

# Deutero Corporate Overview

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2025

# Clearsynth

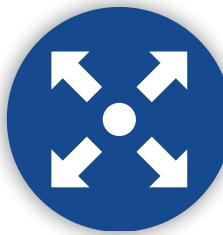
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# Clearsynth at a Glance



## LEADING THE WAY

Leader in Deuterium Chemistry and trusted partner for Reference Standards, Stable Isotope Labelled Compounds, Building Blocks, Fine Chemicals & Intermediates.



## EXPANDING HORIZONS

World's Largest Inventory of Stable Isotope Labeled Compounds



## WE OPERATE 24X7

### **Global Presence :**

**Sales & Stock Points** in Mumbai, Hyderabad, Toronto, Boston & Korea. Coming Soon in China.

**Sale Offices** in Europe & Japan.



## INSPIRING INNOVATIONS

Extensive Product Range Covering Production, Research and Analytical Testing



## OUR COMMITMENT

Global Compliance to Quality & Delivery



## ELEVATED EXPERTISE

Highly Experienced Scientific and Management Team

# Clearsynth Journey



# Leadership Team



**Vijay Ambati**  
Founder and Chairman



**Biren Parekh**  
Executive Director,  
Corporate Strategy & Operations.



**Dr. K. Sakthivel**  
Chief Scientific Officer  
Chemistry Services



**Mallikharjuna K.**  
Director  
Quality Services



**Prabhatsingh Girase**  
Director  
Contract Manufacturing



**Dr. Naga Siva Rao**  
Assistant Director - Chemistry  
R&D



**Satish Bhatia**  
General Manager  
Business Development



**Anal Ganai**  
Senior Manager  
Deutero Sales



**Shermishta Sharma**  
Manager-Sales & Marketing  
(North America)

# Major Business Verticals

## Clearsynth<sup>®</sup> STANDARDS



### Reference Standards and Research Chemicals

- Stable Isotopes
- Impurities
- Glucuronides
- Metabolites
- Fine Chemicals
- Building Blocks
- Catalysts
- Organometallics
- High purity Inorganics

