

# VISION

Production and supply of APIs to the OTC and Generic finished dosage manufacturers using a non-patent-infringing process.

Provide cost-effective advance intermediates from India under total GMP to overseas customers.

A fully compliant and responsible manufacturer of API's and advance intermediates

Skill development to science graduates and post-graduates in the areas of Drug research and guiding them for PhD degree.

# **ABOUT ANVITHA**

- Anvitha Life Care Private Limited, founded in 2016, is promoted by Dr T. Prakasam with a group of scientists and technocrats with combined experience of more than 80 years. The facility is spread over 17658 sq
- Anvitha Lifecare, was founded with a basic vision of providing best chemistry services to support Clinical Research by developing difficult chemistries,
- Anvitha works with several Multinational Innovator companies supporting them throughout the clinical phases by providing Key starting materials and Intermediates,
- Anvitha works with Generic companies by collaborating at an early stage of development in the supply of Intermediates,
  - Anvitha Lifecare aspires to provide end to end services to both innovator companies and Generic API companies.

### ABOUT DIRECTORS

### **Dr Prakasam Tangirala – Synthetic Organic Chemistry**

- Promoter& Managing Director of ANVITHA is an organic chemist with an experience of over 30 years in Research and Development of Active pharmaceutical ingredients, intermediates, specialty molecules, new molecule discovery, contract research, technology transfer and scaleup.
  - Publications 15 in reputed journals
  - > 10 US / Indian patents
  - > 2 Product patents
- > Developed processes for more than 500 molecules
- Commercialized more than 200 projects successfully
- Led the team of 75 scientists.
- > Joint research with IIT Chennai.
- Supervisor ship from Anna University to guide research scholars for PhD degrees.
  - Trained several students from local universities in drug research



ANVITHA LIFECARE PRIVATE LIMITED

### **ABOUT DIRECTORS**

### **Dr B.N. Hitesh Kumar – Synthetic Organic Chemistry**

- Director –Research of ANVITHA is an organic chemist with an experience of 29 years in Quality and Research and Development of Pharmaceutical companies
  - > Publications 10 in reputed journals
  - > 11 US / Indian patents



- Developed and commercialized processes for more than 300 molecules from gram level to ton scale
- > Trained several students from local universities in drug research

### ABOUT DIRECTORS

## **Mr. Vishweshwer Muthyam – Director**

- Post graduate in Chemistry and Total Quality Management (TQM)
- With an experience about 28 years in API Manufact from Kilo scale to commercial scale in Multi-national (
- Having rich experience in Kaizen implementation
- Exposure on Regulatory audits like TGA, USFDA, EU GMP,
  COFEPRIS, KFDA and several customer audits.



## LOCATION

### **REGD OFFICE**

RESEARCH & DEVELOPMENT

WORKS

PLOT NO:6, INDUSTRIAL PARK, APIIC, ATTIVARAM, OZILI MANDAL, NAIDUPETA, NELLORE DT-524402 NAIDUPETA

- Well Equipped Chemistry Laboratories supported by Analytical Instrumentation.
- 6 fume hoods with all ancillary facilities,
- Provision for expansion to add another 10 fume hoods.
- Quick scale up studies in R&D itself with Kilolab,
- Facility to generate gms to kilo scale development quantities,
- Readily available GMP Kilo lab with all powder processing equipment for supply of initial GMP quantities,

### **Facility: Analytical Instrumentation**

- > FTIR
- ➢ HPLC (UV, PDA, DETECTORS)
- ≻ GC
- > UV
- > POLARIMETER
- Wet laboratory
- GMP stability facility

## **Facility: Kilo Scale Manufacturing**

Anvitha's kilo scale manufacturing is a state of art facility consisting of:

- Dedicated airconditioned suits with 100k filtered air and controlled humidity for synthesis, drying, milling, sifting, blending and packing in compliant with Gmp requirements





