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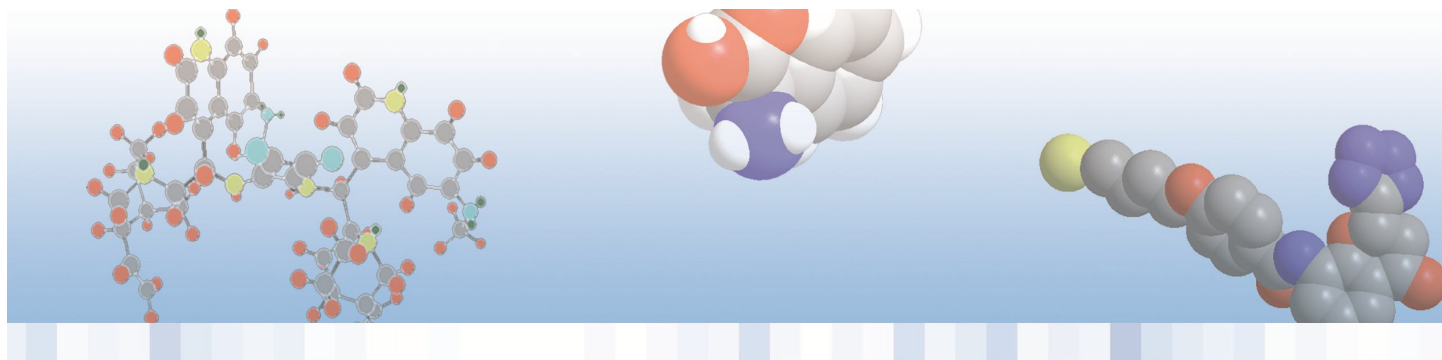
Taltirelin Hydrate

Pitavastatin & Rosuvastatin

Pregabalin

L-m-Tyrosine

Custom synthesis

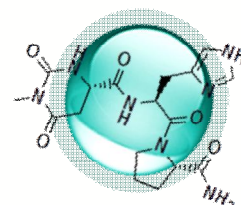


Taltirelin Hydrate

❖ Basic Informations

- **Taltirelin Hydrate shows polymorphism.**
It contains not less than 98.5% and not more than 101.0% of taltirelin ($C_{17}H_{23}N_7O_5$: 405.41), calculated on the anhydrous basis.
- **Description.**
Taltirelin Hydrate occurs as white, crystals or crystalline powder. It is freely soluble in water, in ethanol (99.5) and in acetic acid (100), and soluble in methanol.
- **Optical rotation.**
[α]_D²⁰ : -22.5 ~ -24.5°
(1g calculated on the anhydrous basis)

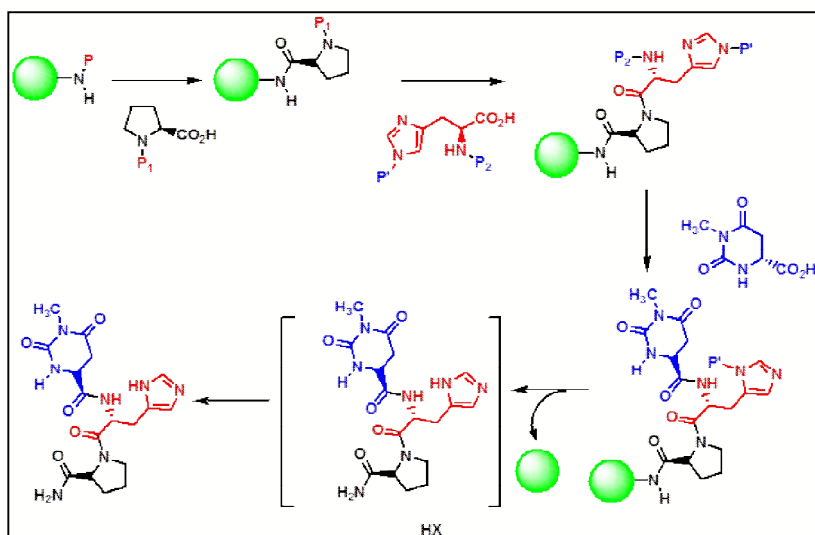
" Taltirelin "



❖ Specification

- **Trade name : Ceredist** (Thyrotropin-releasing hormone (TRH) analog, which has nootropic, neuroprotective and analgesic effects, and is primarily being researched for the treatment of **Spinocerebellar ataxia**)
- **Synonyms** : N-[(4S)-1-Methyl-2,6-dioxohexahydro pyrimidine-4-carbonyl]-L-histidyl-L-prolinamide tetrahydrate
- **CAS Number** : 201677-75-0
- **Molecular Formula** : $C_{17}H_{23}N_7O_5 \cdot 4H_2O$: 477.47