## Clearsynth<sup>®</sup> DEUTERO



### Bulk deuterated reagents, Intermediates & Novel Compounds

- End Application
- Pharma
  - OLED
  - Semiconductor
  - Optical Fibers

## Clearsynth<sup>®</sup> CDMO



### Bulk Scale synthesis

- Labelled Compounds
- Un-Labelled Compounds

## Clearsynth<sup>®</sup> DISCOVERY



### In-house Program of Novel molecules with deuterium incorporation for enhancing its profile.

- Total patents filed: 60
- Patent granted: 2

## Clearsynth<sup>®</sup> SPECIALITY GASES



### Supply of commercial gases for industrial application

- Deuterium Gas
- Helium Gas
- Fluorine Gas

# Clearsynth In Numbers

**359,000+**  
Compounds in  
Catalog



**400+**  
Employees



**4,500+**  
Active Global  
Customers



**80,000+**  
Products in  
Inventory



**12+**  
Employees with  
Post Doc

**35+**  
Employees with PhD

**190+**  
Employees with MSc.



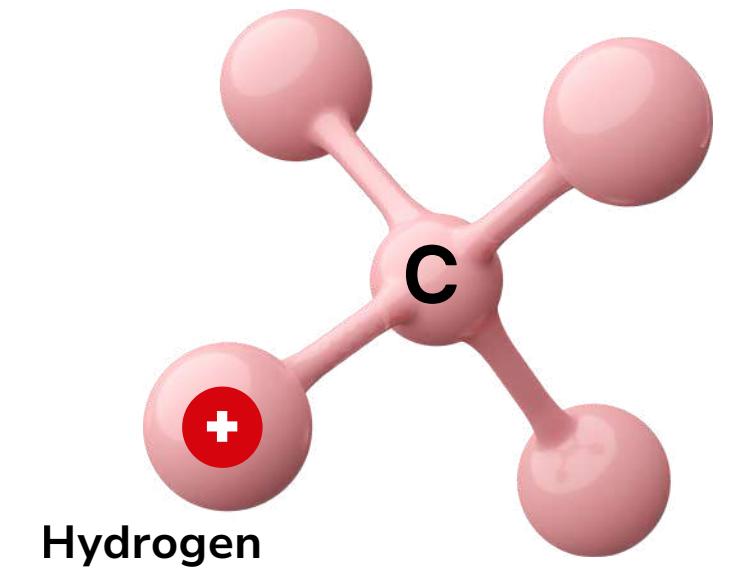
# Global Presence



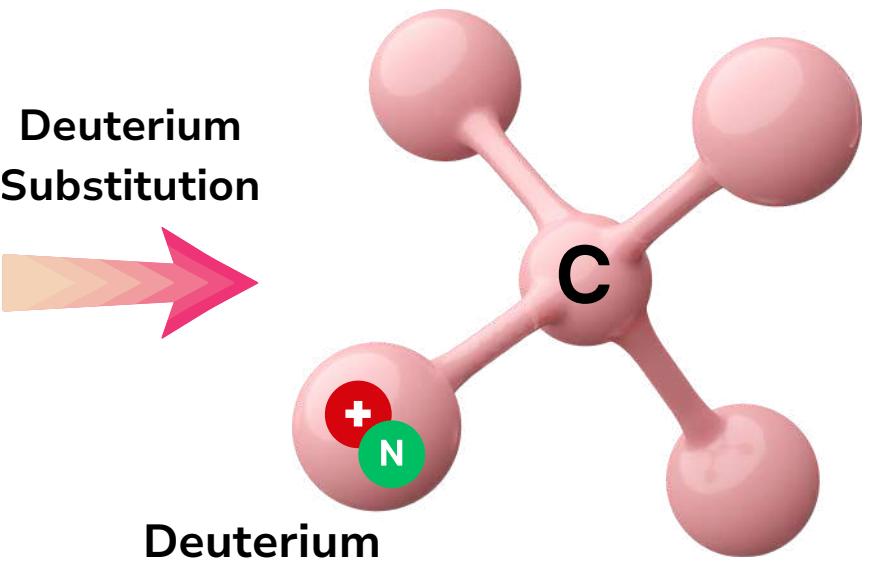
# Our Expertise in Deuterium Chemistry

- Deuterated Reagents
- Deuterated Solvents
- Deuterated Intermediates
- Deuterated Building Blocks
- Deuterium Labelled Products for Drug Development
- Deuterated Custom Synthesis

Non-Deuterated



Deuterated



# Deuterium In Drug Discovery

## Deutetrabenazine (Austedo)

### Reduced and less-frequent dosing

Teva  
Huntington Disease

## AVP-786 (Dextromethorphan)

### Reduced amount of co-administered booster

Otsuka  
Alzheimer

## Deucravacitinib (Sotyktu)

### Increased selectivity

BMS Pharma  
Plaque Psoriasis

## PXL065 (Deuterium Stabilized Pioglitazone)

### Reduced enantiomerization

Poxel Pharma  
Diabetes

B  
E  
N  
E  
F  
I  
T  
S

## Donafenib (Zepsun)

### Reduced toxicity

Suzhou Zelgen BioPharma  
Oncology

## VV116 (Deuremidevir)

### Possibility of oral administration

Junshi Biosciences  
Covid

## RTO01 (Deuileoleate Ethyl Linoleic Acid)

### Novel mechanism of action

Retrotope  
Progressive Supranuclear Palsy (PSP)