# **Facility: Kilo scale manufacturing**



#### ANVITHA LIFECARE PRIVATE LIMITED

## **Manufacturing Facility details**

### Bulk Manufacturing has the following equipment

EQUIPMENT NAME	CAPACITY	ΜΑΚΕ	QTY
SS REACTOR	250 L	SACHIN	1
SS REACTOR	1 KL	VEE	1
SS REACTOR	2 KL	VEE	3
SS REACTOR	4 KL	VEE	2
HYDROGENATOR (Pressure – 10 Kg/cm2; Temp: 120 deg C)	2 KL	VEE	1
GL REACTOR	250 L	GMM	1
GL REACTOR	4 KL	STANDARD GLASS	1
GL REACTOR	2 KL	STANDARD GLASS	2
CENTRIFUGE	48″	ACCURATE ENGINEERS	3
CENTRIFUGE	24″	AIM INDUSTRIES	1

Cont.. ANVITHA LIFECARE PRIVATE LIMITED

### Manufacturing facility details

Bulk Manufacturing has following equipment

EQUIPMENT NAME	CAPACITY	ΜΑΚΕ	QTY
CENTRIFUGE- HALAR COATED	36"	JOFLO	1
TRAY DRIER	48 TRAYS	ACCURATE ENGINEERS	1
TRAY DRIER	24 TRAYS	GROVERS	1
VAC. TRAY DRIER	24 TRAYS	GROVERS	1
LEAF FILTER	100 LITRES	VEE	1
CONTA BLENDER	50 L & 300 L	SAMS	2
HIGH VACUUM DISTILLATION @ 0.5			
mmHg	500 LITRES	FINE FAB	1

## FACILITY: BULK MANUFACTURING









#### **ANVITHA LIFECARE PRIVATE LIMITED**

### Facility: Bulk scale manufacturing

### **Cleanroom Equipment for API**

EQUIPMENT NAME	CAPACITY	MAKE	QUANTIT Y
SS REACTOR	1 KL	VEE	1
GLR REACTOR	1 KL	VEE	1
CENTRIFUGE	36″	ACCURATE ENGINEERS	1
DOUBLE CONE VACUUM DRIER	150 L	GROVER	1
VACUUM TRAY DRIER	48 TRAYS	ACCURATE ENGINEERS	1
SIFTER	30″	ACCURATE ENGINEERS	1
MULTIMILL	150 KG	ACCURATE ENGINEERS	1

### UTILITIES

### BOILER

	MAKE		CAPACITY		FUEL			
THER	THERMAX(COMBLOC PACKAGED HYBRID BOILER)		2 TON/HOUR		COAL/IGNITE/ D	WOO		
			HOT O	IL SYS	TEM			
	MA	KE	CA	PACIT	Ϋ́		MODEL	
	THER	MAX		LAKH _/HOl			TFH	
14	MAKE		CAPACITY			MODEL		
	VOLTAS		.81440 K AL/HOUR		RECIE	PRO	CATING CHILL	ER
	CHIL		LER (-	-20°C)		and the second second		
	MAKE CAPA		CITY			MODEL		
	VOLTAS 84672 K C		CAL/H	IOUR	SCF	REW CHILLER		
					/	and the second se		



### AIR COMPRESSOR

MAKE	MAXIMUM PRESSURE
ATLAS COPCO	7.5 Bar

### **COOLING TOWER**

CAPACITY	QUANTITY	MODEL
150 TR	3 NOS	ROUND

### NITROGEN GENERATOR

CAPACITY	QUANTITY	MODEL
30 Nm3/ hr	1	TRIDENT

### **Facility : EHS**

The facility has designed zero discharge waste water treatment and evaporation systems consisting of:

- 1. MEE (25 KLD)
- 2. Stripper (10 KLD)
- 3. ATFD (2 KLD) and
- 4. RO Plant to Treat high and low TDS effluents. and

#### Safety

- 1. Fire Hydrant System
- 2. Modular Fire Extinguishers
- 3. Occupational Health Center

## **Research Areas of Interest**



#### **ANVITHA LIFECARE PRIVATE LIMITE**

# **Advantage Anvitha**

- A custom research organization promoted by strong scientific team with synthetic organic chemistry expertise in Drugs & Specialty chemical development.
- Team has Vast experience in execution of challenging Chemistry projects –API'S ,INTERMEDIATES and CHEMICALS from gram level to ton scale
  - Dedicated kilo manufacturing facility to handle multi kilo production and Bulk manufacturing facility for ton lots

## **Advantage Anvitha**

- A custom research organization promoted by strong scientific team with synthetic organic chemistry expertise in Drugs & Specialty chemical development.
- Team has Vast experience in execution of challenging Chemistry projects –API'S ,Intermediates and Custom synthesis from gram level to ton scale with regulatory exposure-Successfully ,developed and commercialized, around 25 products in the last 24 months in the facility.
  - Has dedicated kilo manufacturing facility to handle multi kilo production and Bulk manufacturing facility for ton lots .