❖ WELL E&C Technology

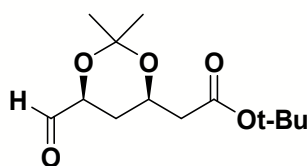


- ◆ **Solid Phase Reaction**
- ◆ **Extremely Lower Production Cost**
- ◆ **Safe & Simple Handling**
- ◆ **Patent Registration (PCT & KR)**
- ◆ **Patent Applied For (JP)**
- ◆ **Simplification of Reactor Equipment**
- ◆ **High Chemical Purity (99.96%)**



Pitavastatin & Rosuvastatin

❖ Structure and Appearance



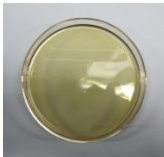
" **FDOB** "

You can easily get unprecedentedly pure statin (HMG-CoA reductase inhibitors) using our aldehyde side chain

❖ Description

- **CAS No.** : 124752-23-4
- **Name** : Tert-butyl(4R-cis)-6-formaldehydel-2,2-dimethyl-1,3-dioxane-4acetate
- **Synonyms** : (3R,5S)-6-oxo-3,5-o-diisopropylidene-3,5-dihydroxyhexanoic acid tert-butyl ester; (4R-cis)-6-formaldehydel-2,2-dimethyl-1,3-dioxane-4acetic acid 1,1-dimethylethyl ester
- **Formula** : $C_{13}H_{22}O_5$
- **M.W.** : 258.31
- **Purity** : >97%
- **Appearance** : White solid
- **Abbreviation** : FDOB
- **M.P.** : 58.6 °C

❖ Advantages

	FDOB from other supplier	FDOB from WELL E&C
Appearance	Brown liquid 	White or off-white solid 
Purity	75%~90%(GC purity)	>96%(GC purity)
Stability	Unstable at Room Temp.	Stable at Room Temp.
Distinction	Need to use over equivalent Not easy handling More unknown side product (coupling reaction)	Cost-cutting by using equivalent Easy handling Less unknown side product (coupling reaction)

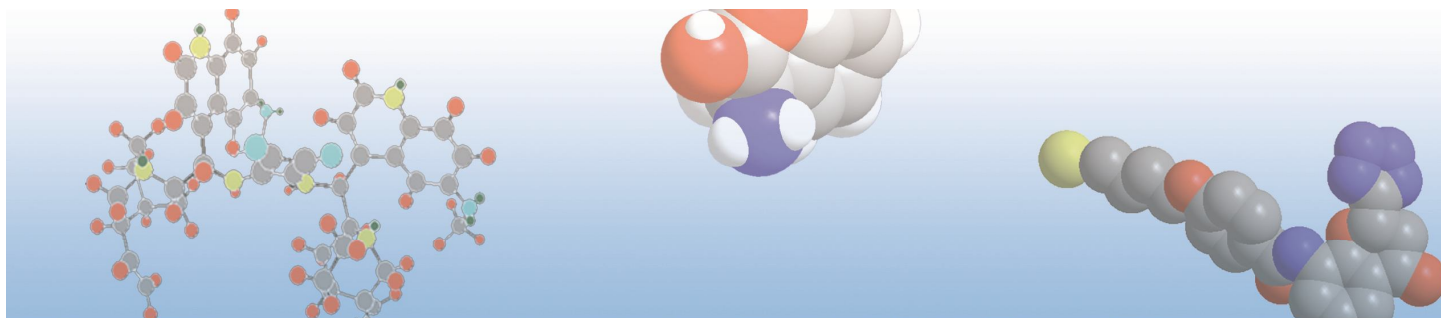
❖ Comparative Data : Impurity Profile of Pitavastatin

▪ Test result using FDOB from **other suppliers**

R.T	17.31min	19.91min	22.07min
	Impurity 1 (Isomer)	Pita-Main Peak	Impurity 2 (Isomer)
Purity(%)	1.480%	97.470%	0.100%

▪ Test result using **WELL E&C side chain** (FDOB)

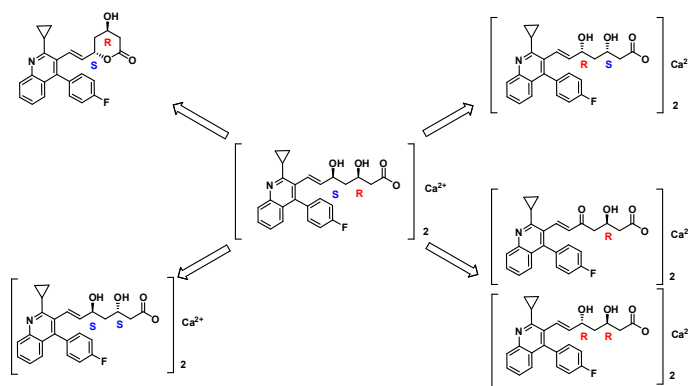
R.T	17.31min	19.91min	22.07min
	Impurity 1 (Isomer)	Pita-Main Peak	Impurity 2 (Isomer)
Purity(%)	0.027%	99.750%	0.017%