## Heroin Vaccine

### Increased pharmacodynamic activity

# Benefits Of Deuterium in Drug Discovery

**Increase in PK Parameter**

**Longer  $t_{1/2}$**

**Higher Drug Absorption**

**Higher AUC**

**Reduced Amount of Co-Administered Booster**

**Reduced Toxicity**

**Lower Incidence of Adverse Effects**

# Clearsynth DAE (HWB) Collaboration



**Press Information Bureau  
Government of India  
Department of Atomic Energy**

23-February-2018 19:30 IST

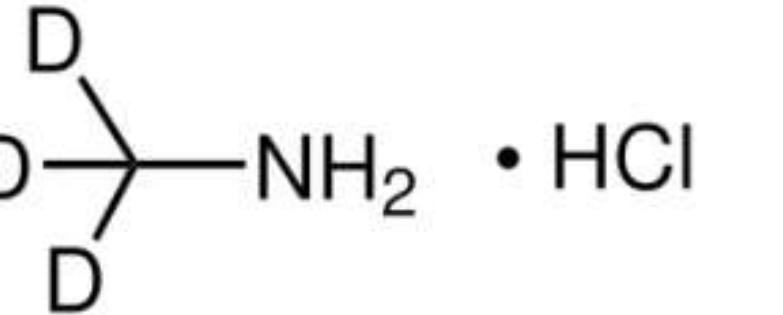
**Heavy Water Board signed an agreement with M/s Clearsynth, Mumbai for sale of 20 tonnes of Heavy Water in a year**

Heavy Water Board, a constituent industrial unit of DAE, signed a collaborative agreement with M/s Clearsynth, Mumbai yesterday for sale of 20 tonnes of Heavy Water in a year for development of deuterium labeled compounds, NMR Solvents, d-labeled Active Pharma Ingredients (APIs). This marks the beginning of an important era in the annals of Indian Nuclear industry leading to societal benefits for the masses. It is worth noting that during the previous years Indian industries have imported deuterated compounds and Heavy Water to the tune of 9 Million USD. This Agreement will initiate import substitution for the deuterated compounds and Heavy Water.

[https://hwb.gov.in/sites/default/files/MOU\\_between\\_HWB\\_and\\_Clearsynth\\_Mumbai\\_for\\_sale\\_of\\_20\\_tonnes\\_of\\_Heavy\\_Water\\_in\\_a\\_year\\_for\\_its\\_non-nuclear\\_applications.pdf](https://hwb.gov.in/sites/default/files/MOU_between_HWB_and_Clearsynth_Mumbai_for_sale_of_20_tonnes_of_Heavy_Water_in_a_year_for_its_non-nuclear_applications.pdf)

- Heavy water Board (HWB) under I & M Sector of the Department of Atomic Energy, working in the area of Nuclear as well as Non-Nuclear applications of Deuterium/Heavy Water.
- In the year 2018, the Heavy Water Board recognized the potential of non-nuclear applications of Heavy Water / Deuterium in the field of Analytical chemistry, Medicinal Chemistry, electronic & Semiconductor industry
- It collaborated with two Indian Private organizations to encourage indigenous development and manufacturing of deuterated products.
- One out of the two companies was Clearsynth. The Objective was Import substitution and also promote its exports.

# Patent Granted



**This is a Key starting material for Deucravacitinib, also known by the brand name Sotyktu, is a prescription medication used to treat moderate-to-severe plaque psoriasis in adults**

The U.S. Food and Drug Administration (FDA) approved deucravacitinib on September 9, 2022