## **CHEMISTRY ACTIVITES**

- Process development as per customer needs
- Development of novel chemical entities as drug substances
- Simpler, cost effective routes, synthetic routes with production and environment friendly processes
- Identification and synthesis of process related impurities and reference standards

Synthesis of Library molecules and building blocks for NDD

# **EXPERTISE**

- Chiral Chemistry
  *Fischer Indole* Synthesis
- Nenitzescu Indole reaction
- Mannich Reaction
- Baltz-Shiemann reaction •••
- *Grignard* Reaction *Eshweiler Clarke* •••
- **Methylation**
- Pechmann condensation •••
- ••• **Pinner** Reaction
- Bischler-Napieralski Reaction Crossed Aldol Condensation •••
- •••
- **Reductive amination** •••
- Hydrogenolysis \*
- \*
- •
- Asymmetric Induction Hydride Reductions Organometallic reactions •
- •••
- *Wittig* Reaction Benzoin Condensation

- Cryogenic Reactions
- Protection and Deprotection Chemistry (Boc, Fmoc, Ts,Cbz)
- Separation of Alkaloids using Column Chromatography
- Haloform Reaction
- Guanidinylation
- Nitrosation
- Bromination
- Iodination •••
- Oxidation
- Chlorination
- Fluorination
- Hydrogenation using Noble metal catalyst

# EXPERTISE

- **A. Asymmetric synthesis:**
- Optically active primary amines
- Optically active diols

## **B.** Resolution:

- By diastereomeric crystallization
- Using less than stoichiometric quantity of resolving agent
  - Asymmetric transformation of diastereomeric salts
    - Kinetic resolution

# **EXPERTISE**

C. Resolving Agents
 Tartaric acid Derivatives
 Half amides
 Glutamic acid
 Mandelic acid

D. Designer Resolving Agents
 1,2-diamines

E. Asymmetric Ligands
 Oxazolidinone
 Dialkyl amino alcohols

# MEDICINAL CHEMISTRY EXPERTISE

- Heterocyclic & hetero aromatic chemistry
- Peptide Chemistry
- Natural products chemistry
- Resolution of enantiomers & chiral synthesis
- Asymmetric synthesis

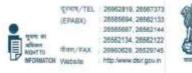
ANVITHA LIFECARE PRIVATE LIM

# **Key Milestones**

- R&D activity started in May 2018
- Manufacturing activity started at site in Feb' 2020
- First patent : Process for preparation of 1- substituted aryl-2-amino alcohols
- Provisional Filed on: 12th June, 2019, Application No: 201941023301
- Final Patent Filed on: 15<sup>th</sup> June, 2020, Application No: 201941023301/vl/Patent 221
- Facility has been audited (virtual/on-site) and approved by customers like Mirati, Alkem, Anthem biosciences ,Biocon and Piramal

# Accreditations

R&D is recognized by Department of Scientific and Industrial Research (DSIR)



#### 

#### F. No. TU/IV-RD/4510/2021

To

M/s. Anvitha Life Care Pvt. Ltd. Plot No. 6. Industrial Park, Attivaram (V), Ozili (M), Naidupeta, SPSR Nellore – 524 402 (Andhra Pradesh)

Subject: RENEWAL OF RECOGNITION OF IN-HOUSE R&D UNIT(s)

#### Dear Sirs,

This has reference to your application for renewal of recognition of your in-House R&D unit(s) beyond 31-03-2021 by the Department of Scientific and Industrial Research.

 This is to inform you that it has been decided to accord renewal of recognition to the in-House R&D unit(a) of your firm at Plot No. 6, Industrial Park, Attivaram (V), Ozlil (M), Naidupeta, SPSR Nellore (D) (Andhra Pradesh) upto 31.03.2024. Terms and conditions pertaining to this recognition are given overleaf.

