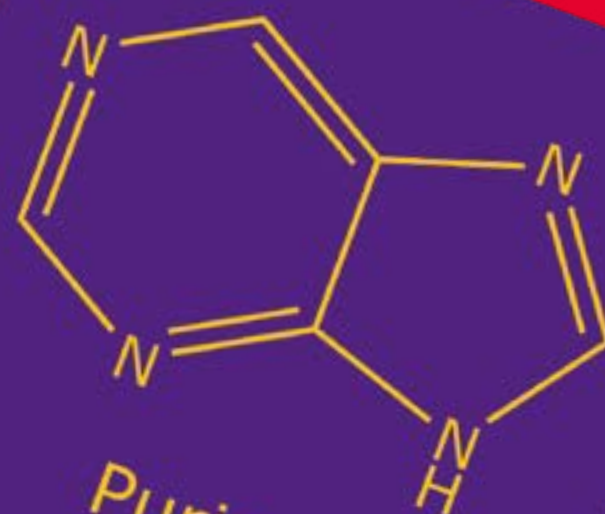
- Combined with our core offering of high quality reagents and catalysts, we now offer ease of search, selection, and procurement to support your research.
- Our partner expansion includes nearly 320K additional unique structures (~1.2M SKUS) that represent chemistry that is "in-stock" and ready for shipment by the supplier partner.



Furan



Thiophene



Purine

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Block Information:

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solvents, salts, Acids/Bases

Supporting all your essentials lab needs with top-quality, easy-to-use products, designed to integrate intuitively into your workflow and ensuring your research reliability

Specialty Solvents

- **Anhydrous** – extremely low water content, specifically for moisture-sensitive synthesis
- **Biotech** – low water content with minimal residues and clean UV spectra
- **NMR** – wide range of purity and deuterium (% D) to support your basic reaction check to final product analysis

Core Solvents & Inorganics (Salts, Acids/Bases)

- **ACS Grade** – Meeting/exceeding the high standards of the American Chemical Society for synthesis and purification
- **Reagent Grades** – ideal for trial synthesis, preparation, experiments that need fewer specifications
- **Green Solvents** – Bio-renewable and greener solvents support the framework of sustainability and green chemistry
- **Redi-Dri™ Free-Flowing Salts** – eliminates clumps in a broad range of common hygroscopic salts without any chemical additives, providing ready-to-use and clump-free material



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Solvents

Salts/Acids/Bases

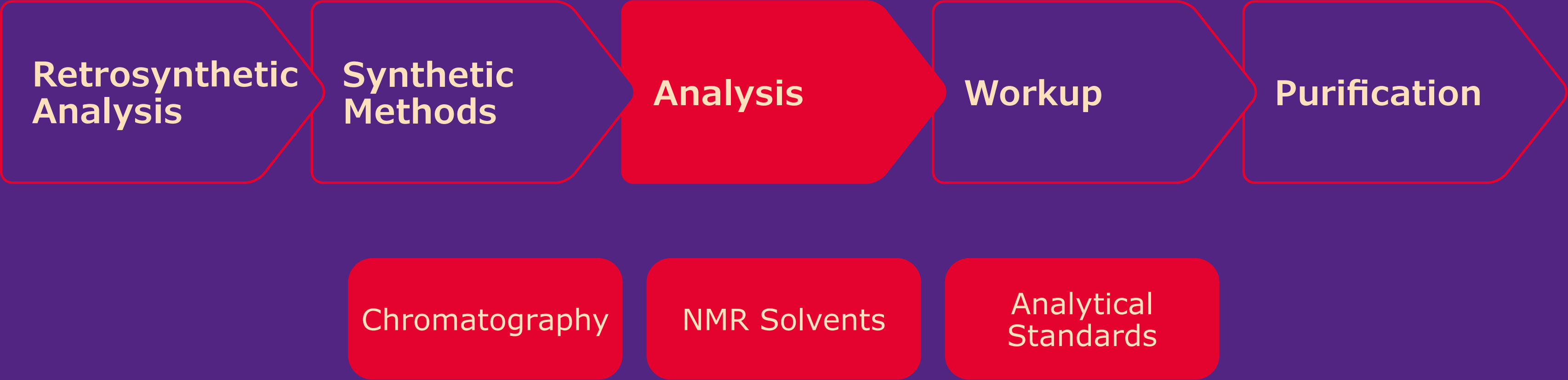
Sigma-Aldrich®
Lab & Production Materials

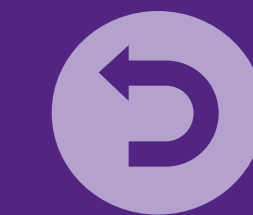


Small Molecule synthesis



Total Synthesis Workflow





Small Molecule synthesis



Total Synthesis Workflow

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

Workup

Purification

Solvents



Salts/Drying
Agents

Acid/Bases

solvents, salts, Acids/Bases

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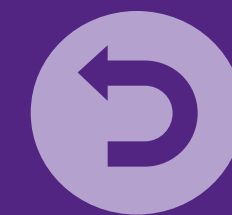


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Solvents

Salts/Acids/Bases

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Small Molecule synthesis



Total Synthesis Workflow

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

Workup

Purification

Purification
Consumables

Solvents



solvents, salts, Acids/Bases

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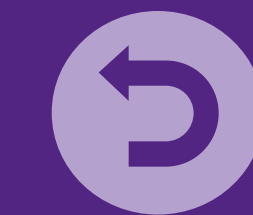


Learn More

Solvents

Salts/Acids/Bases

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Small Molecule synthesis



Medicinal Chemistry Workflow

**Lead
Discovery**

**Retrosynthetic
Analysis**

**Synthetic
Methods**

Analysis

Purification

**Chemical
Biology**



Small Molecule synthesis



Medicinal Chemistry Workflow

Lead
Discovery

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

Purification

Chemical
Biology

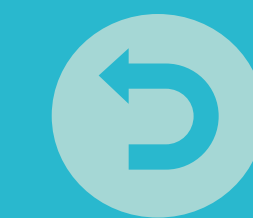
Aldrich Market
Select

Bioactive
Compounds

DNA-Encoded
Libraries



off-the-shelf DNA- encoded Libraries



- We partnered with DyNABind® to offer market's first off-the-shelf DNA-encoded library (DELs)
- DEL technology provides an entire screening library in a single vial for immediate and easy screening. Hits are identified through unique DNA barcode on each molecule.
- Cost-effective alternative or complement to high-throughput screening (HTS) for lead discovery

Products

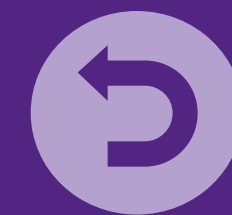
- **DyNABind® DNA-Encoded Fragment Library**
- **DyNABind® 10 Million Compound DNA-Encoded Library**



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Product Details:

**DyNABind® DNA-Encoded
Fragment Library**

Small Molecule synthesis



Medicinal Chemistry Workflow

Lead
Discovery

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

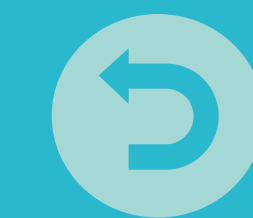
Purification

Chemical
Biology

Synthia



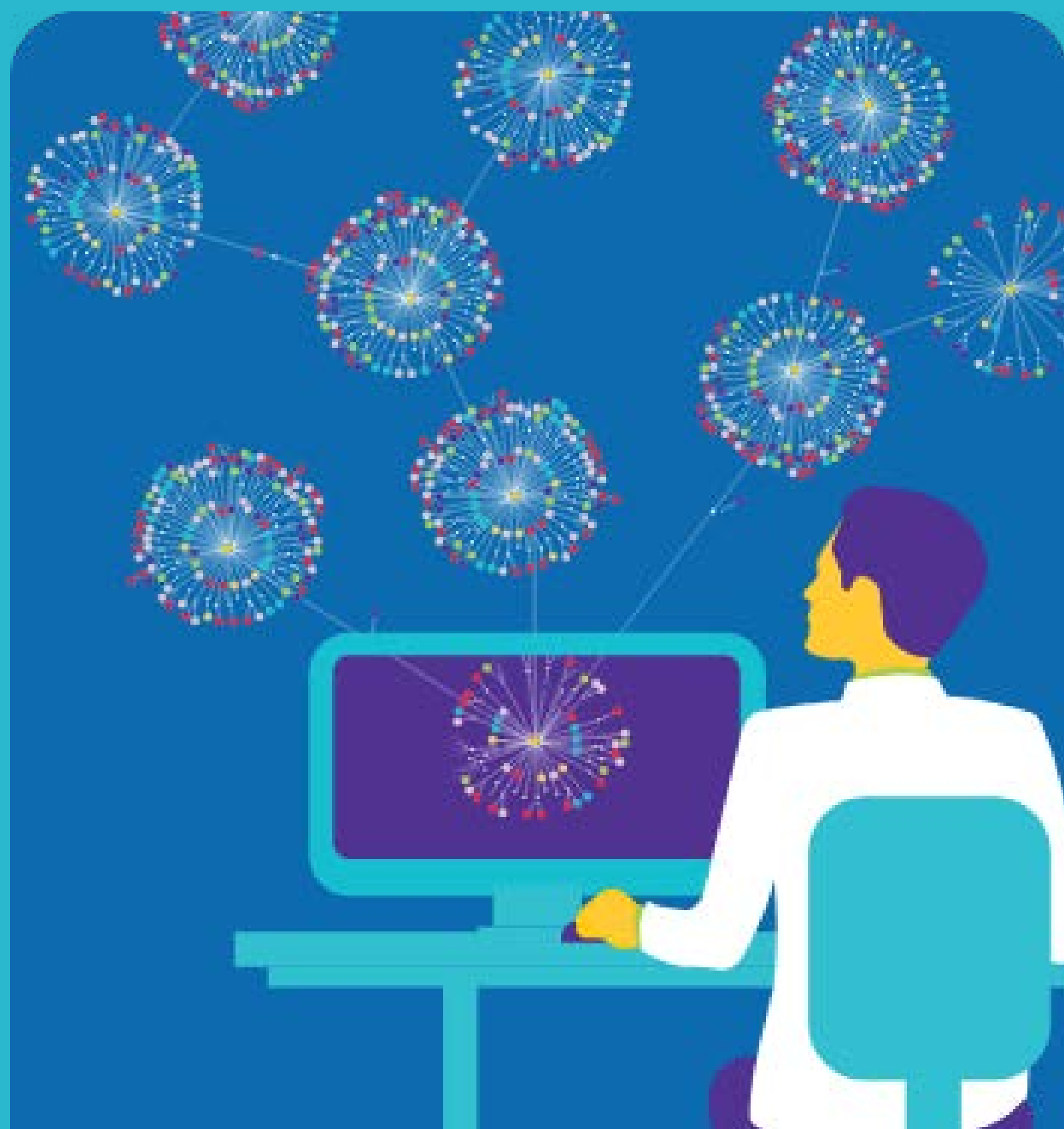
synthia™ Retrosynthesis software



- Easily analyze tens of thousands of pathways for known and novel molecules against search criteria
- Combines powers of network theory, advanced computing and chemical expertise
- Speeds up pathway design from weeks to minutes, reduces costs by half
- Coded by chemists
- Proven, published and peer-reviewed by six chemists

Products

- **Synthia™ Evaluation software license (3 months)**
- **Synthia™ Enterprise software license (12-36 months)**



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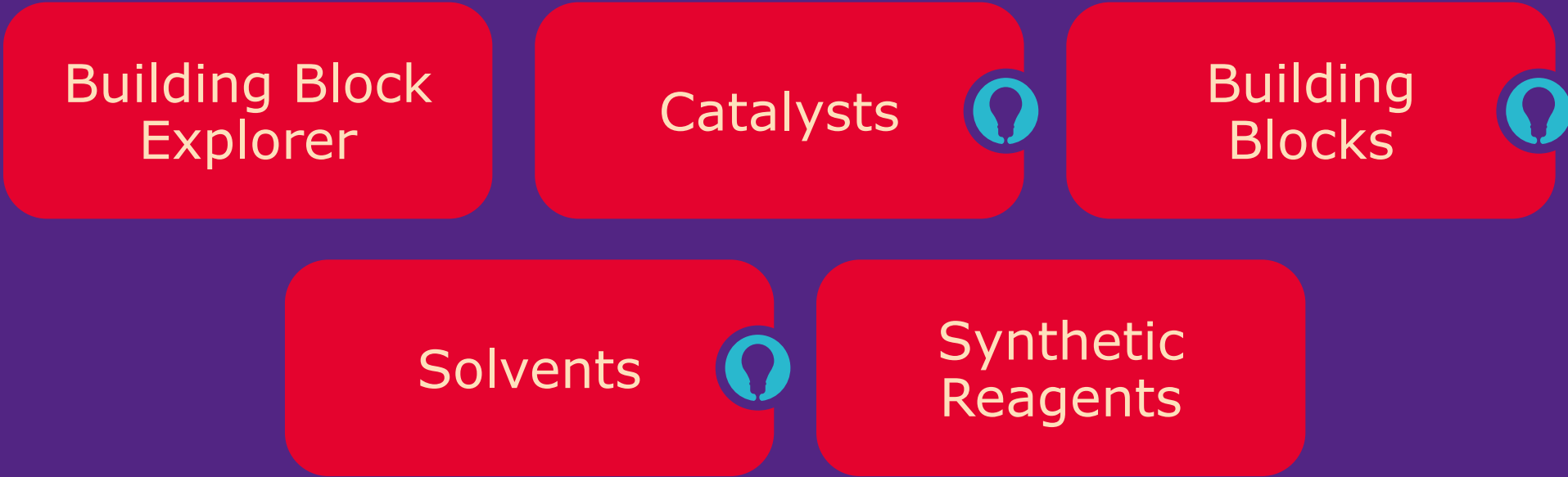
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Synthia](https://SigmaAldrich.com/Synthia)

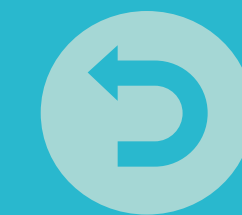


Small Molecule synthesis



Medicinal Chemistry Workflow





Increase the rate of your reactions with our unparalleled portfolio of catalysts for your organic and organometallic chemistry breakthroughs. The field of catalysis is a wide and diverse field that attempts to emulate the refined function of enzymes, nature's own catalysts. We supply a large variety of catalysts and metals that are of increasing importance to synthetic organic chemist. Our extensive portfolio of catalysts are ready to ship today and arrive fast with industry leading shipping times.