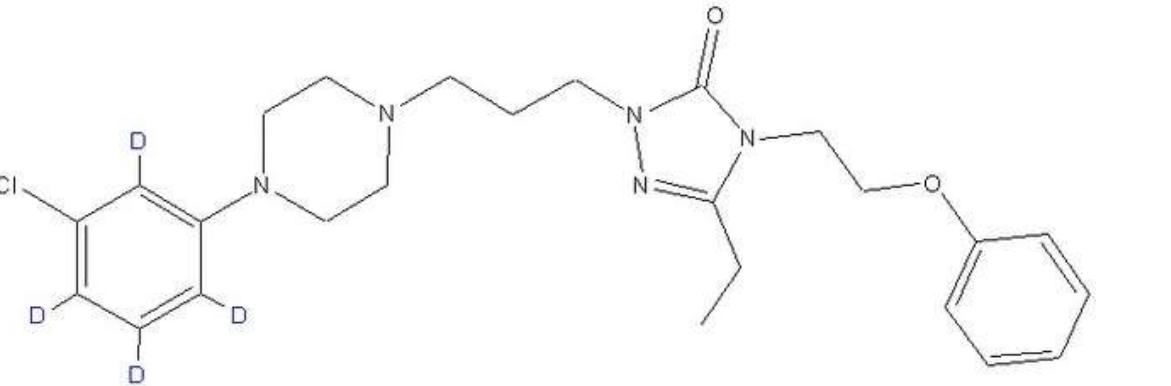
## Efficacy

Deucravacitinib is more effective than placebo and apremilast at improving psoriasis. In one study, more patients treated with deucravacitinib achieved PASI 75 and sPGA 0/1 at week 16 than those treated with placebo or apremilast.

## DEUTERATED METHYLAMINE



# Patent Granted



**Nefazodone is an Antidepressant CNS drug, used in the treatment of depressive disorder.**

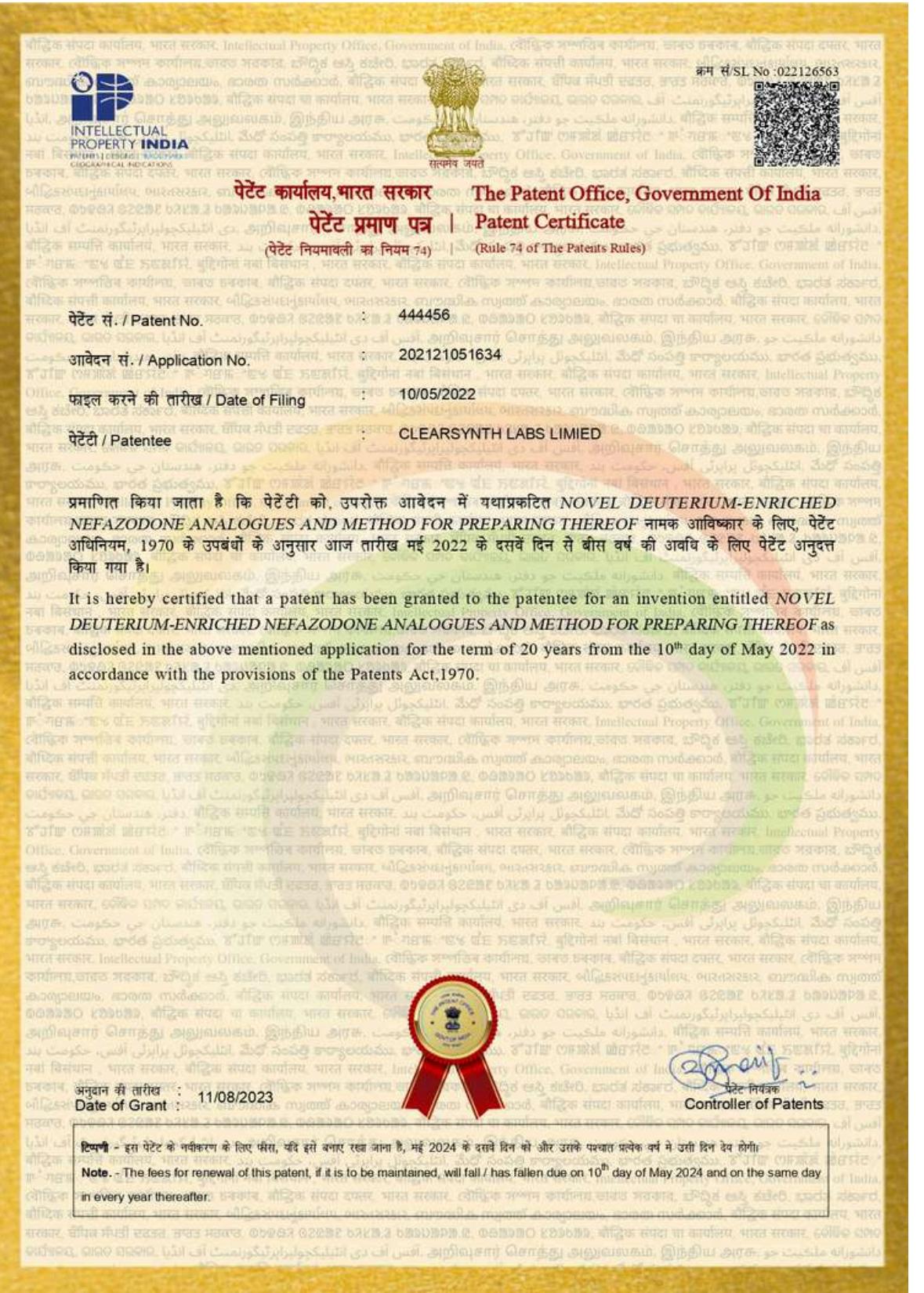
**Drug-induced hepatic injuries (with Nefazodone) is associated with a risk of elevated need for a liver transplant, or even death.**