3. Kindly acknowledge the receipt of this letter

Yours faithfully, (Dr. P. K. Dutta) Scientist - 'F

विज्ञान और डीफोनिजी मंत्रालय वैज्ञानिक और औसोनिक अनुमंधान विभाग टेंजनीऑफी मंदन, नया पहरीसी भान, न्हें दिल्ली - 110018 GOVERNMENT OF SIGE AND TECHNOLOGY Department of Sciencic AND TECHNOLOGY Department of Sciencic AND TECHNOLOGY Technology Bhavan, New Mahrmul Hosd, New Dethi + 110218

भारत सरकार

Dated: 6th October, 2021

## **ISO** Certification



#### **Certificate of Registration**

This is to certify that the Quality Management System of

#### **M/s ANVITHA LIFE CARE PRIVATE LIMITED**

Plot No.6, Industrial Park, Attivaram (V), Ozili (M), Naidupeta, Tirupathi District-524 421, Andhra Pradesh, India

> has been assessed and conforms to the requirements of Documentation of:

#### ISO 9001:2015

for the following activities

Research & Development, Manufacture of Active Pharmaceutical Ingredients (API) and Intermediates

#### Certificate Number : 13363-AOMS-3463

Original Certification Date: 06/02/2020 **Revised Certification Date : 23/01/2023** 

1st Surveillance Due on : 02/02/2024 Done on: Not Yet Due

Certificate Expiration Date : 05/02/2026

2nd Surveillance Due on: 01/02/2025 Done on: Not Yet Due As per the rules of ISO it is mandatory to get hoth 1st & 2nd surveillance audits done at least 10 days before the due date. If surveillance audit is not done till due date of both "1 & 2 SURVEILLANCE DUE DATES" then this certificate shall become invalid on the due date. The client should send a proposed date for each surveillance audit at least 15 days before the due date at the email given below.

mooth Certification Manager

The validity of this certificate is contingent upon the condition that the client has understood & spreed and shall abide by contract agreement, certification spreement, Master agreement for certification services and logo rules as given on our website www.maxcareema.org. It applies only to the documentation maintained by the client and it does not to the design or product testing or examination procedures, what so ever. The certificate remains walk until utacturing conditions and the quality systems are not abanged. This certificate validity is subject to positive of surveillances audit. The alient is reconstrained to obset the above certificate details at our above mentioned the above certificate details at our ab mit is reques

**NTERNATIONAL** 

CORRECTATION

COUNCEL OF



Acerna Management Systems Pvt. Ltd.

Corp. Office: DBS Corporate Centre, II Ploot, Raheja Chambens, Free Press Journal Road, No.213, Narim an Point, Mumha i- 400 021, India. Website : www.masserma.org Fin ail : con tactifimatacer na.org

## **GMP** Certification

GOVERNMENT OF ANDHRA PRADESH DRUGS CONTROL ADMINISTRATION



Office of the Deputy Director, Drugs Control Administration, Kurnool Region, Kurnool, Kurnool District-518003,

L Dis. No.HMF07-19024/222/2023-DD-DDCA

Dated: 30.09.2023.

#### G.M.P. CERTIFICATE

This is to certify that M/s ANVITHA LIFE CARE PRIVATE LIMITED. Situated at Plot No.6, Industrial Park, Attivaram (Village), Ozili (Mandal), Naidupeta, Tirupati District-524 421, Andhra Pradesh, India is holding Drug Manufacturing License In Form-25, bearing License No.63/NL/AP/2020/B/G, Dated: 24/10/2020, Valid up to 23/10/2025 to manufacture for sale or for distribution of Drugs other than those specified in Schedule C, C (I) and X approved by this department.

The company is following GOOD MANUFACTURING PRACTICES as stipulated under the provisions of Schedule 'M' of Drugs and Cosmetics Rules, 1945 as per as applicable for the products permitted under the License as per the Inspection report dated:22/09/2022 of the Drugs Inspector, Triapeti (U), Triapeti District.

The company should however carry out self-inspection from time to time to ensure that the requirements of Good Manufacturing Practices are compiled with:

This is valid for one year from the date of issue of this certificate.