Photoredox Catalysis

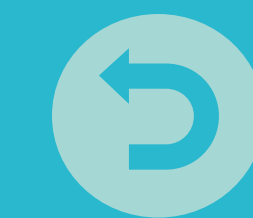


KitAlysis



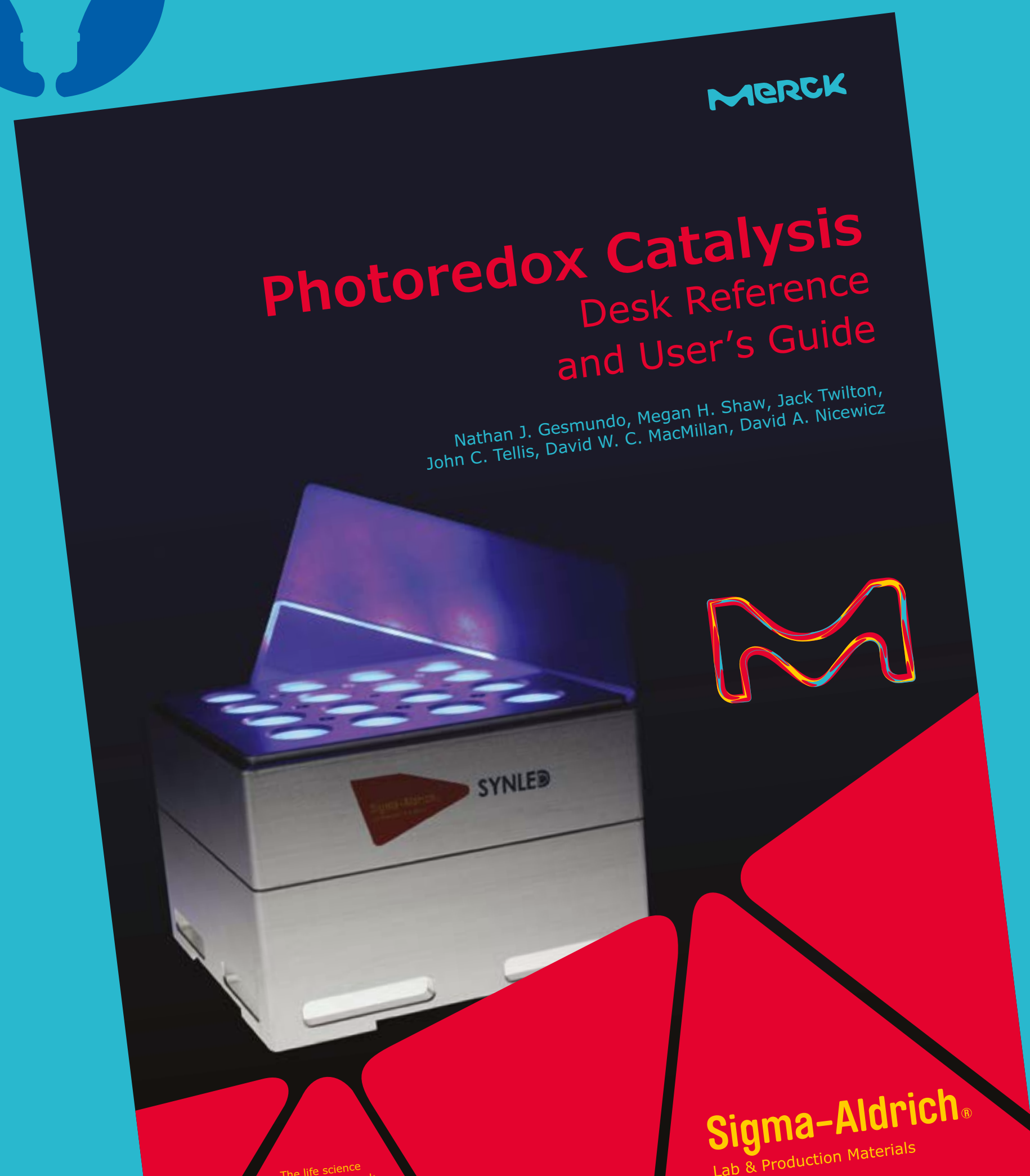
Catalyst Catalog

photoredox catalysis Reactors



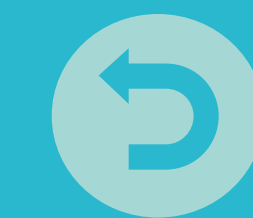
Photoredox catalysis is a powerful tool in organic chemical synthesis that utilizes visible light to power a chemical reaction. Widespread adoption of visible light photoredox catalysis has been dependent on access to photocatalysts and a reliable light source. We're pleased to support your photocatalysis endeavors to create new bonds and rapidly assemble complex products.

- Complete solution for photoredox catalysis to illuminate syntheses
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- Photoreactors offering consistency and reproducibility in every stage of reaction development



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Photocatalysis Portal:

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photocatalysis](https://SigmaAldrich.com/photocatalysis)



In optimizing chemical reactions, flexibility, precision and reproducibility are required of the synthesis tools with which the experiments are carried out.

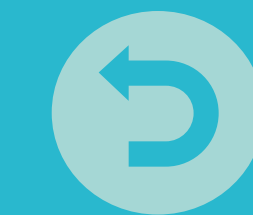
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High-Throughput Screening Kits

- Buchwald-Hartwig amination
- Suzuki-Miyaura cross coupling
- 24x1 Pd catalysts
- Metathesis
- Photoredox catalysis
- Borylation
- And more

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SigmaAldrich.com/kitalysis



We've been your trusted source for chemical building blocks for over 50 years. Our catalog products are tested in-house to meet stringent quality standards and ship at industry leading speeds. Find the basic components needed to drive your research forward in our unparalleled portfolio of building blocks.

In addition, we continue to expand our chemistry portfolio by offering partner products via SigmaAldrich.com. With the ability to search and order from 21 preferred reliable suppliers we have created a one stop shop for finding and ordering in-stock organic building blocks.

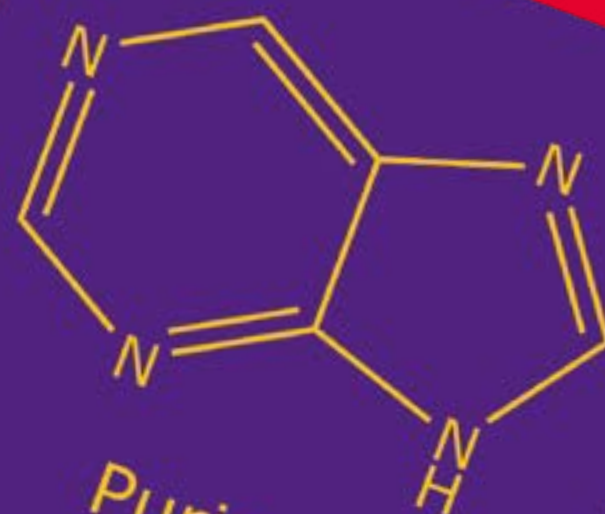
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Furan



Thiophene



Purine

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Block Information:

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solvents, salts, Acids/Bases

Supporting all your essentials lab needs with top-quality, easy-to-use products, designed to integrate intuitively into your workflow and ensuring your research reliability

Specialty Solvents

- **Anhydrous** – extremely low water content, specifically for moisture-sensitive synthesis
- **Biotech** – low water content with minimal residues and clean UV spectra
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Core Solvents & Inorganics (Salts, Acids/Bases)

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Learn More

Solvents

Salts/Acids/Bases

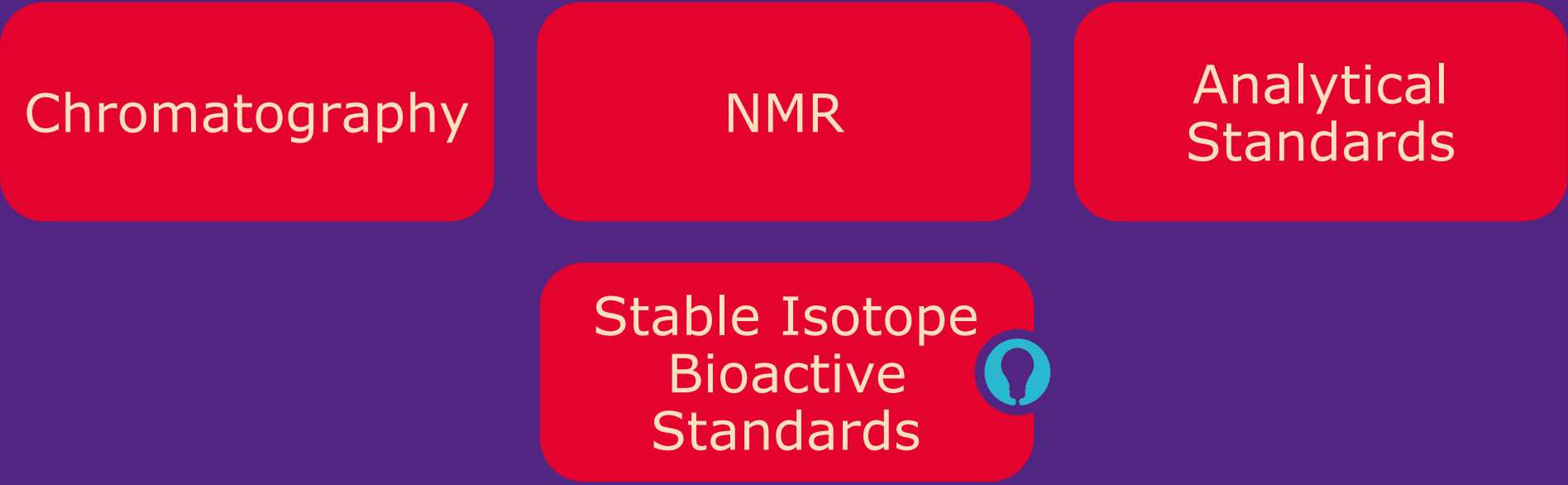
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Lab & Production Materials



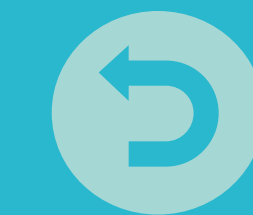
Small Molecule synthesis



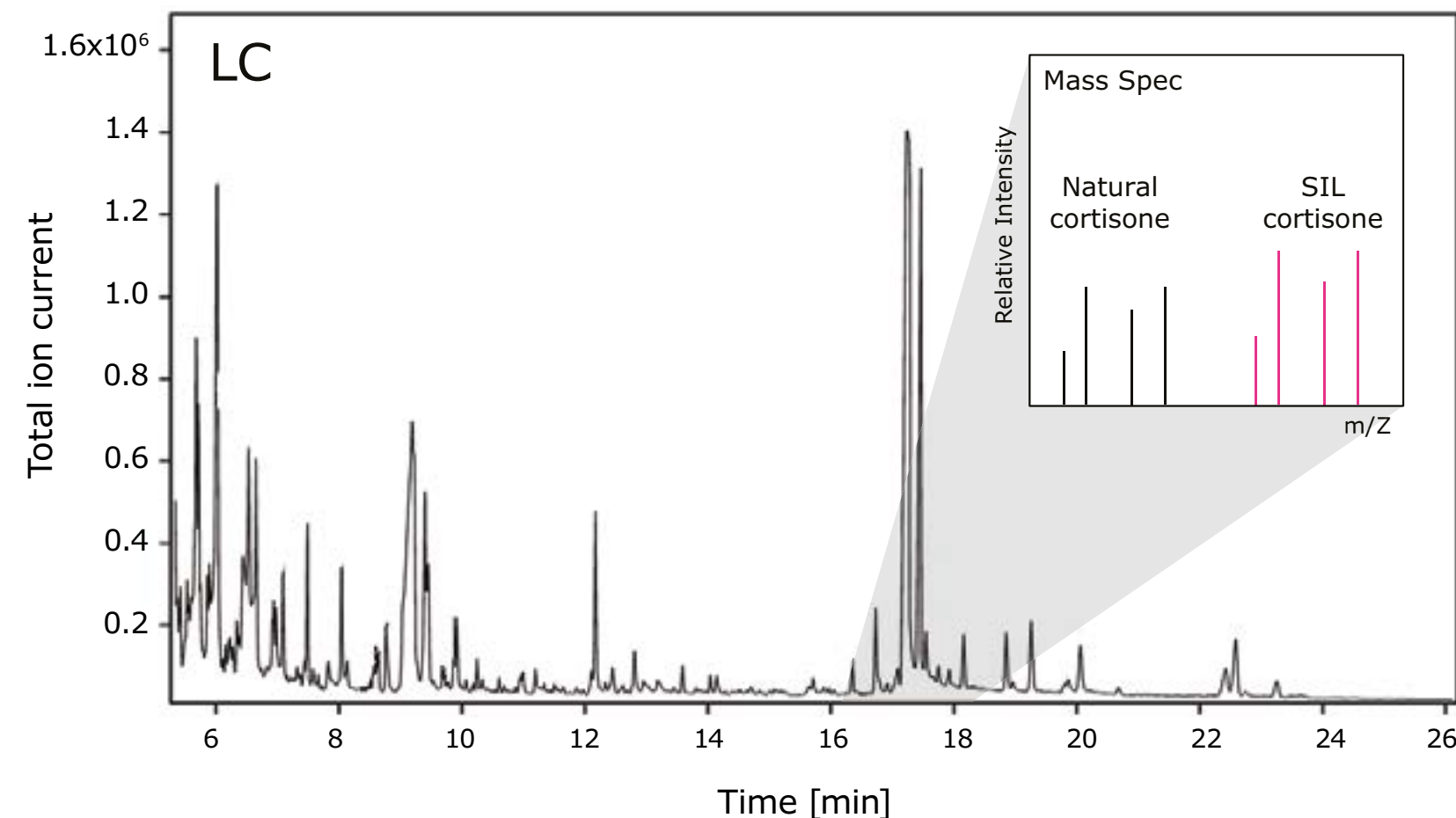
Medicinal Chemistry Workflow



stable isotopes for Analysis



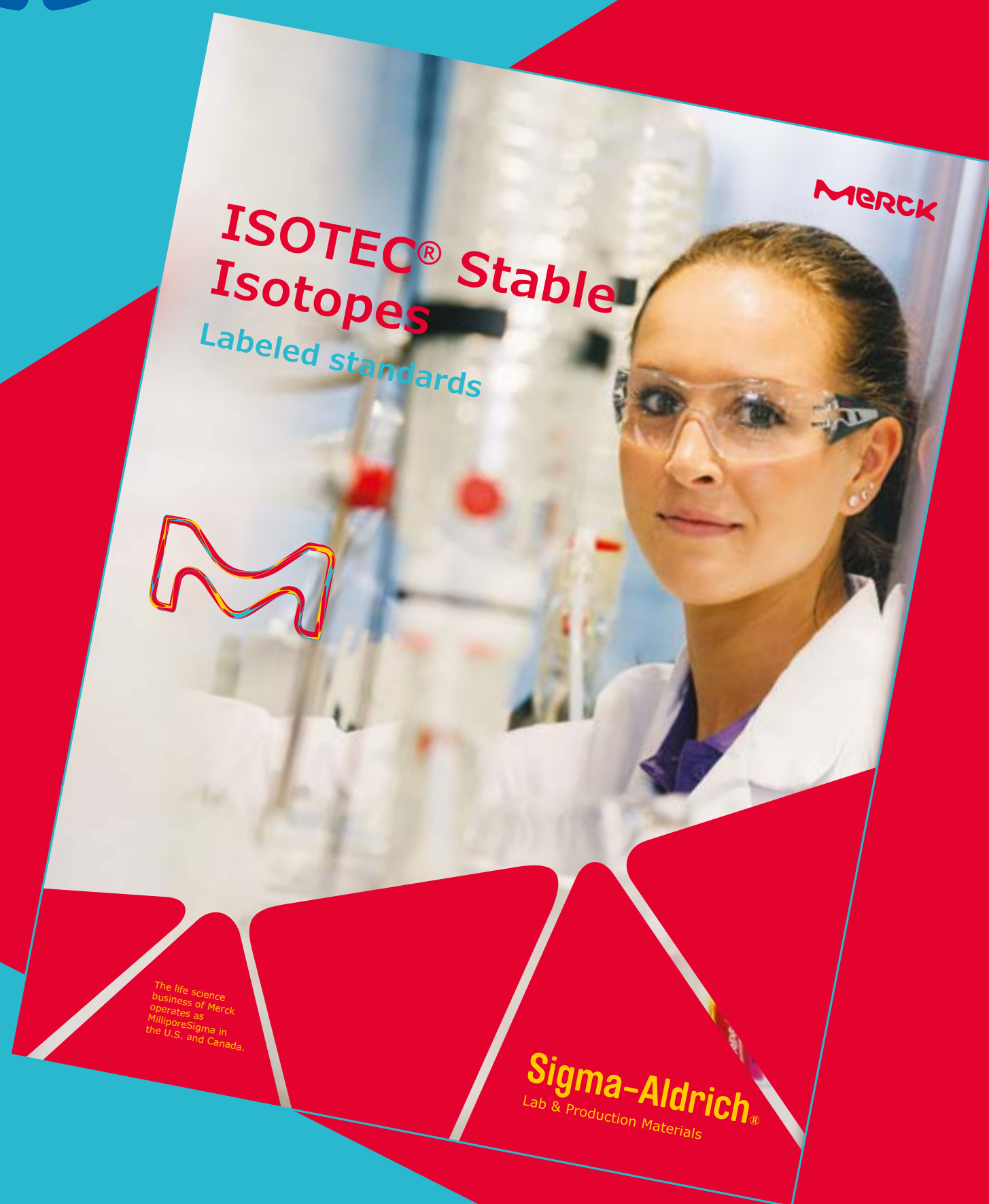
Stable Isotope Compounds as Mass Spec Standards



- After acquiring the mass spec, there will be a distinctive pattern for each metabolite.
- Labeled compound has higher mass but otherwise identical spectrum.
- The natural cortisone in the sample is identified and can be quantified.