**As per literature reactive metabolite 3 may contribute to the aetiology of nefazodone hepatotoxicity**

**(DRUG METABOLISM AND DISPOSITION;33:243–253, 2005)**

**Deuteration at the soft spot is expected to significantly decrease in the concentration level of reactive metabolite 3 and may increase the safety profile of the drug molecule.**

## DEUTERATED NEFAZODONE



# Deuterated Products (Deutero)

- Benzene-D6
- Bromobenzene-D5
- Chlorobenzene-D5
- Iodobenzene-D5
- Phenyl Boronic Acid-D5
- 1,3-Dibromobenzene-D4
- Tert-Butanol-D10 / D9
- Sodium Deuteroxide
- Anthracene-D10
- Carbazole-D8
- Naphthalene-D8
- 9-Bromo Anthracene-D9
- 1-chloro-3-iodobenzene-D4
- Sulphuric Acid-D2
- Deuterated Bromide
- Deuterated Chloride
- Bromocyclopentane-D9
- Benzoic Acid-D5
- Tert-Butyl Chloride-D9
- Methanol-D4
- Methanol-OD
- Dibromoethane-D4
- Ethanol-OD
- Lithium Aluminum Deuteride-D4
- Sodium Boro-deuteride-D4
- Dimethylsulfoxide-D6
- Methyl D3 Amine HCl
- Methyl Iodide-D3
- Aniline-D5
- Phenol-D5
- Acetone-D6
- Piperazine-D8
- Propanol-D7
- Propionic Acid-D5
- Toluene-D8 / D5
- Acetic Acid-D4 / D3
- Chloroform-D
- Dimethylamine-D6

# Current Capacity

List Of Products	Present Status	Capacity/ month (Kgs)
Benzene D6 - 99% D-atom	Commercial Scale	2000
Benzene D6 - 99.5% D-atom	Commercial Scale	2000
Bromobenzene D5 - 99% D-atom	Commercial Scale	600
Iodobenzene D5 - 98% D-atom	Commercial Scale	200
Phenyl D5 Boronic Acid - 99% D-atom	Commercial Scale	150
1,3 Dibromobenzene D4 - 98% D-atom	Commercial Scale	150
3 Chloro 1 iodobenzene D4 - 98% D-atom	Commercial Scale	25
Carbazole D8 - 98% D-atom	U/R&D (D atom improvement)	-
Anthracene D10 - 98% D-atom	U/R&D (D atom improvement)	-
9 Bromoanthracene D9 - 98% D-atom	Gram Scale	5
Tertiary Butanol D10	Commercial Scale	25
Bromocyclopentane D9 - 98% D-atom	Commercial Scale	200