VELPULA VIJAYA SEKHAR DEPUTY DIRECTOR & CERTIFYING AUTHORITY, DRUGS CONTROL ADMINISTRATION KURNOOL REGION, KURNOOL

#### To,

M/s ANVITHA LIFE CARE PRIVATE LIMITED, Situated at Plot No.6, Industrial Park, Attivaram (Village), Ozill (Mandal), Naldupeta, Tirupati District-524 421, Andhra Pradesh, India.

Copy submitted to the Director General, Drugs and Copy Rights, DCA, Vijeyewada for favour of kind information.

Copy submitted to the Director, Drugs Control Administration, Vijayawada for favour of kind information.

Copy to: the Assistant Director, Tirupati & Drugs Inspector, Srikalahasthi for information.

# **Skill Development**

At Anvitha we always believe in "Empowerment through Education".

To make this possible, Post graduates/graduates will be trained to develop their skills in drug research during curriculum along with our employees. Interested employees will be guided for doctoral research.

Signed MOU with below mentioned colleges for training and recruitment

 D.K.W College , Nellore.
 Padmavathi college of Pharmacy, Tirupati
 SriVishwodaya Degree college, Venkatagiri, Tirupati.

### PRODUCT PORTFOLIO-INHOUSE DEVELOPED

### **Active Pharmaceutical Ingredients**

S.No	Product	Therapeutic Use
1	Phenylephrine (CAS: 59-42-7)	Cough suppressant
2	Triprolidine Hydrochloride (CAS: 6138-79-0)	Anti-Histamine
3	Selegiline base (CAS: 14611-51-9)	For New Application
4	Selegiline Hydrochloride (CAS: 14611-52-0)	Anti-Parkinson'
5	Distigmine bromide (CAS:15876-67- 2)	Parasympathomimetic
6	D-Norpseudoephedrine HCl(CAS: 2153-98-2)	Appetite suppressant
7	Tranexamic acid(Cas 1197-18-8)	Antifibrinolytic
8	Ursodeoxycholic acid(Cas 128-13-2)	To dissolve gallbladder stones
9	Isoxsuprine(Cas 395-28-8)	Vasodilator
10	L-Carnitine tartrate	Nutraceutical

#### **ANVITHA LIFECARE PRIVATE LIMIT**

### **API - Under development**

S.No	Product	Therapeutic Use
	Midodrine Hydrochloride	
4	(CAS: 43218-56-0)	Antihypotensive
	Epinephrine Bitartrate	
5	(CAS: 51-42-3)	Neurotransmitter
6	Norepinephrine Bitartrate (CAS: 3414-63-9)	Sympathomimetic and neurotransmitter
7	Metaraminol Bitartrate (CAS: 54-49-9)	Anti-hypotensive
	Lisdovamphotamina Dimosulata	Attention Deficit hyperactivity
8	Lisdexamphetamine Dimesylate (CAS: 608137-33-3)	disorder

### **INTERMEDIATES & SPECIALTY CHEMICALS**

_						
S. No	Product	Therapeutic drug	Status			
			Produced in			
	4-Hydroxy Coumarin	Zonisamide and	100kg multiple			
1	(CAS: 1076-38-6)	warfarin	lots			
	Dimedone		Produced			
2	(CAS: 126-81-8)	Venetoclax	several tons			
	2-Aminoethyl hydrogen sulphate (926-39-6)					
3		Viloxazine	Developed			
	3-Chloro -5,5-dimethyl-2-cyclohexen-1-one		Produced			
4	(CAS: 17530-69-7)	Venetoclax	several tons			
	(S)-1-(3,5-bis(trifluoromethyl)phenyl)ethanol		Produced in			
5	(CAS: 225920-05-8)	Serlopitant	kilo scale			
	(R)-1-(3,5-bis(trifluoromethyl)phenyl)ethanol					
6	(CAS: 127852-28-2)	Aprepitant	Developed			
	(S)(+)-3-hydroxy tetrahydrofuran	Afatinib /	Under			
7	(CAS: 86087-23-2)	Empagliflozin	Development			
	R)(+)-3-hydroxy tetrahydrofuran	Afatinib /	Under			
8	(CAS: 86087-24-3)	Empagliflozin	Development			
		Afatinib /				
9	Ethyl-S-(-)chloro-3-hydroxybutyrate(86728-85-0)	Empagliflozin	Developed			
	Ethyl-R-(+)chloro-3-hydroxybutyrate	Afatinib /				
10	(90866-33-4)	Empagliflozin	commercialized			