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Stable Isotopes
Webpage



Small Molecule synthesis



Medicinal Chemistry Workflow

Lead
Discovery

Retrosynthetic
Analysis

Synthetic
Methods

Analysis

Purification

Chemical
Biology

Purification
Consumables

Solvents



solvents, salts, Acids/Bases

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Solvents

Salts/Acids/Bases

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Lab & Production Materials



Small Molecule synthesis



Medicinal Chemistry Workflow



DELS

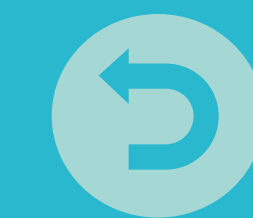


Protein
Degraders



SIL NMR
Reagents

off-the-shelf DNA- encoded Libraries



- We partnered with DyNABind® to offer market's first off-the-shelf DNA-encoded library (DELs)
- DEL technology provides an entire screening library in a single vial for immediate and easy screening. Hits are identified through unique DNA barcode on each molecule.
- Cost-effective alternative or complement to high-throughput screening (HTS) for lead discovery

Products

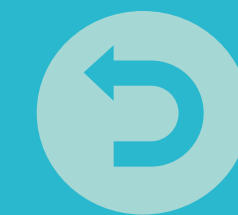
- **DyNABind® DNA-Encoded Fragment Library**
- **DyNABind® 10 Million Compound DNA-Encoded Library**



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Product Details:

**DyNABind® DNA-Encoded
Fragment Library**

protein degrader building blocks for targeted protein degradation



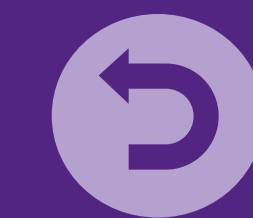
- Degraders (e.g. PROTAC[®] molecules) leverage the cell's proteasomal degradation pathway to target and remove disease-causing proteins
- Provide an alternative to traditional small-molecule drug discovery and have been identified as a new drug modality with protein knockdown effects similar to CRISPR
- Medicinal chemists can leverage the PROTAC[®] technology by using our fit-for-purpose building blocks to easily convert their protein-specific ligand into a library of degraders to screen for effective protein degradation in cells
- Benefits: facilitate generation of initial degrader libraries, variable linker and E3 ligase ligands, amenable to most common chemical handles on small molecules

Products

- Degradation Building Blocks
- Crosslinkers
- E3 ligase ligands
- Bioactive small molecules

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Small Molecule synthesis



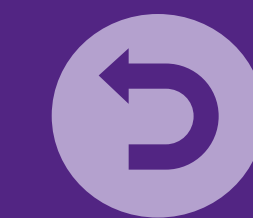
Catalysis Workflow

**Catalysts
Selection**

**Synthetic
Methods**

Analysis

Increase the rate of your reactions with our unparalleled portfolio of catalysts for your organic and organometallic chemistry breakthroughs with this workflow. We supply a large variety of catalysts and metals that are of increasing importance to synthetic organic chemist. Our extensive portfolio of catalysts are ready to ship today and arrive fast with industry leading shipping times.



Small Molecule synthesis



Catalysis Workflow

Catalysts
Selection

Synthetic
Methods

Analysis

Cross-coupling
Guide

kitAlysis



Buchwald
Catalysts



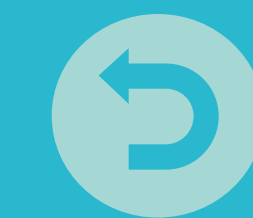
Photocatalysis



MOFs

Grubbs
Catalysts for
Olefin Metathesis





In optimizing chemical reactions, flexibility, precision and reproducibility are required of the synthesis tools with which the experiments are carried out.

- Pre-plated high-throughput screening kits
- Allow chemists to run 24 unique microscale reactions in parallel under tailored conditions (no glovebox required)
- Help chemists quickly optimize important reactions with minimal use of costly intermediates
- Drastically reduce number of discrete reactions required for optimization, thus saving costs

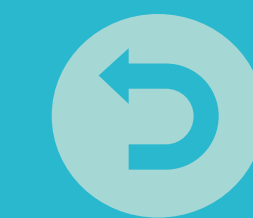
High-Throughput Screening Kits

- Buchwald-Hartwig amination
- Suzuki-Miyaura cross coupling
- 24x1 Pd catalysts
- Metathesis
- Photoredox catalysis
- Borylation
- And more

Learn More
Product Details:

SigmaAldrich.com/kitalysis

Buchwald catalyst and Ligands



To help you achieve success in cross-coupling reactions — and the new chemistry you're engaged in — we offer a comprehensive range of G1 to G6 Buchwald pre-catalysts. The series consists of Pd(II) complexes comprised of highly active, versatile, and tunable biarylphosphine ligands, or other highly active phosphine ligands, capable of efficiently catalyzing C-C,⁴ C-N,⁵ C-O,⁶ C-F,⁷ C-CF₃,⁸ C-S,⁹ and other bond formations.

Most competitive pricing on the market

Our Buchwald family of ligands and catalysts is a competitively priced portfolio with the high quality and product value you've come to expect from us.

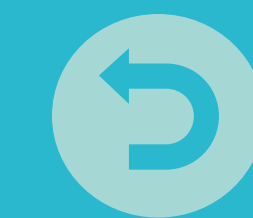
IP Free at any scale

We provide superior catalysts and ligands to customers around the world. In collaboration with the Buchwald lab, we are pleased to offer the entire Buchwald portfolio of products royalty-free at any scale or step in the synthetic process. We've taken care of the IP so you don't have to. Just buy and go!

[Learn More](#)

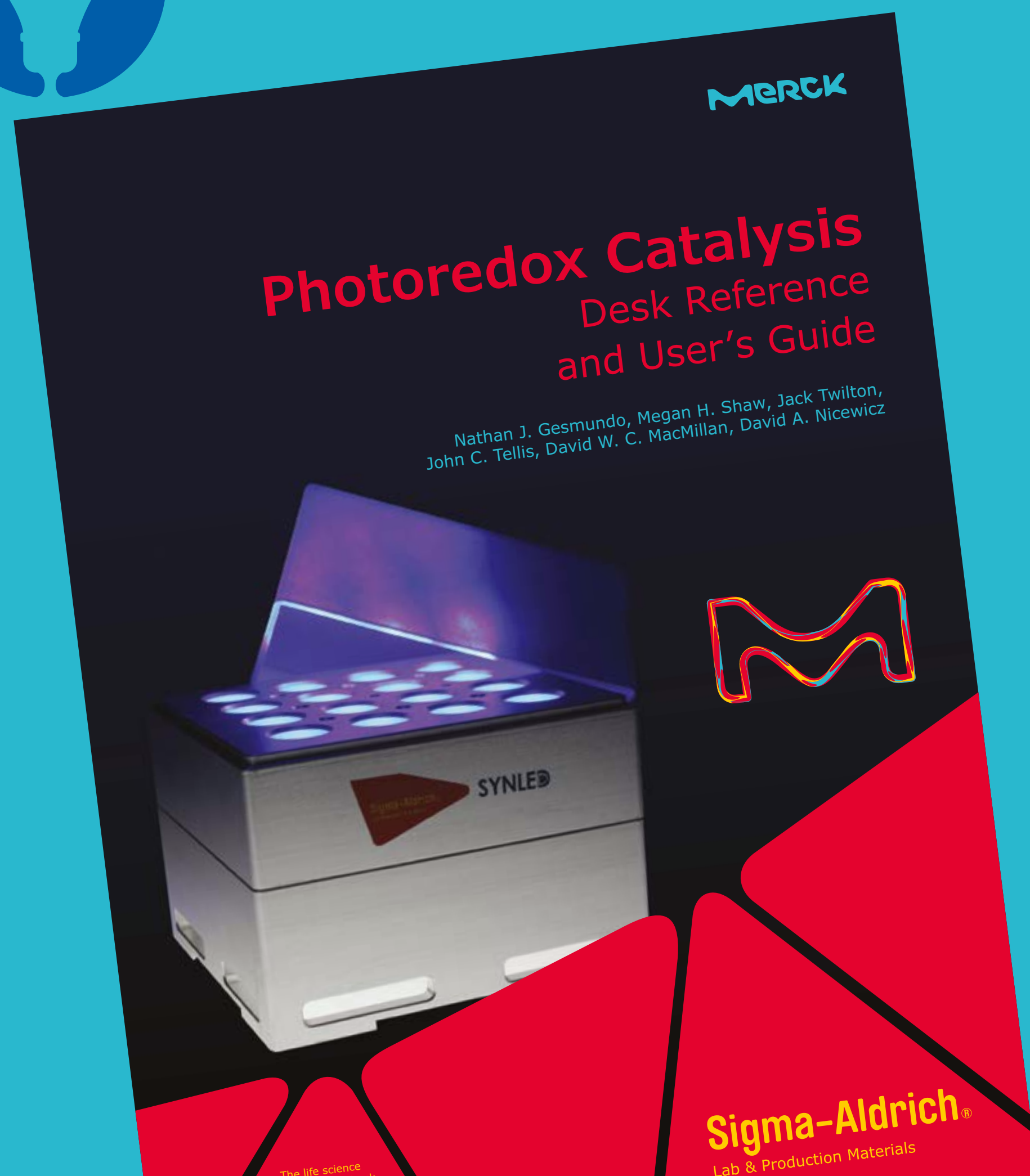
[SigmaAldrich.com/
Buchwald](https://SigmaAldrich.com/Buchwald)

photoredox catalysis Reactors



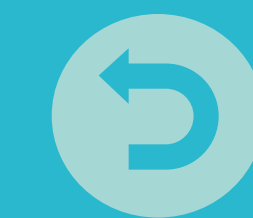
Photoredox catalysis is a powerful tool in organic chemical synthesis that utilizes visible light to power a chemical reaction. Widespread adoption of visible light photoredox catalysis has been dependent on access to photocatalysts and a reliable light source. We're pleased to support your photocatalysis endeavors to create new bonds and rapidly assemble complex products.

- Complete solution for photoredox catalysis to illuminate syntheses
- Powerful iridium- and ruthenium-based photocatalysts popularized in the last decade
- Photoreactors offering consistency and reproducibility in every stage of reaction development



Learn More
Photocatalysis Portal:

[SigmaAldrich.com/
photocatalysis](https://SigmaAldrich.com/photocatalysis)



Enjoy unparalleled access to Grubbs Catalyst® technology, and experience the many benefits of our exclusive partnership.

- Secure supply chain of metathesis catalysts from milligram to multi-kilogram volumes
- Rapid delivery of R&D quantities
- Access to technical expertise, supported by Nobel Laureate Robert Grubbs
- Umicore license rights included in listed product price



Learn More

[SigmaAldrich.com/
Grubbs](https://SigmaAldrich.com/Grubbs)



Small Molecule synthesis



Catalysis Workflow

Catalysts
Selection

Synthetic
Methods

Analysis

Building Block
Explorer

Building
Blocks



Solvents

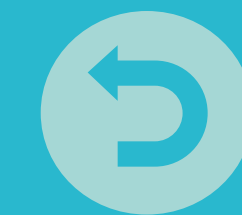


Acids/Bases

Asymmetric
Induction

Synthetic
Reagents

Stable Isotopes
Reagents &
Intermediates



We've been your trusted source for chemical building blocks for over 50 years. Our catalog products are tested in-house to meet stringent quality standards and ship at industry leading speeds. Find the basic components needed to drive your research forward in our unparalleled portfolio of building blocks.

In addition, we continue to expand our chemistry portfolio by offering partner products via SigmaAldrich.com. With the ability to search and order from 21 preferred reliable suppliers we have created a one stop shop for finding and ordering in-stock organic building blocks.

- Combined with our core offering of high quality reagents and catalysts, we now offer ease of search, selection, and procurement to support your research.
- Our partner expansion includes nearly 320K additional unique structures (~1.2M SKUS) that represent chemistry that is "in-stock" and ready for shipment by the supplier partner.



Furan



Thiophene



Purine

Learn More
Product Details & Building
Block Information:

[SigmaAldrich.com/BB](https://sigmaaldrich.com/BB)

solvents, salts, Acids/Bases

Supporting all your essentials lab needs with top-quality, easy-to-use products, designed to integrate intuitively into your workflow and ensuring your research reliability

Specialty Solvents

- **Anhydrous** – extremely low water content, specifically for moisture-sensitive synthesis
- **Biotech** – low water content with minimal residues and clean UV spectra
- **NMR** – wide range of purity and deuterium (% D) to support your basic reaction check to final product analysis

Core Solvents & Inorganics (Salts, Acids/Bases)

- **ACS Grade** – Meeting/exceeding the high standards of the American Chemical Society for synthesis and purification
- **Reagent Grades** – ideal for trial synthesis, preparation, experiments that need fewer specifications
- **Green Solvents** – Bio-renewable and greener solvents support the framework of sustainability and green chemistry
- **Redi-Dri™ Free-Flowing Salts** – eliminates clumps in a broad range of common hygroscopic salts without any chemical additives, providing ready-to-use and clump-free material



Learn More

Solvents

Salts/Acids/Bases

Sigma-Aldrich®
Lab & Production Materials

Small Molecule synthesis



Catalysis Workflow

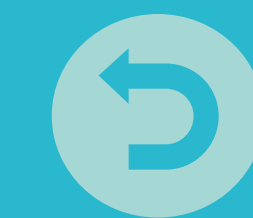
Catalysts
Selection

Synthetic
Methods

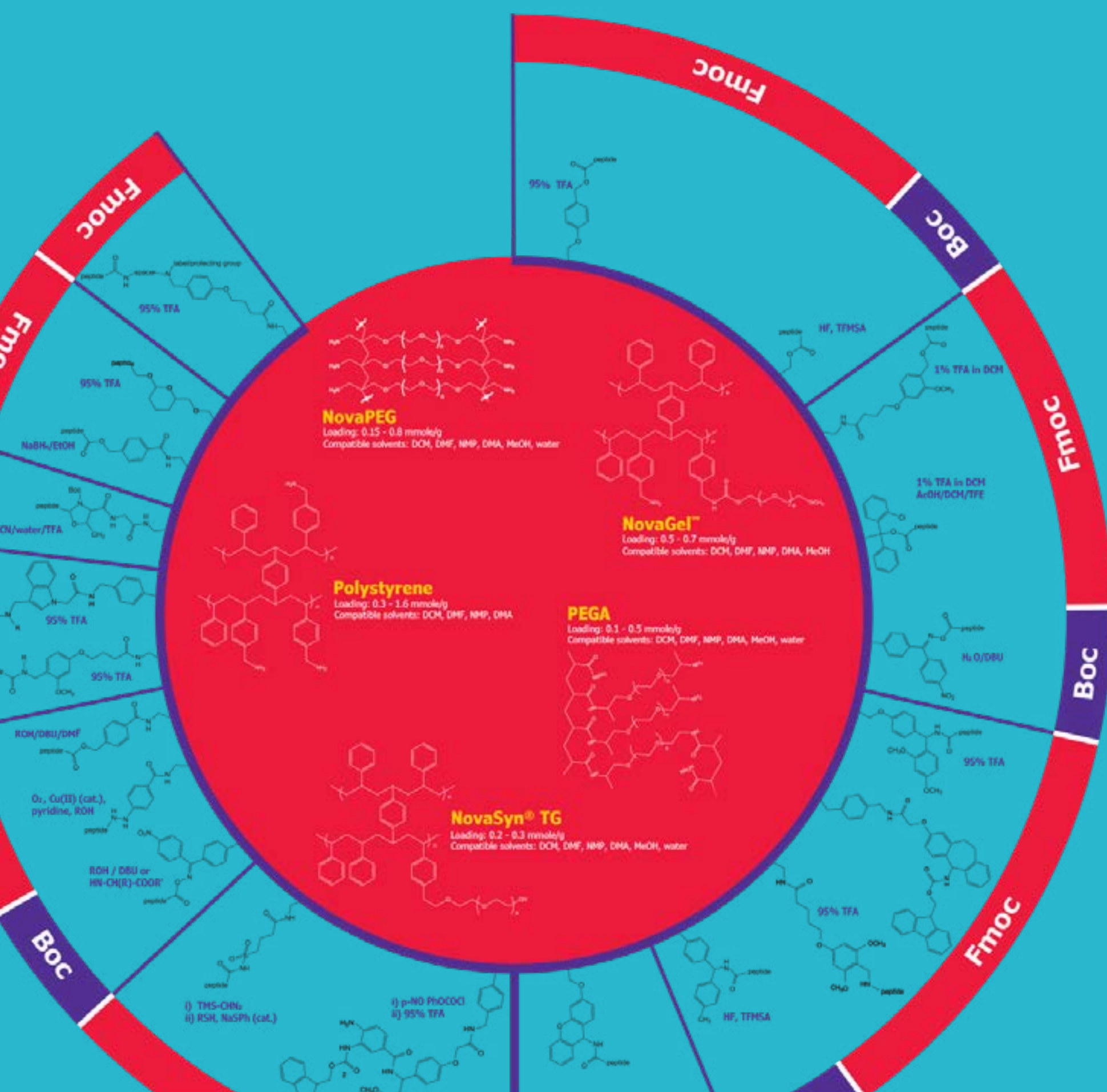
Analysis

Purification
Consumables

Solvents



- Peptide synthesis
- High-throughput organic chemistry
- Labeled peptides
- Custom-manufactured products