Bromobenzene, Chlorobenzene, Iodobenzene, Phenylboronic acid - Capacity will depend upon Benzene D6 spare capacity and can be interchanged

D-2 is presently manufactured in-situ in Lab for Methanol D4, we plan to set-up a separate plant for D2 gas for Semi-conductor

# Current Capacity

List Of Products	Present Status	Capacity/ month (Kgs)
Methanol D4 - 99.5% D-atom	Commercial Scale	50
Iodomethane D3 - 99% D-atom	Commercial Scale	3800
Methyl D3 amine Hydrochloride - 99% D-atom	Commercial Scale	50
Tertiary Butanol D9	Commercial Scale	25
Aniline D5	Commercial Scale	200
Benzoic Acid D5	Commercial Scale	100
Sodium Deuteroxide - 99% D-atom	Commercial Scale	500
Deuterium Bromide - 99% D-atom	Commercial Scale	500
Deuterium Chloride - 99% D-atom	Commercial Scale	200
Sulfuric Acid D2 - 99.5% D-atom	Commercial Scale	3000
Dimethyl Sulfoxide D6 - 99.5% D-atom	Commercial Scale	25
Chloroform D - 99.5% D-atom	Commercial Scale	25
D2 Gas	U/development	Only captive

Bromobenzene, Chlorobenzene, Iodobenzene, Phenylboronic acid - Capacity will depend upon Benzene D6 spare capacity and can be interchanged

D-2 is presently manufactured in-situ in Lab for Methanol D4, we plan to set-up a separate plant for D2 gas for Semi-conductor

# The Clear Choice !

- ✓ **High Isotopic Purity**
- ✓ **Custom Synthesis / New Product Development**
- ✓ **High Volumes / Variable Packaging**
- ✓ **Reliable and continuous Supply**
- ✓ **Pilot and Bulk Scale Manufacturing**



# Clearsynth Innovation Centre Hyderabad



**5 Floors**

**50,000+ Square Foot**

**250+ Fume Hoods**

**250+ Scientist**

**100+ Support Staff**

**Location : Industrial Development  
Area, Mallapur, Hyderabad, India**

# Chemistry Operations



- 23 Labs with 10 Hoods Each
- Capacity from mg to kg
- Highly Trained Manpower
- All Safety Precautions in Place
- Access Controlled
- Security Cameras
- All Literature Access

# Warehouse Operations



- Room Temperature Warehouse
- 2-8° Walk-in Cold storage
- -20° Walk-in Cold storage
- Easily Accessible Racks
- Clean Rooms for Packing & Labelling
- Access Controlled
- Security Cameras

# Clearsynth Innovation Centre Unit 2



**Diverse Reaction**

**Automated Process**

**EHS Compliant**

**150+ Scientist**

**100+ Support Staff**

**Location : Industrial Development  
Area, Mallapur, Hyderabad, India**

# Our Analytical Instruments



Name of Instruments	Instrument Brand	Number of instruments
600 MHz Bio NMR	Bruker	1
ICP MS	Perkin Elmer	1
GC-HS/MS	Thermo	1
LCMS	AB Sciex and Shimadzu	2
TGA	Perkin Elmer	1
Prep HPLC	Shimadzu	2
HPLC	Waters	3
HPLC	Dionex	1
HPLC	Thermo	6
Flash System	SapaBean	1
Coulometer	Metrohm	1
IR	Shimadzu	1