S. No	Product	Therapeutic drug	Status
11	4-(Aminomethyl)benzoic acid (CAS: 56-91-7)	Tranexamic acid	Developed
12	Methyl-3-oxopentanoate (CAS: 30414-53-0)	Strontium ranelate	Developed
13	(R)-Naphthylethylamine (CAS: 3886-70-2)	Cinacalcet	Developed
14	(1R,2S)-Pyrrolidinyl norephedrine (CAS: 127641-25-2)	Efavirenz	Developed and produced
15	(1R,2S)- Norephedrine (CAS: 492-41-1)	Droxidopa	Produced in ton lots
16	Methyl-6-bromo-2-naphthoate (CAS: 33626-98-1)	Adapalene	Developed
17	Methyl-3-Oxohexanoate (CAS: 30414-54-1)	Specialty Chemical	Pilot scale
18	N,N-Dibenzylethanolamine (CAS: 101-06-4)	Specialty Chemical	Developed

S.N			
0	Product	Use	Status
	N-Benzylethanolamine (CAS: 103-64-2)	Gadobuterol	commercial
	N-Benzyl-2-Pyrrolidinone (CAS: 5291-77-0)	Specialty Chemical	Developed
	L-Prolinol (CAS: 23356-96-9)	Adagrasib	commercial
	N-Methyl-L-Prolinol (CAS: 34381-71-0)	Adagrasib	commercial
	1,4-Butane Sultone (CAS: 1633-83-6)	Indocyanin/Remd esivir	commercial
	(1R,2R)-1,2- Cyclohexanedimethanol (CAS: 65376-05-8)	Lurasidone	Developed
	3-(4-Chlorophenyl)propionic acid (CAS: 2019-34-3)	Pitolisant	Pilot

S.No	Product	Use	Status
	1-[3-{2-(dimethylamino) ethyl}-1H-indol-5-yl]-N-		
	methyl methanesulfonamide(103628-46-2)	Sumatriptan	
26	(Sumatriptan base))	succinate	commercial
	(R)-5-(2-Aminopropyl)-2-Methoxy		
27	benzenesulfonamide (Cas112101-81-2)	Tamsulosin	commercial
			_
28	2,3,4-Trimethoxybenzaldehyde (CAS:2103-57-3))	Trimetazidine	commercial
29	N-cyanoacetyl urethane (CAS:6629-05-4)	Diclazuril	Developed
30	Cyclene (CAS: 294-90-6)	Gadobuterol	Commercial
	1,4,7,10-Tetraazacyclododecane-1,4,7,10-	Gadoterate-	
31	tetraacetic acid (CAS:60239-18-1)	meglumine	Developed
32	Trioxabicyclooctane (CAS:57280-22-5)	Gadobuterol	Developed

5.110	Product	USe	Status
33	Cyclopropane carboxaldehyde(1489-69-6)	Specialty chemical	Pilot
34	Trans-4-Methylcyclohexylamine[2523-55- 9]	Glimepiride	Pilot
35	6-Nitro -4(3H)-quinazolinone (CAS:6943-17-5)	Tucatinib	Pilot
36	Ethyl 5-hydroxy-1,2-dimethyl-1H-indole-3- carboxylate (Mecarbinate) [15574-49-9]	Umifenovir	Pilot
37	3-(4-Hydroxyphenylpropionic acid [507-97-3]	Landiolol	Pilot
38	(2S)-(+)-Glycidyl 3-nitrobenzenesulfonateCAS: 115314-14-2	Landiolol	Pilot
39	(S)-(–)-4-(Chloromethyl)-2,2-dimethyl-1,3- dioxolane CAS:60456-22-6	Landiolol	Pilot
40	N-(2-Aminoethyl)-4-morpholinecarboxamide ethanedioate-CAS: 154467-16-0	Landiolol	Pilot
41	3-(Bromomethyl)-3-methyloxetane(cas78385-26- 9)	Specialty chemical ANVITHA LIFE	Commercial CARE PRIVATE LIMITED