Fmoc-Amino Acids

Coupling Reagents

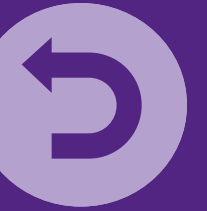
Peptide Chemistry

Peptide Screening

Peptide Scaleup

Biotech Solvents

Stable Isotope Labeled Fmoc Amino Acids



Oligonucleotide Synthesis

Synthesis
Reagents

Oligos

PCR

Biotech
Solvents



Polymer Workflow

Synthesis

Characterization

Applications



Polymer Workflow

Synthesis

Characterization

Applications

Monomers



Polymerization
Initiators

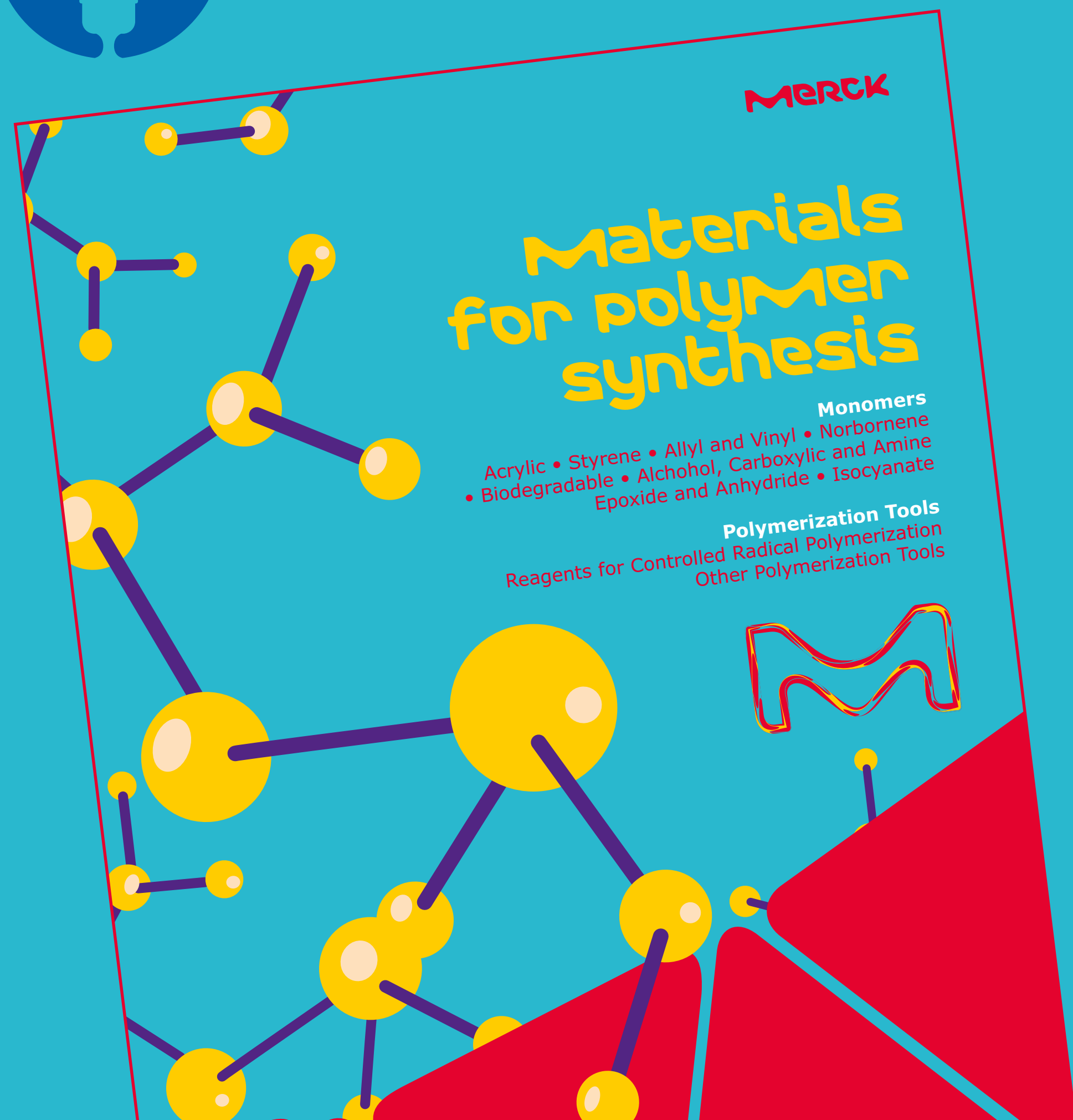
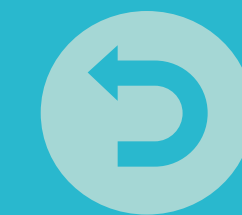


Polymerization
Tools



Solvents





- An unparalleled portfolio of unique monomers that are exclusively offered through us, 40% more offering than any other company.
- We go from bench to bulk, our products are available in multiple sku sizes. Test in small sku sizes and when your ready to move to production our bulk group is available to help with scale-up.

Related Products

Acrylic Monomers

Biodegradable
Monomers

Styrene Monomers

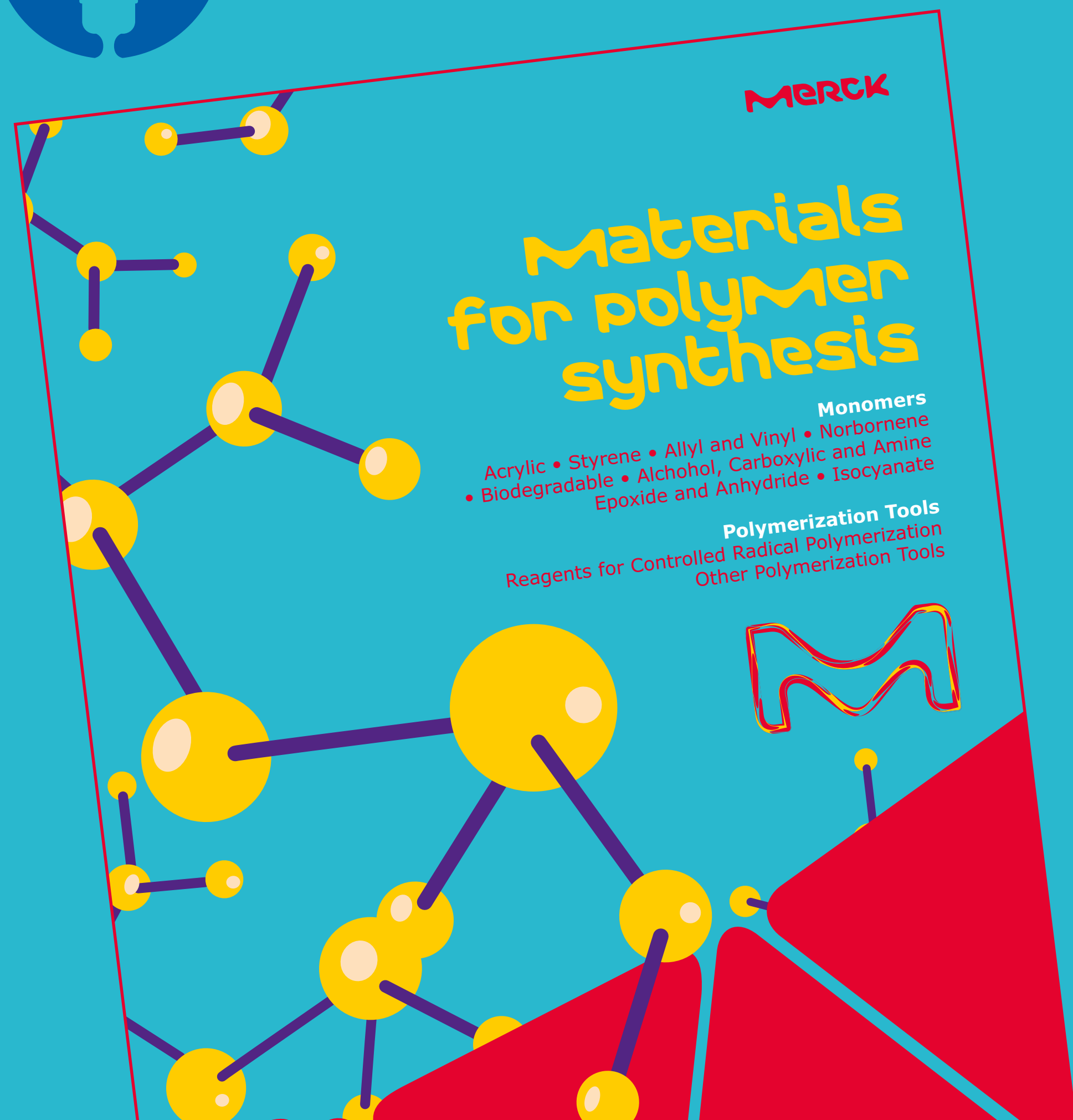
Amine
Monomers

Carboxylic Acid
Monomers

Silicone Monomers

Epoxide Monomers

polymerization initiators



- We were the first company to commercialize RAFT agents from its innovators.
- Our newest RAFT initiators have very low odor and almost no color.
- RAFT agents provide greater control over molecular weight (improved polydispersity index) for polymer synthesis

Related Products

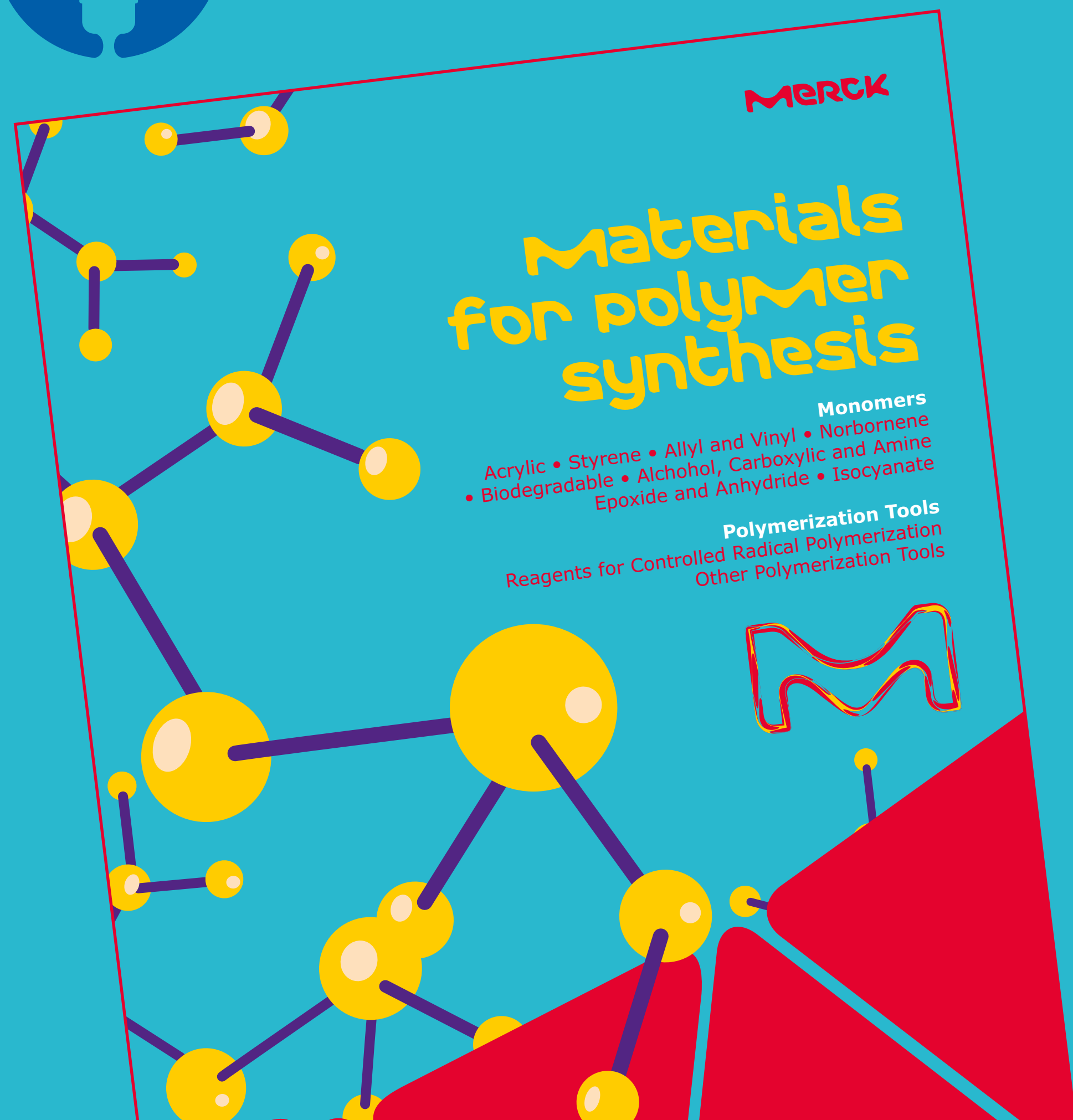
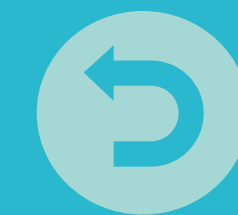
ATRP Initiators

NMP Initiators

Organic
Photoinitiators

Ionic Polymerization
Initiators

Free Radical
Initiators



MERCK

**Materials
for polymer
synthesis**

Monomers
Acrylic • Styrene • Allyl and Vinyl • Norbornene
• Biodegradable • Alcohol, Carboxylic and Amine
Epoxide and Anhydride • Isocyanate

Polymerization Tools
Reagents for Controlled Radical Polymerization
Other Polymerization Tools

We're pleased to offer an extensive portfolio of polymerization tools to help drive your research productivity.