# Bulk Manufacturing Facility

CDMO Facility in Karnataka, India



**150+ Scientist**

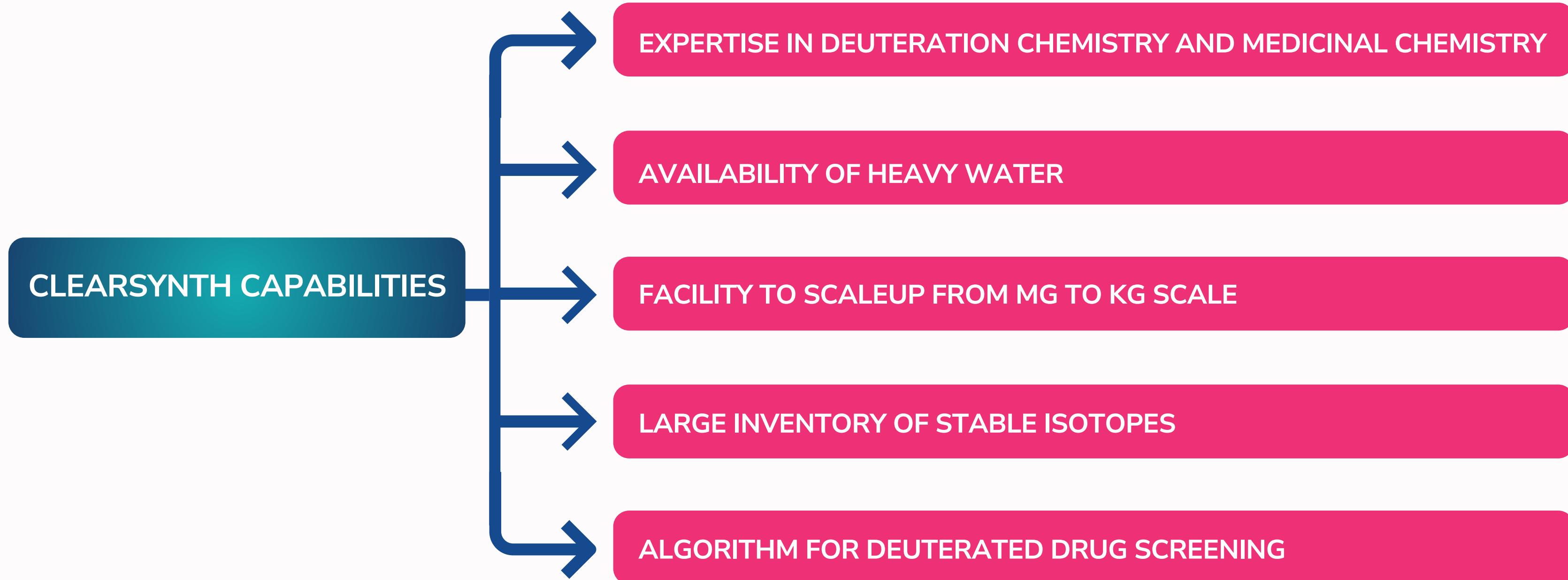
**Multiple Reactor**  
(500 Ltr to 7 KL)

**EHS Compliant**

**WHO GMP Certified**

**3 different Pilot plants**  
{Small(25L), Medium (60L), Large (125L)}

# Why Clearsynth?



# Globally Accredited Quality Certifications

## Certifications

ISO/IEC 17025:2017 (ACCAB/IN/TL/1058)

ISO 17034:2016 (ACCAB/IN/RMP/1059)

ISO 14001:2015 (QEC 70560768/17/E Rev:003)

ISO 9001:2015 (QEC 40457660/17/Q Rev:004)

ISO 45001:2018 (QEC 77152649/17/O Rev:004)

FDA Registration Certificate

DSIR Recognition Certificate



45001:2018



ISO 17025



14001:2015



ISO 17034



9001:2015



ISO/IEC 17025 NABL  
Audit scheduled in May2025



# Clearsynth Services



**Analytical Services**



**Small Molecule Manufacturing**



**Bio NMR Services**



**Process Development**



**CDMO Services**



**Contract R&D**

# Industry wise Application



Pharmaceuticals



Agrochemicals



Biotech



Clinical Research



Academics



Analytical Testing



Electronics



CRDMO



Diagnostics



Speciality Chemicals



Food & Beverages



Cosmetics