# **Key Customers**

- Syntesia Chemie, Hamburg
- Davos Pharma, ÚSA
- Anthem Bio Sciences, India
- 1. 2. 3. 5. 7. Mirati, USA
- Matrix Fine Chemicals, Switzerland Herbrand Pharma Chemicals, Germany
- Norac Pharma, USA
- 8. Pharmabea s.r.l, Italy

- Pharmabea s.r.l, Italy
  Erregierre s.p.a, Italy
  Medix, Mexico
  A.R.Z Chemicals, Israel
  Syngene, India
  MSN Laboratories, India
  Hetero Drugs, India
  Aurobindo Pharma Limited, India
  Malladi Drugs & Pharmaceutical Limited, India
  Sun pharma Limited, India
  Biophore India Pvt Limited, India
  Alkem Laboratories, India

- 19. Alkem Laboratories, India
- Alkem Laboratories, India
  Piramal Healthcare, India
  Hetero Healthcare, India
  Biocon Limited, India
  Caplin Point, India
  Caplin Point, India
  Gland Pharma, India
  TEVA Pharma ,India
  Avra Laboratories, India
  DRI

- 28. DRL
- 29. Zenfold
- 30. Axplora
- 31. Divis
- 32. Solara
- 33. Vanamali

## **Patents & Publications**

- 1. An improved process for preparation of pharmaceutical grade Tannates, (Patent No. 203486) Dr.T.Prakasam, (2004)
- 2. An improved process for the Resolution dl-Ephedrine, (Patent No. 216649) Dr.T.Prakasam, (2004)
- 3. An improved process for preparation of Poly Lactic acid (Patent No. 216464) Joint patent with IIT Chennai. Dr.T.Prakasam, (2004)
- 4. A method for the preparation of New chiral beta-amino alcohols from R-(–)phenyl acetyl carbinol, (IP249376) T.Prakasam,
- 5. Optically pure 1-N-alkylamino-1-phenyl-2-(1-pyrrolidinyl)propane's and their synthetic processes, (IP251139) Dr.T.Prakasam,
- 6. Optically pure 1-alkyl/aryl-1-phenyl-2-methylamino propanol hydrochlorides and process for their preparation, (IP255479) Dr.T.Prakasam
- 7. Improved process for the preparation of d-threo-Ritalinic acid hydrochloride by resolution of dl-threo-Ritalinic acid using chiral carboxylic acid, (US8552030B2) Dr.T.Prakasam. (Granted)
- 8. An improved process for the preparation of (1R,2S)-Methoxamine, its salts and stereoisomers with high chiral purity. (1020/CHE/2011) (Under examination)
- 9. Improved process for the stereospecific synthesis of 1-phenyl-2-alkyl/aryl-1,2dihydroxypropanes (2033/CHE/2011) (Under examination) Dr.T.Prakasam

## **Patents & Publications**

- 1. Pyrolytic synthesis of Heterocycles guided by mass spectral fragmentations, Indian Journal of Heterocyclic Chemistry, Vol. 16, Oct.-Dec2006, pp. 143-146. Dr.T.Prakasam
- 2. Beckmann rearrangement of  $\alpha$  -Oximinoketones, Indian Journal of Chemistry, Vol. 47B, June, 2008, pp. 963-965, Dr.T.Prakasam
- 3. Chiral a-alkylation/arylation in 1-Phenyl-2-(1-pyrrolidinyl)-1- propanol through Grignard reactions, Tetrahedron: Asymmetry 20 (2009), pp. 2773-2779Dr.T.Prakasam
- 4. Remarkable enantioselective a-amination in 1-phenyl-2-(N-alkylamino)-1- propanol, Chirality, <u>Volume 24, Issue 3</u>, Article first published online: 23 JAN Dr.T.Prakasam
- 5. Preparation and evaluation of molecularly imprinted polymer liquid chromatography column for the separation of Cathine enantiomers, Saudi Pharmaceutical Journal, Volume 20, Issue 1, January 2012, Pages 53-61, DrTangirala Prakasam
- 6. Preparation and evaluation of molecularly imprinted polymer liquid chromatography column for the separation of ephedrine enantiomers, Arabian Journal of Chemistry, Volume 19, Issue 2, February 2012, Pages 67-75.,Dr Tangirala Prakasam
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