Related Products

Chain Transfer
Agents

Polymer
Additives

Anhydrous
Solvents

Catalysts for
Polymerization

Crosslinkers

NMR Solvents

Surfactants

solvents, salts, Acids/Bases

Supporting all your essentials lab needs with top-quality, easy-to-use products, designed to integrate intuitively into your workflow and ensuring your research reliability

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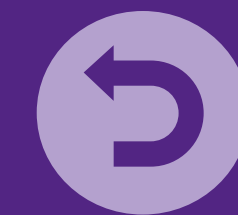


Learn More

Solvents

Salts/Acids/Bases

Sigma-Aldrich®
Lab & Production Materials



Polymer Workflow

Synthesis

Characterization

Applications

Analytical
Reagents

NMR Solvents

SIL Monomers



Polymer Workflow

Synthesis

Characterization

Applications

Drug Delivery

3D Bioprinting

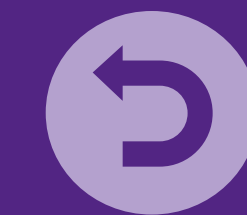
Inorganic Chemistry Research Fields



Thin Films

**Nanoparticle
Synthesis**

**Solid State
Synthesis**



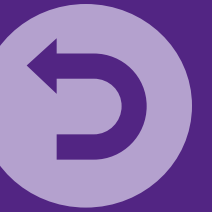
Thin Films Synthesis Types

**Vapor
Deposition**

**Solution
Deposition**

**Solution
Processing**

- Our offering vapor deposition precursors are packaged for use in deposition systems for customer safety and ease of use.
- Find an unparalleled portfolio of compositions precursors offered in high trace metal purities for reproducible synthesis of materials with consistent properties.
- Find application specific grades of material offered including deposition grade, electronic grade, and perovskite grade that meet your research needs



Thin Films Synthesis Types

**Vapor
Deposition**

**Solution
Deposition**

**Solution
Processing**

CVD/ALD

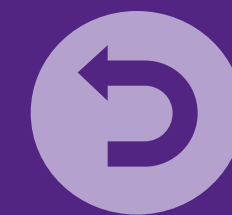
PVD

CVD/ALD
Precursors by
Metal

Packaged for
Deposition
Precursors

Physical Vapor
Deposition (PVD)
Products

Sputtering
Targets



Thin Films Synthesis Types

**Vapor
Deposition**

**Solution
Deposition**

**Solution
Processing**

Sol-gel Processing

Solution
Deposition

Salts

Deposition
Grade Silanes



Thin Films Synthesis Types

**Vapor
Deposition**

**Solution
Deposition**

**Solution
Processing**

Plating



Self-Assembly

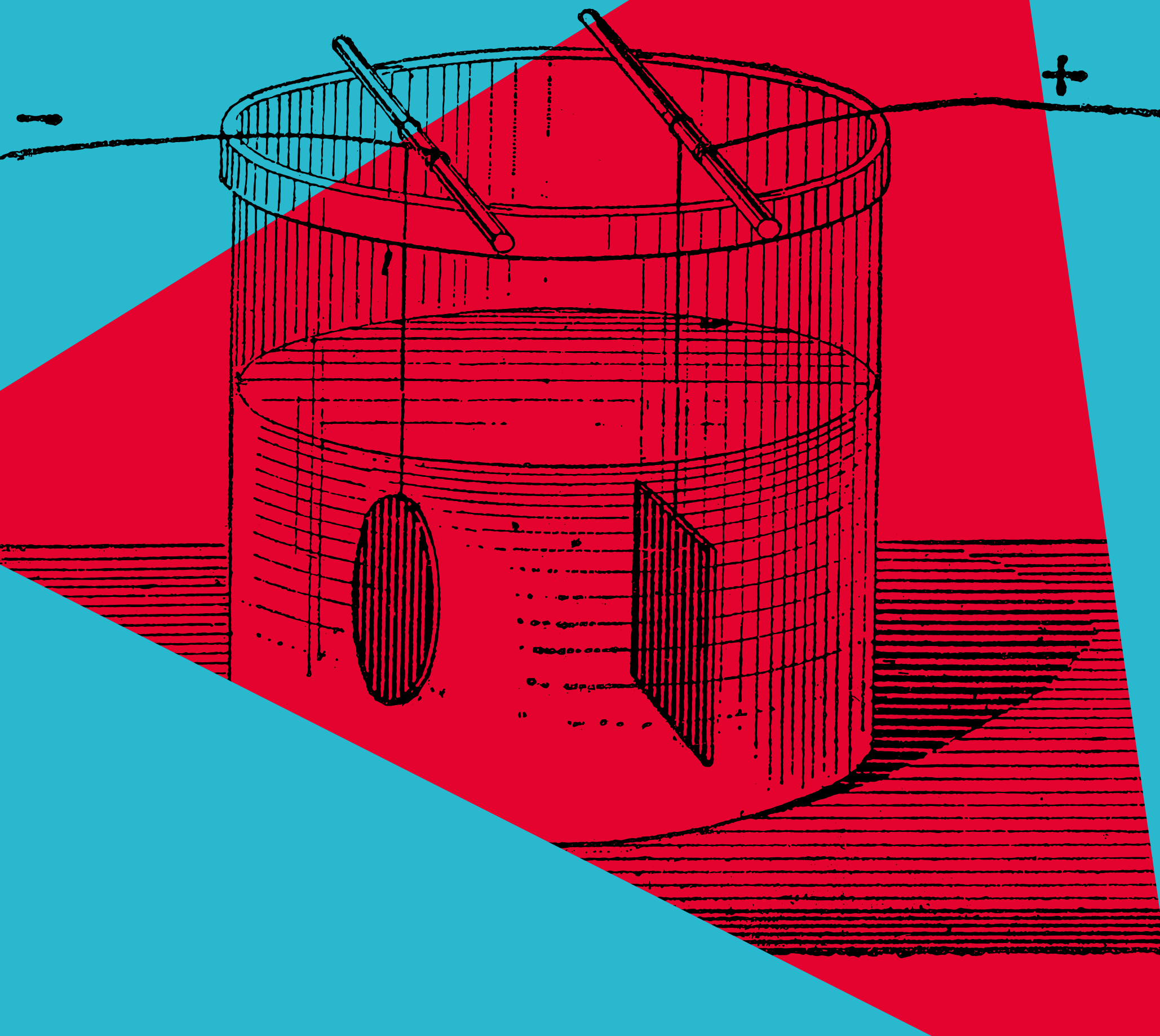


Spin/Dip
Coating



Inkjet
Printing





With our extensive portfolio of products for the plating process we help make your breakthroughs feel closer than ever.

Related Products

Salts

Oxides by
Metal

Inorganic & Metallic
Nanoparticles



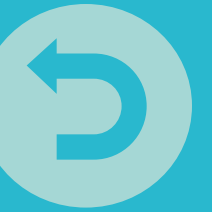
Self-assemblies and self-assembly processes play important roles in improving device performance as well as enabling low cost processing methods. Browse below for offering for self-assembly.

Related Products

Self-Assembly &
Contact Printing

Inorganic & Metallic
Nanoparticles

Quantum Dots



Spin/dip coating technology to synthesize thin films allows for cost saving by requiring less coating material and a greener method as there is less waste to dispose the end of the process. Browse below for offering for spin/dip coating materials.

Related Products

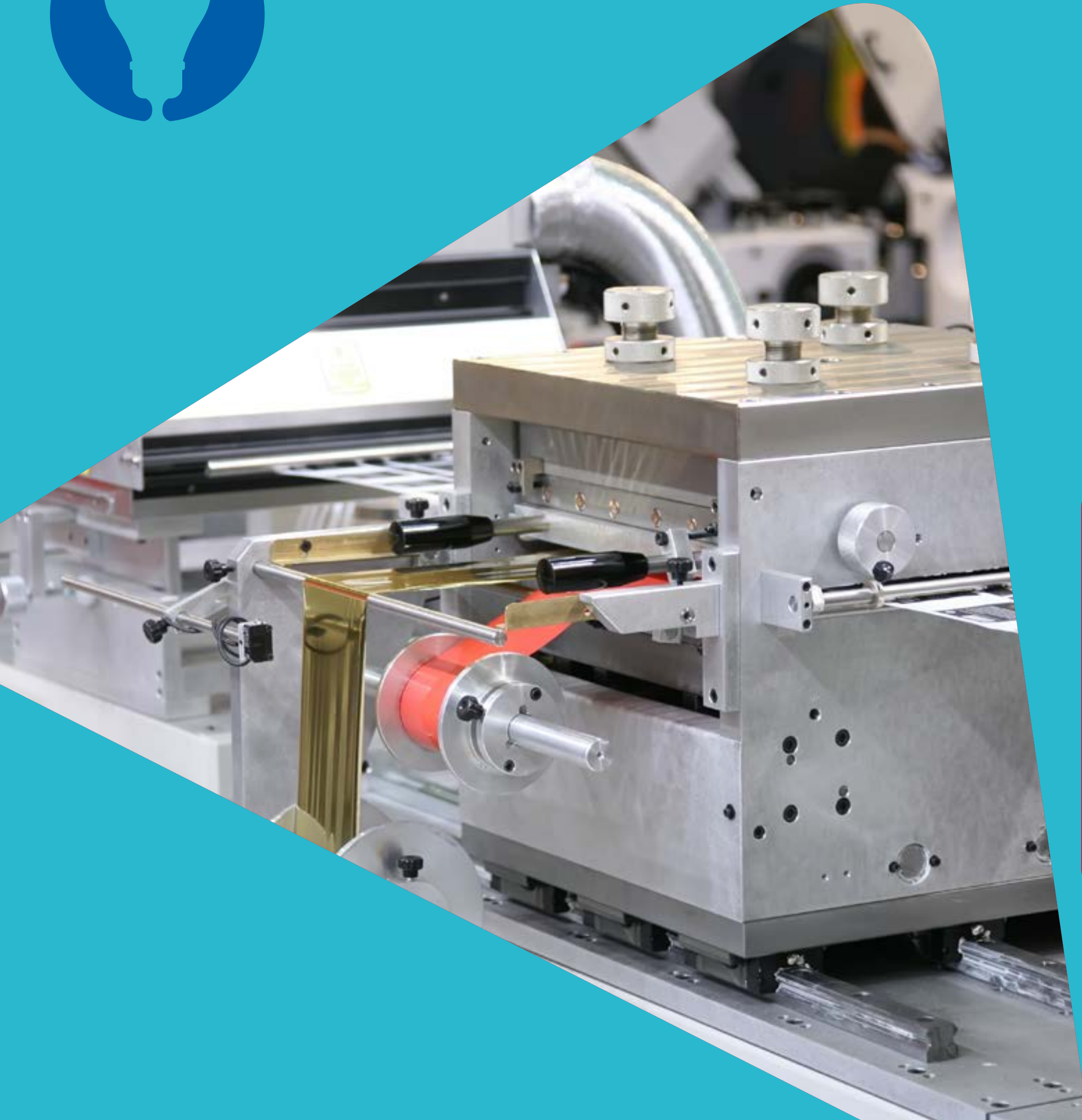
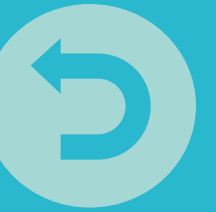
[Solution Deposition](#)

[Self-Assembly & Contact Printing](#)

[Inorganic & Metallic Nanoparticles](#)

[Quantum Dots](#)

[Deposition Grade Silanes](#)



Through inkjet printing the positioning of a liquid (ink) droplets of microscopic volume directly correlated with the presence of information at each pixel of the image or text to be produced, enables the economic deposition of expensive materials, functional or otherwise, only on desired locations on a substrate, that is, a selective deposition. Browse our unparalleled portfolio of consumable products for inkjet printing to support your research endeavors.

Related Products

Solution Deposition

Quantum Dots

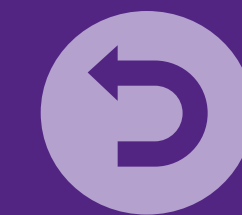
Self-Assembly &
Contact Printing

Inorganic & Metallic
Nanoparticles

Deposition Grade
Silanes

Conductive Inks

Nanoparticle synthesis

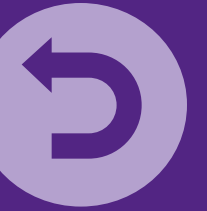


Nanoparticle Synthesis Types

Bottom Up

Top Down

- We offer broad portfolio of precursor compositions offered in high trace metal purities for reproducible synthesis of materials with consistent properties.
- Our unparalleled range of high-purity salts in beaded form were designed for easier handling, better stability, and anhydrous performance.
- We're pleased to support your research with low moisture/anhydrous precursors for superior performance in dry and moisture-sensitive applications, our innovative packaging with Redi-Dri™ for improved free flow of hygroscopic products.



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

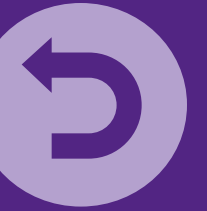
Chemical
Reduction

Sol-Gel

Coprecipitation

Pyrolysis

Solvothermal



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Chemical
Reduction

Sol-Gel

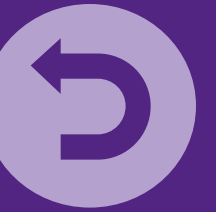
Coprecipitation

Pyrolysis

Solvothermal

Salts

Solution
Deposition



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Chemical
Reduction

Sol-Gel

Coprecipitation

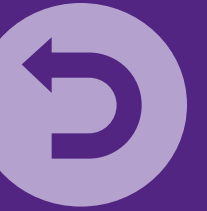
Pyrolysis

Solvothermal

Salts

Solution
Deposition

Inorganic
& Metallic
Nanoparticles



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Chemical
Reduction

Sol-Gel

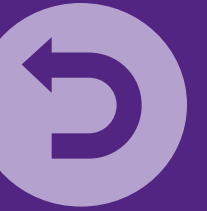
Coprecipitation

Pyrolysis

Solvothermal

Salts

Solution
Deposition



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Chemical
Reduction

Sol-Gel

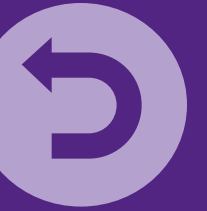
Coprecipitation

Pyrolysis

Solvothermal

Salts

Solution
Deposition



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Chemical
Reduction

Sol-Gel

Coprecipitation

Pyrolysis

Solvothermal

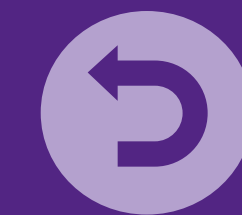
Salts

Solution
Deposition

Oxides

Alloys

Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Milling

Mechanical
Grinding

Vapor
Deposition

Beam
Lithography



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Milling

Mechanical
Grinding

Vapor
Deposition

Beam
Lithography

Inorganic
& Metallic
Nanoparticles

Ceramics

Metals

Oxides

Alloys



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Milling

Mechanical
Grinding

Vapor
Deposition

Beam
Lithography

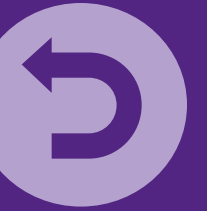
Inorganic
& Metallic
Nanoparticles

Ceramics

Metals

Oxides

Alloys



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Milling

Mechanical
Grinding

Vapor
Deposition

Beam
Lithography

Vapor
Deposition

Solution
Deposition



Nanoparticle synthesis



Nanoparticle Synthesis Types

Bottom Up

Top Down

Milling

Mechanical
Grinding

Vapor
Deposition

Beam
Lithography

Inorganic
& Metallic
Nanoparticles

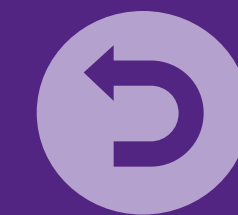
Ceramics

Metals

Oxides

Alloys

solid state synthesis



Solid State Synthesis Workflow

Starting
Materials

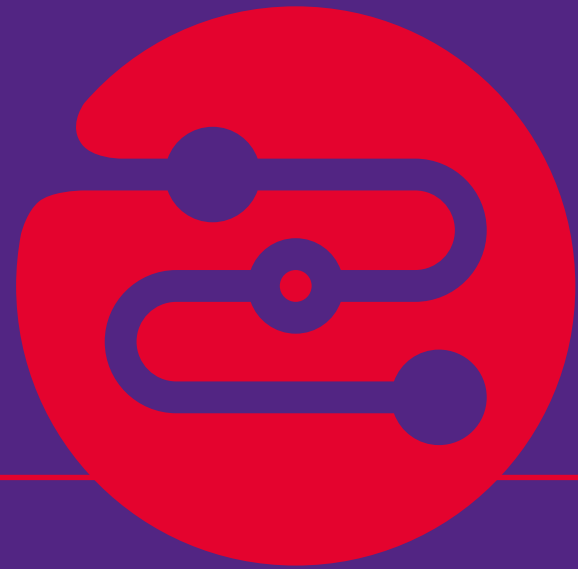
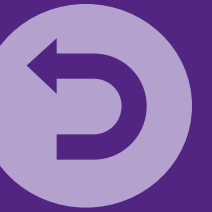
Mix, Grind,
& Pelletize

Sample
Container
Selection

Heat

Grind &
Analyze

solid state synthesis



Solid State Synthesis Workflow

Starting
Materials

Mix, Grind,
& Pelletize

Sample
Container
Selection

Heat

Grind &
Analyze

Salts

Ceramics

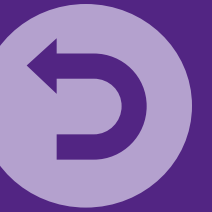
Oxides

Metals

Alloys

Inorganic
& Metallic
Nanoparticles

solid state synthesis



Solid State Synthesis Workflow

Starting
Materials

Mix, Grind,
& Pelletize

Sample
Container
Selection

Heat

Grind &
Analyze

Crucibles

Biochemistry Research Fields



**Drug
Discovery**

Glycobiology

Microbiome

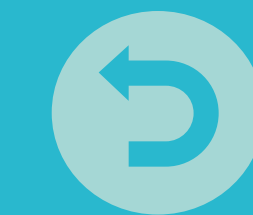
**Infectious
Diseases**

Drug Discovery



Products for Drug Discovery Research

- Antibiotics
- Carbohydrates
- Amino Acids
- Lipids
- Vitamins & Coenzymes
- Building Blocks
- Metabolites
- Metabolite Libraries & Kits
- Metabolism Assay Kits
- Nucleosides & Nucleotides
- Detergents
- Buffers
- Agarose
- Stable Isotopes
- Solvents
- Synthia



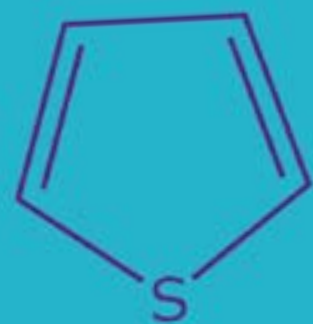
We've been your trusted source for chemical building blocks for over 50 years. Our catalog products are tested in-house to meet stringent quality standards and ship at industry leading speeds. Find the basic components needed to drive your research forward in our unparalleled portfolio of building blocks.

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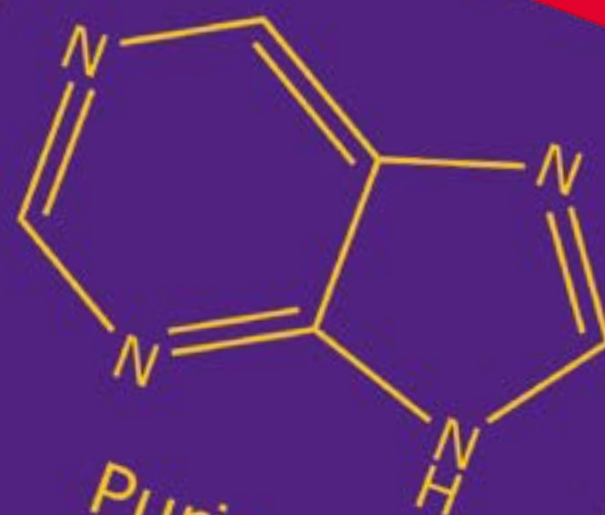
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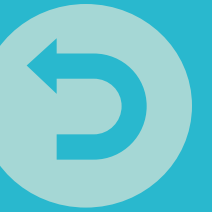
Thiophene



Purine

Learn More
Product Details & Building
Block Information:

[SigmaAldrich.com/BB](https://sigmaaldrich.com/BB)



Highly pure Biochemical compounds and Metabolites



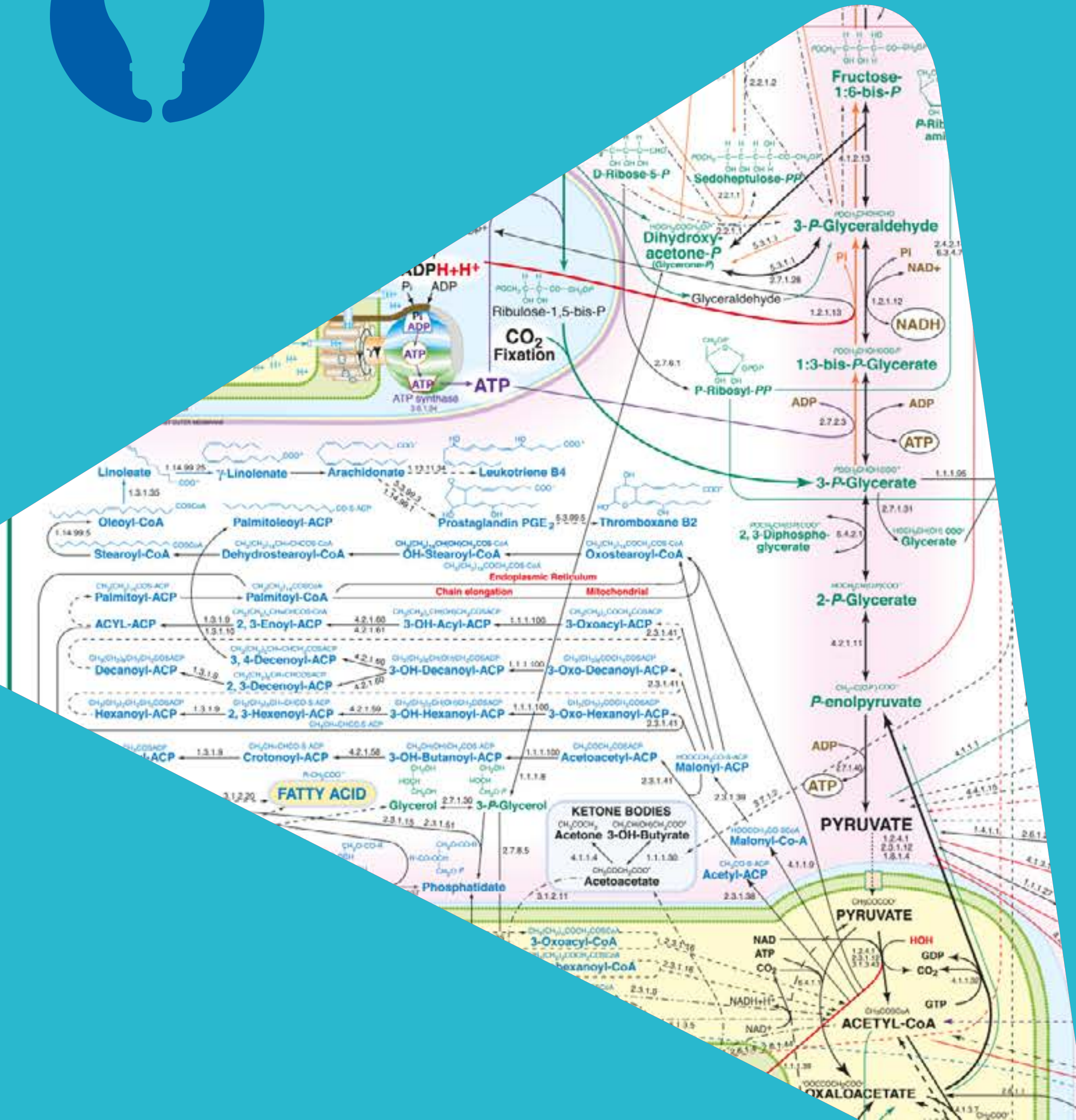
We offer an extensive portfolio of carbohydrates, lipids, amino acids, antibiotics, vitamins, coenzymes and many other classes of biochemical compounds that are highly pure, available in various sizes and with competitive prices. Biochemicals are key compounds in research areas such as:

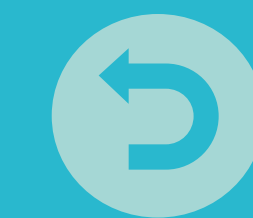
- Microbiome
- Disease research
- Metabolomics, genomics and proteomics
- Antibiotic resistance research
- Virology
- Mechanistic biology

Use Our

Interactive Metabolic
Pathway Map

where Metabolites are
Searchable and Interactive





We offer **metabolite kits** with vitamins and carbohydrates that can be used for general research, as reagents, or as reference compounds in analytical procedures. Also, we offer metabolite pathway libraries including the TCA cycle, urea cycle and glycolysis.

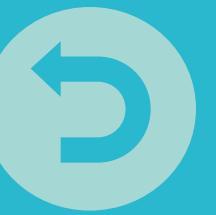
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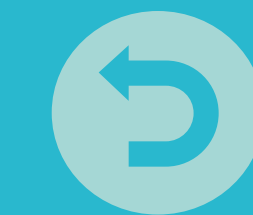
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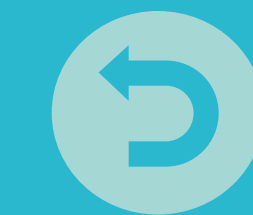
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[Buffer Selection Guide](#)

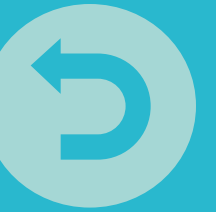
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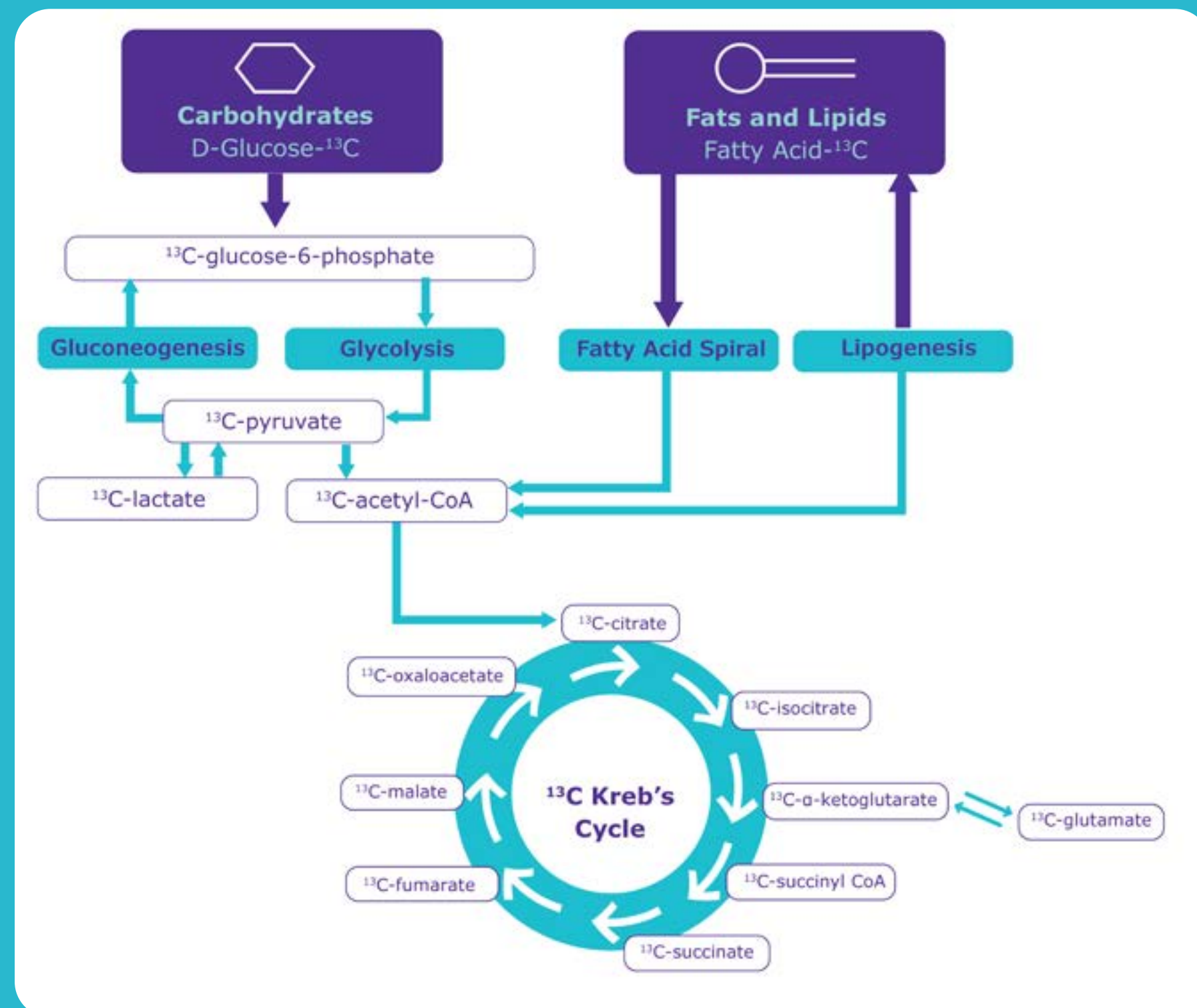
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Tracer studies with stable isotopes



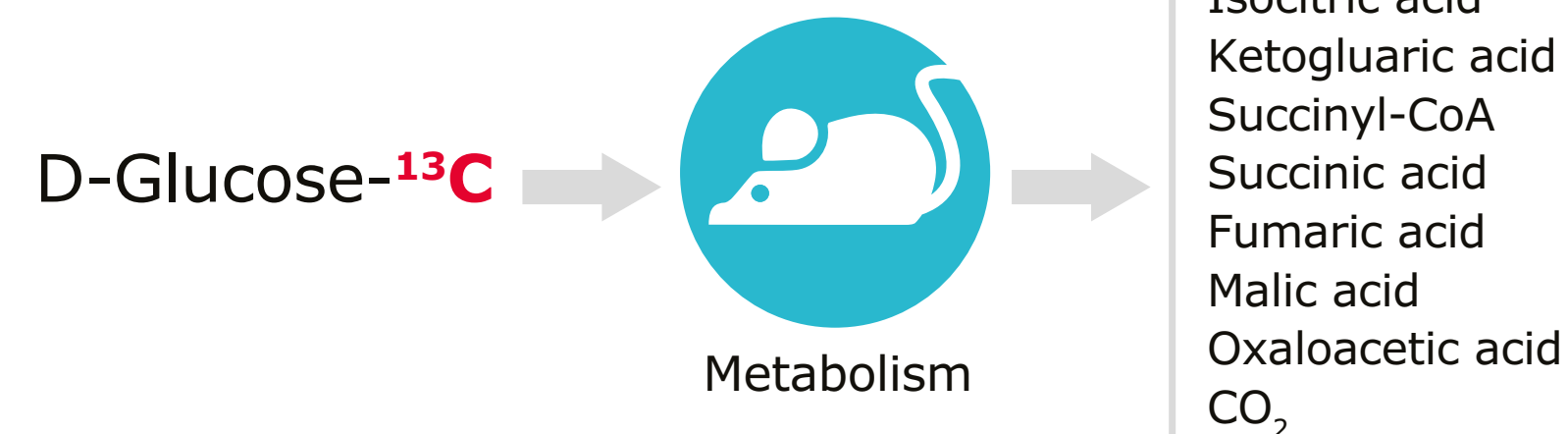
Understand metabolic pathways through stable isotope tracing



- Use ^{13}C , ^{15}N , D labeled bioactive compounds to understand metabolism pathways and rates.
- Specifically-labeled compounds allow for study of specific pathways.
- Wide array of labeled carbohydrates, amino acids, fatty acids, lipids, metabolites, and other bioactive compounds available.
- Studies can be done *in vivo*.

Stable Isotope Compounds as Tracers

As an example:



In which compound(s) does carbon-13 end up?

- The fate of the stable isotope label can help explain metabolic pathways.
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Learn More
Product Information:

[Stable Isotopes Webpage](#)

solvents, salts, Acids/Bases

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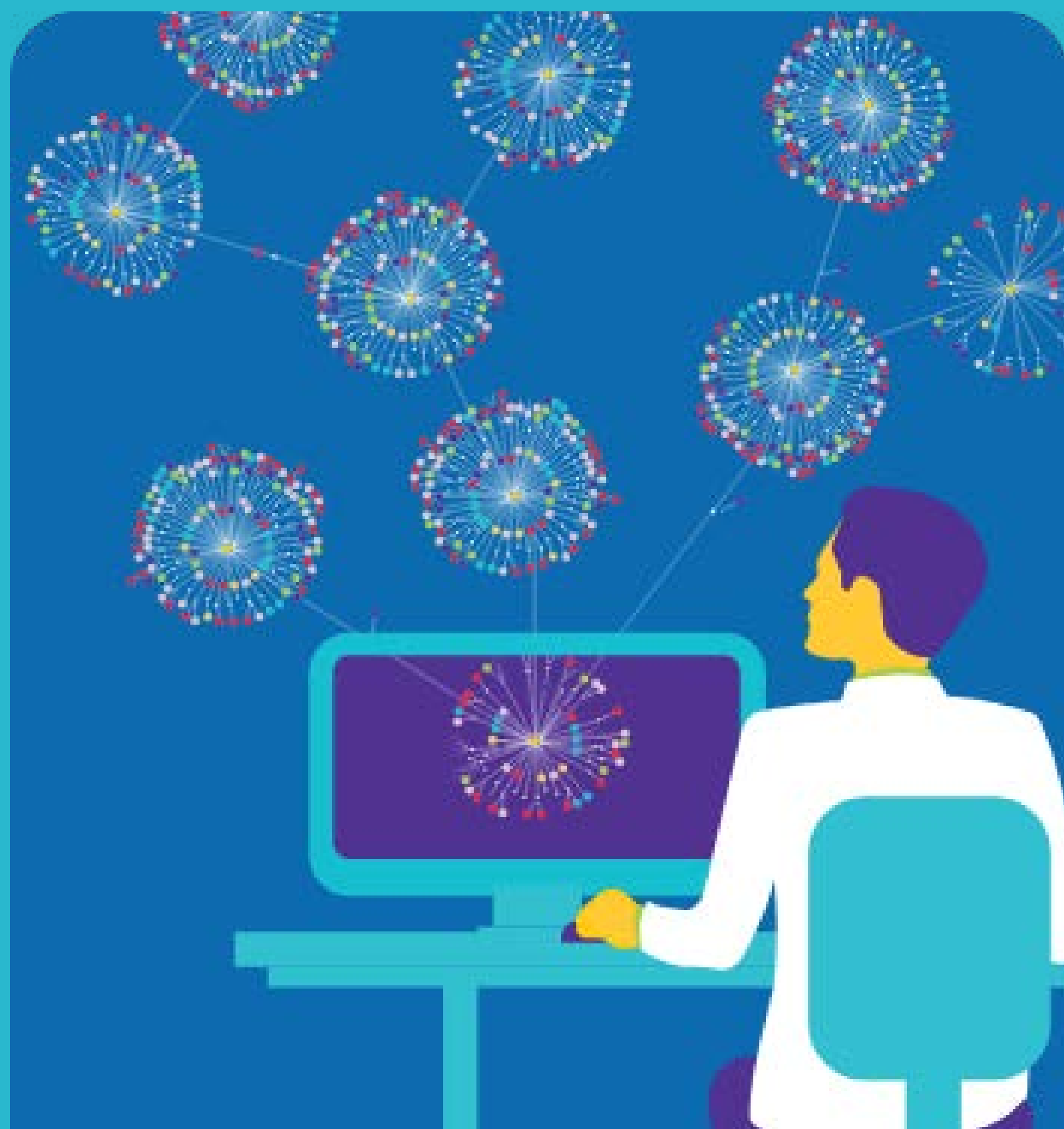
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synthia™ **Retrosynthesis** **software**



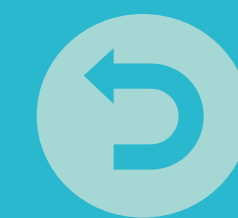
- Easily analyze tens of thousands of pathways for known and novel molecules against search criteria
- Combines powers of network theory, advanced computing and chemical expertise
- Speeds up pathway design from weeks to minutes, reduces costs by half
- Coded by chemists
- Proven, published and peer-reviewed by six chemists

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Amino Acids

Metabolism
Assay Kits



Metabolite
Libraries
& kits



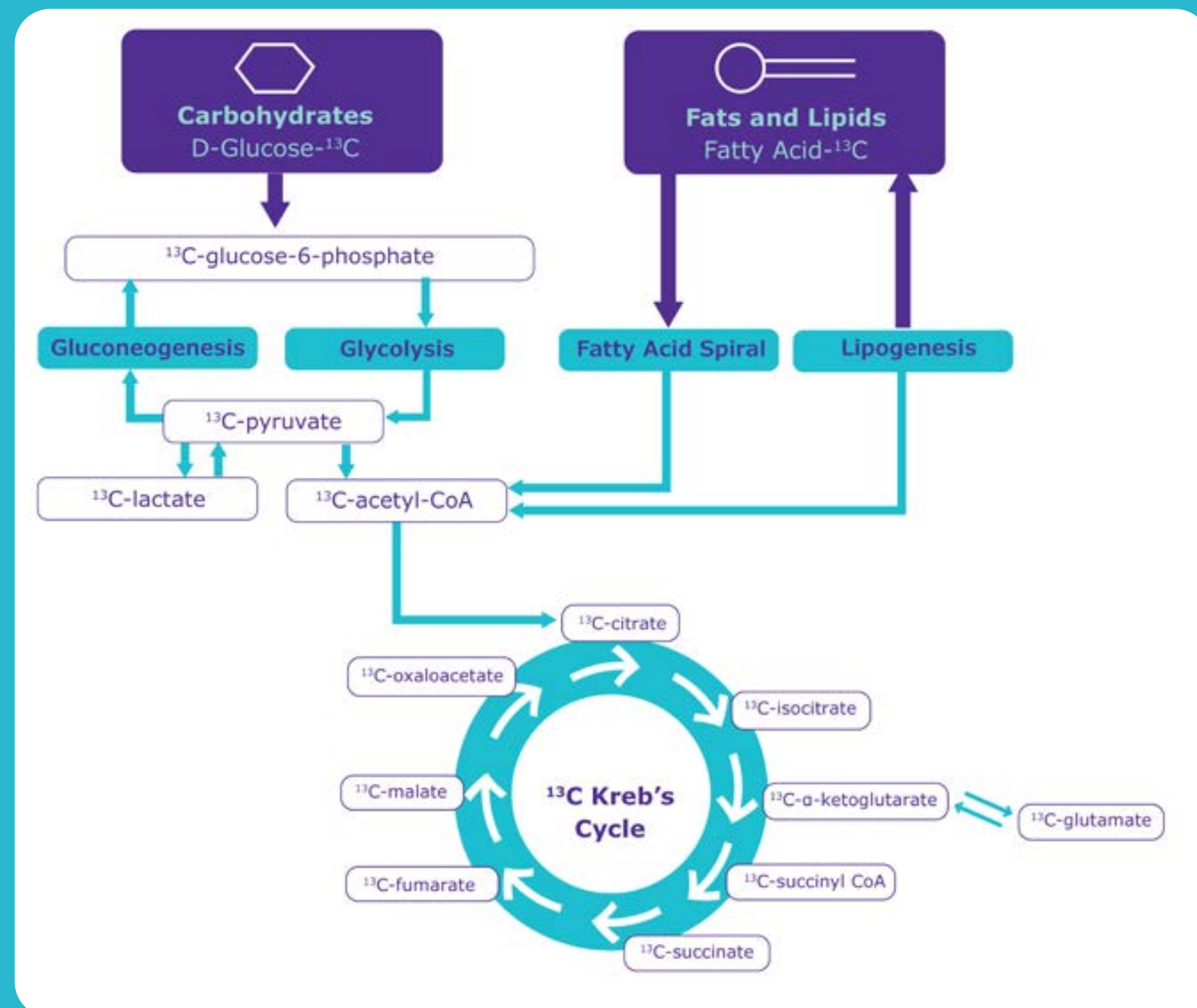
Solvents



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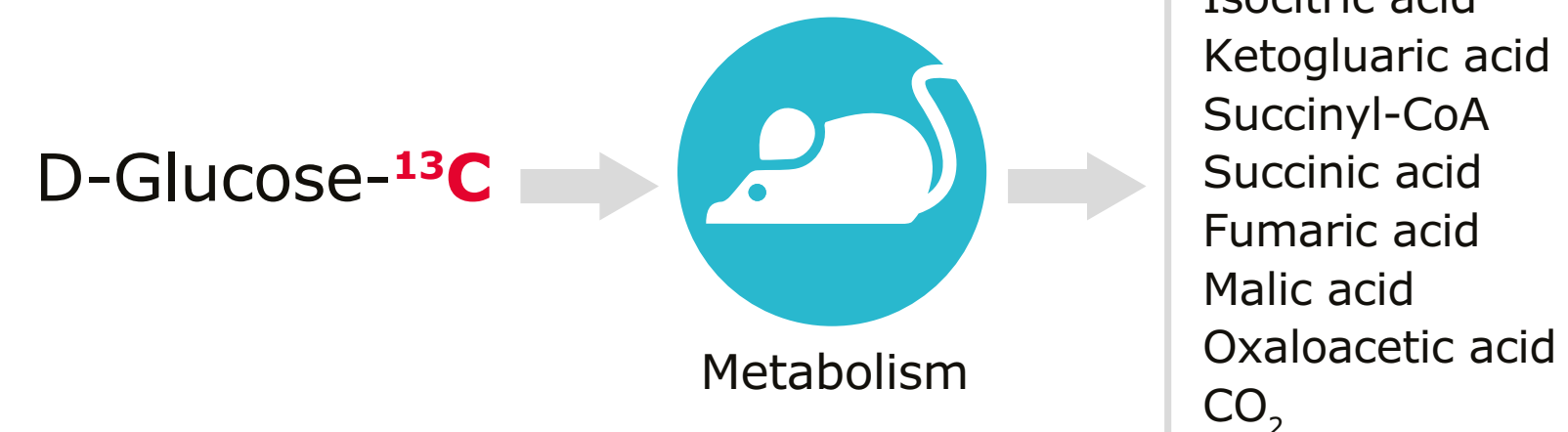
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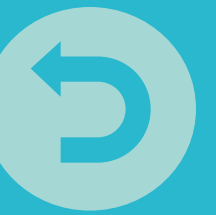


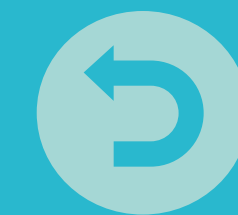
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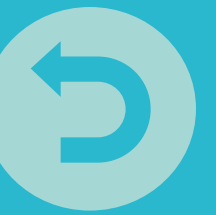
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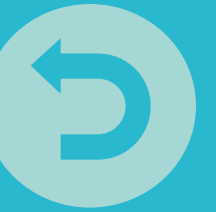
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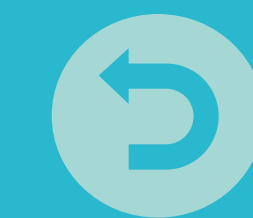
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Nucleosides &
Nucleotides

Detergents



Buffers



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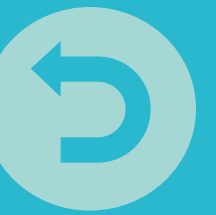


Solvents



Lipopolysaccharides (LPS)

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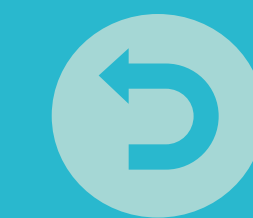
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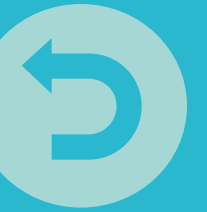
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Highly pure Biochemical compounds and Metabolites



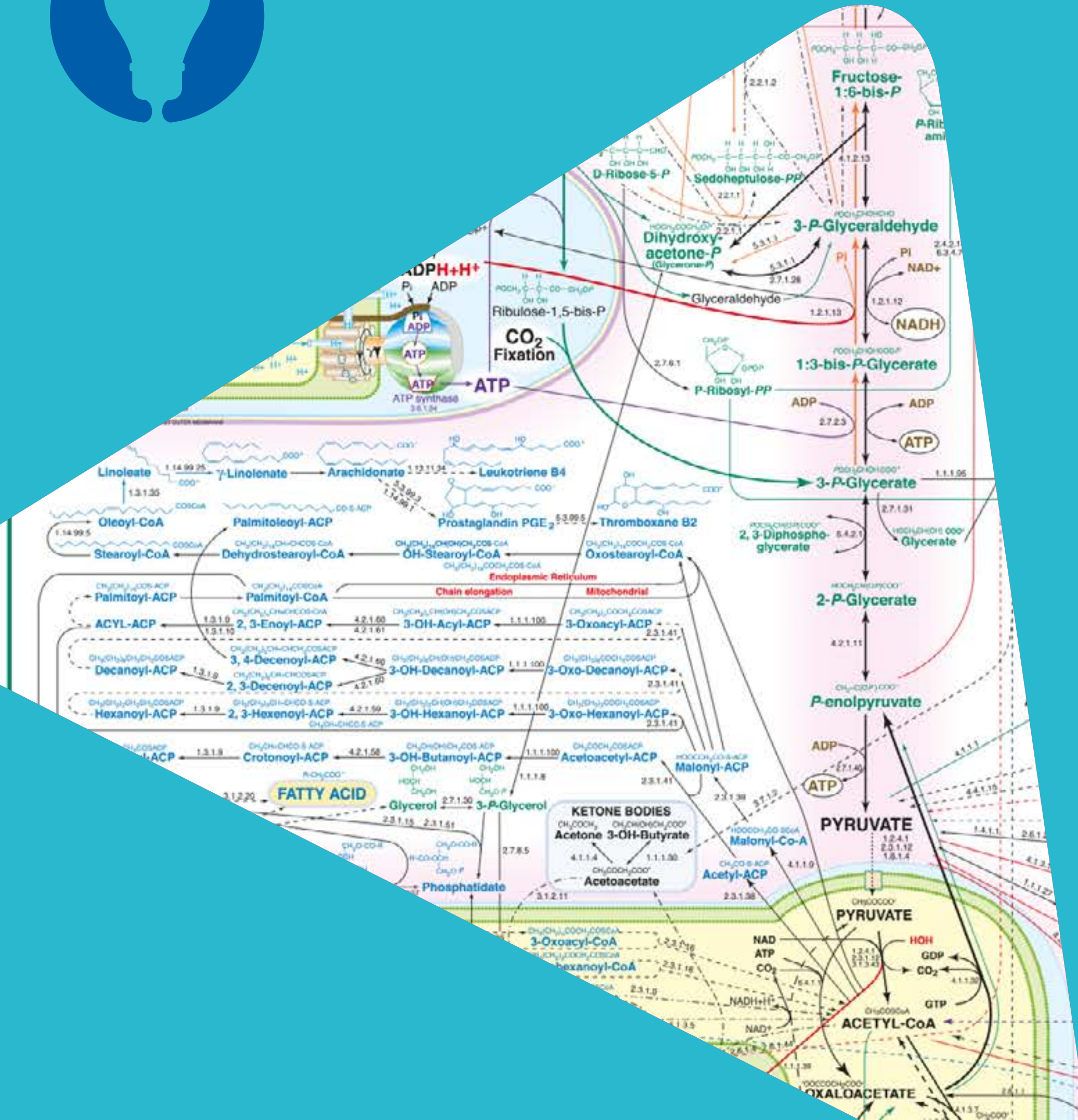
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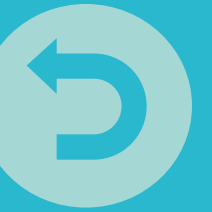
- Microbiome
- Disease research
- Metabolomics, genomics and proteomics
- Antibiotic resistance research
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Pathway Map

where Metabolites are
Searchable and Interactive





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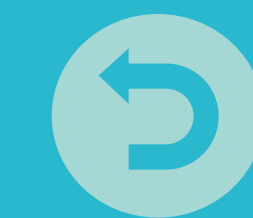
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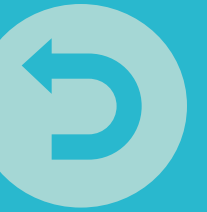
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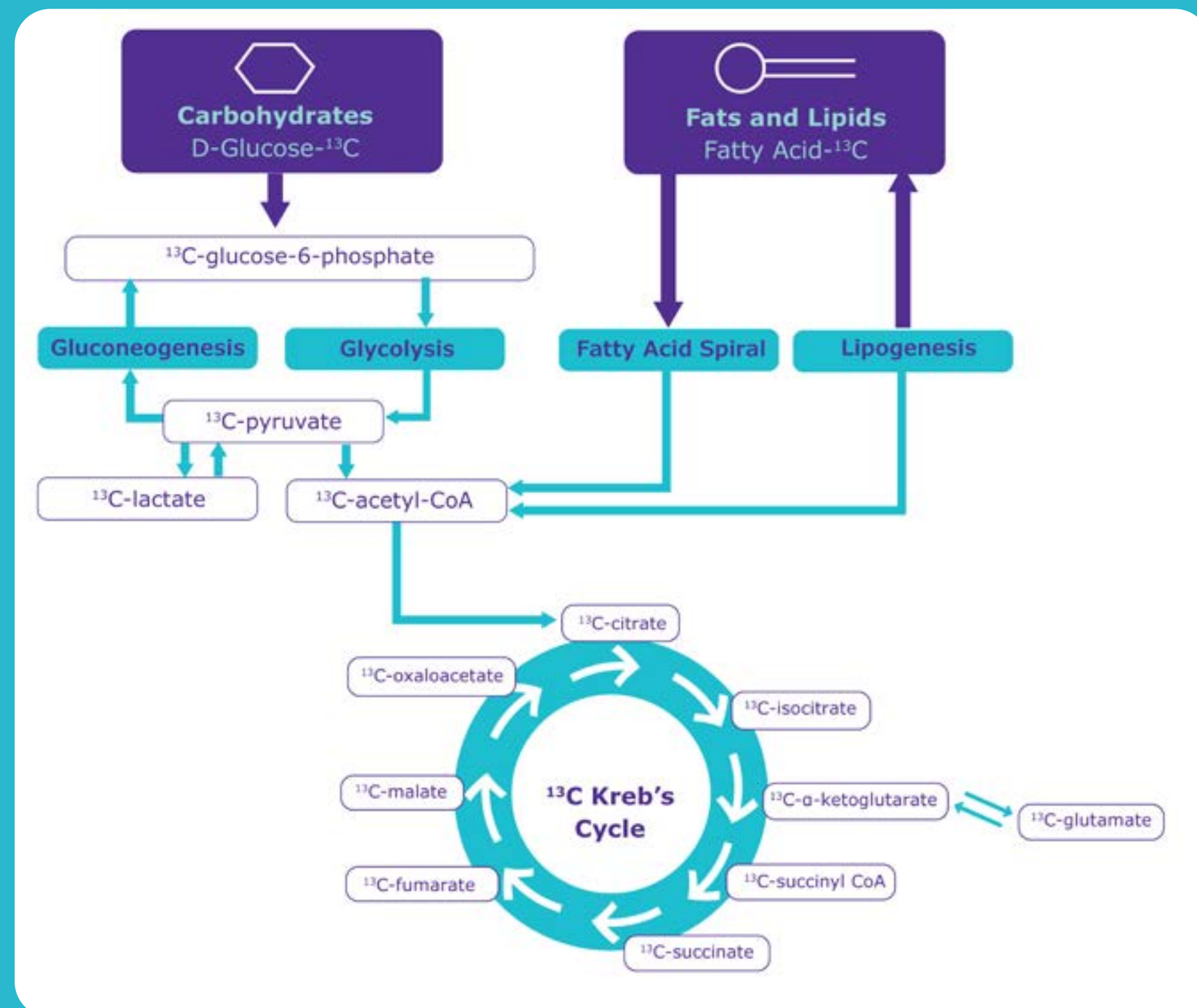
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Tracer studies with stable isotopes



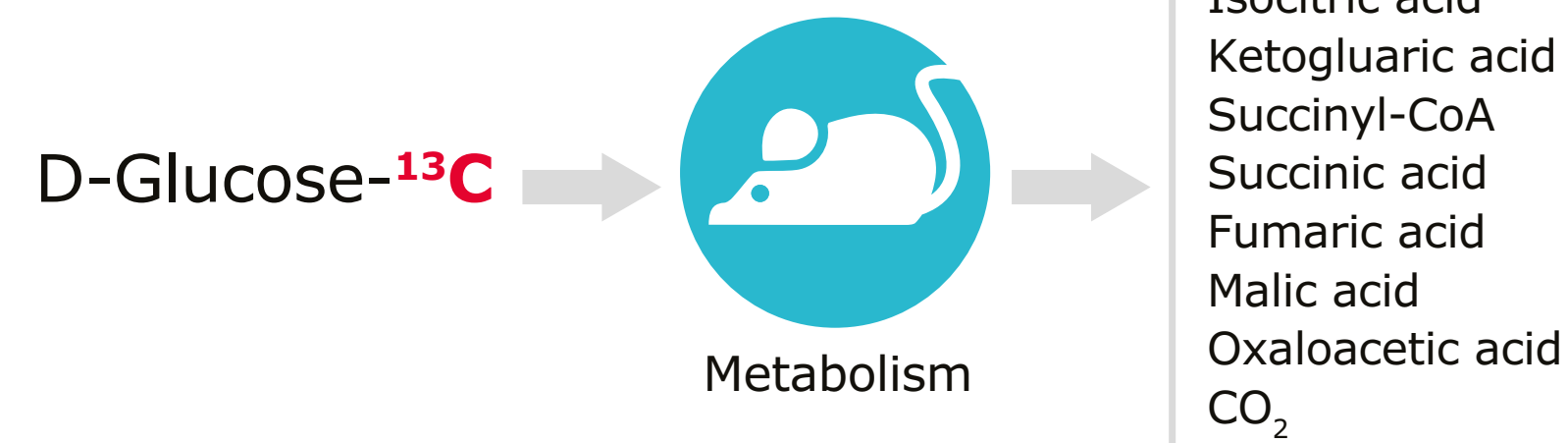
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Antibiotics

Carbohydrates

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Lipids

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Metabolite
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Metabolism
Assay Kits



Nucleosides &
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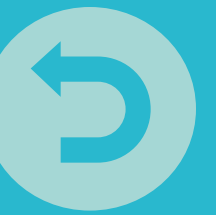
Agarose

Stable
Isotopes



Solvents





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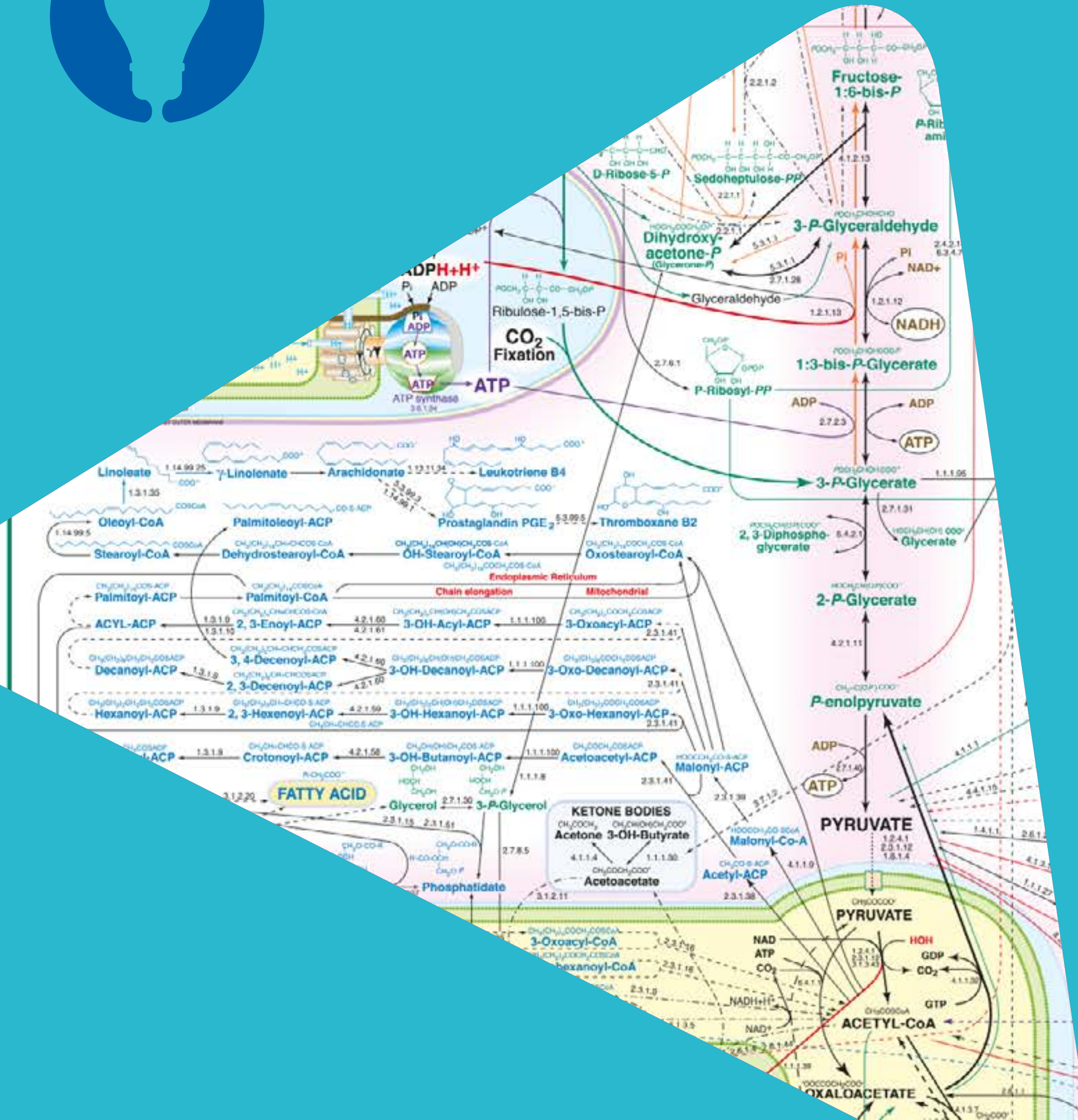
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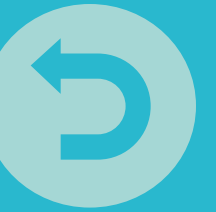
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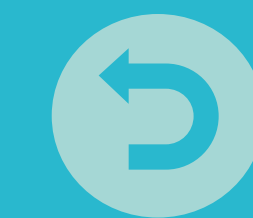
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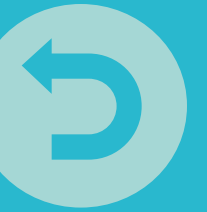
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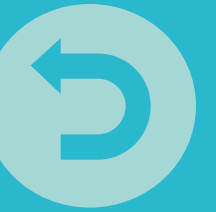


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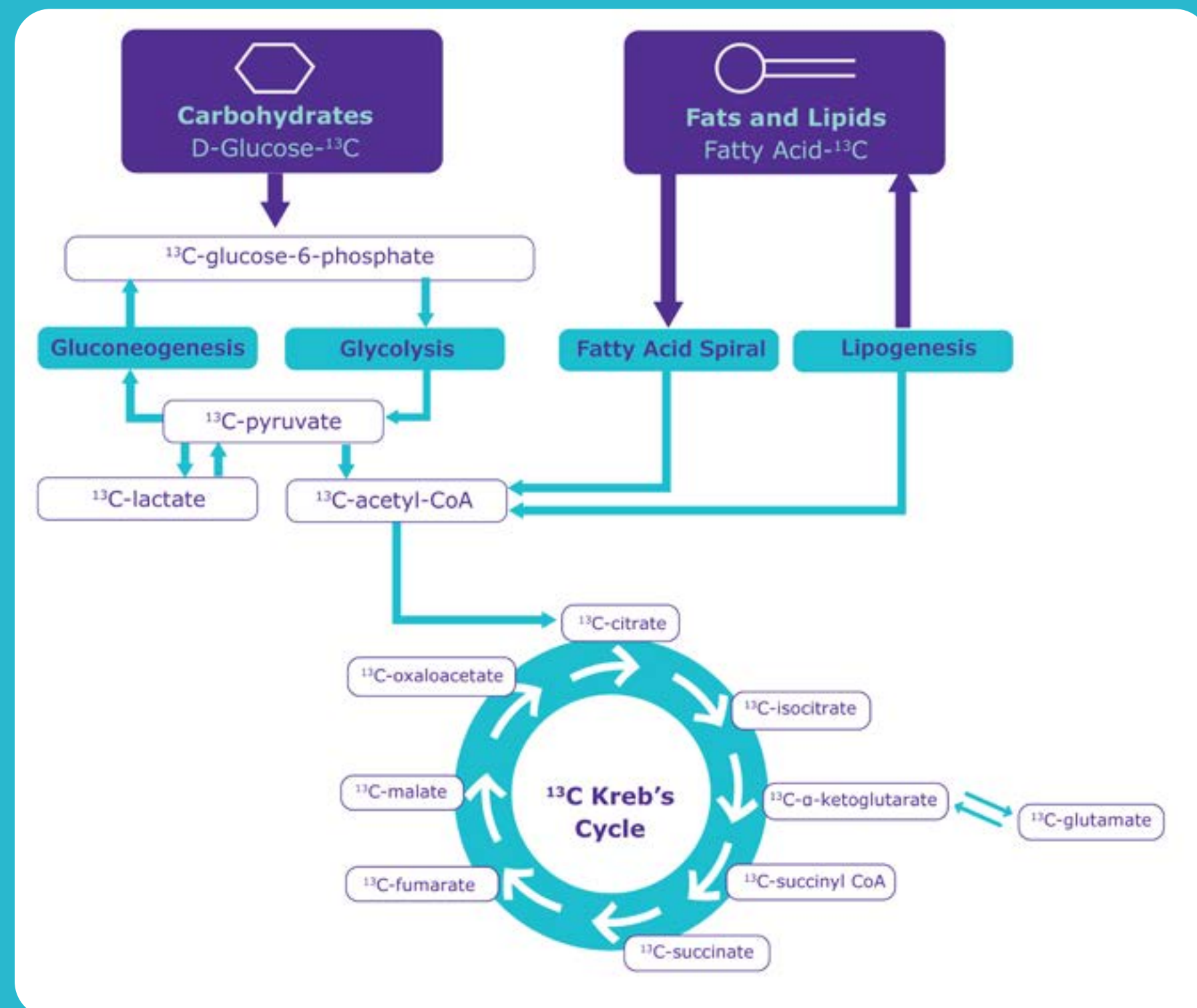
[pHast Pack](#)



Tracer studies with stable isotopes



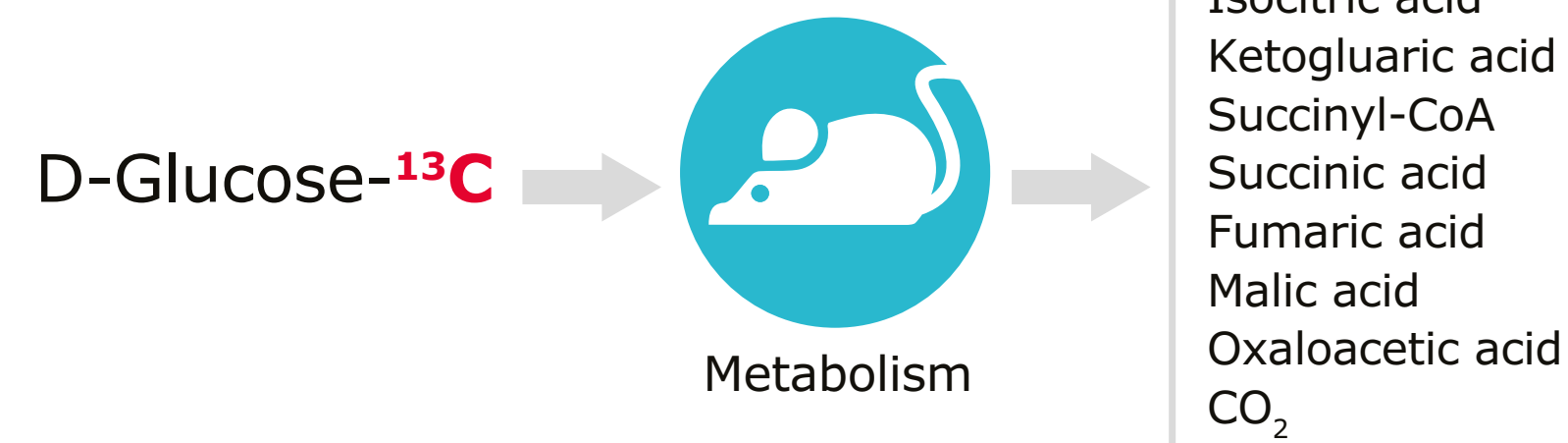
Understand metabolic pathways through stable isotope tracing



- Use ^{13}C , ^{15}N , D labeled bioactive compounds to understand metabolism pathways and rates.
- Specifically-labeled compounds allow for study of specific pathways.
- Wide array of labeled carbohydrates, amino acids, fatty acids, lipids, metabolites, and other bioactive compounds available.
- Studies can be done *in vivo*.

Stable Isotope Compounds as Tracers

As an example:



In which compound(s) does carbon-13 end up?

- The fate of the stable isotope label can help explain metabolic pathways.
- These studies can be done in cells, tissues, or whole organisms.

Learn More
Product Information:

[Stable Isotopes Webpage](#)

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