Custom Synthesis

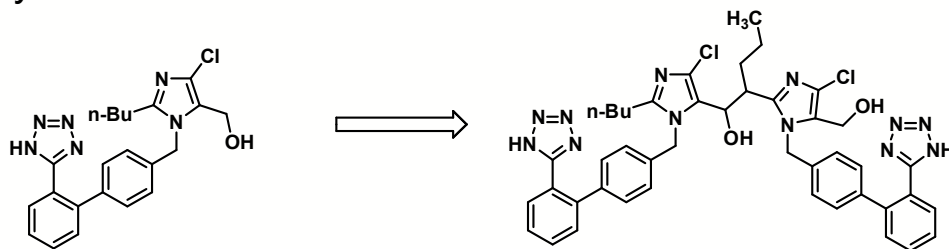
Impurity of Pitavastatin

- **Pitavastatin**
- CAS number : 147511-69-1
- Trade Names : Livalo
- Routes : Oral
- Hypercholesterolaemia,
- Prevention of cardiovascular disease
- Usually as a calcium salt



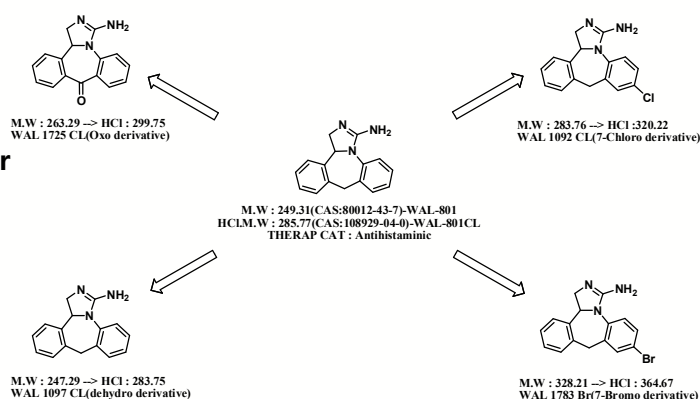
Impurity of Losartan

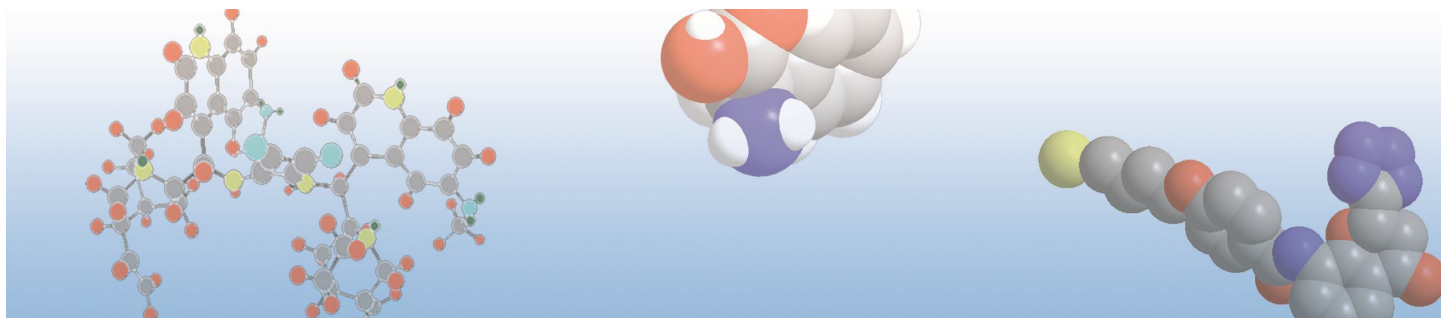
- **Losartan**
- CAS number : 114798-26-4
- Trade Names : Cozaar
- Routes : Oral
- Angiotensin II receptor antagonist
- Used mainly to treat high blood pressure(Hypertension)
- Usually as a Potassium salt



Impurity of Epinastin

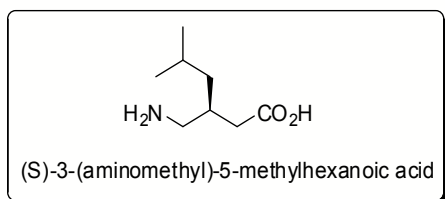
- **Epinastin**
- CAS number : 80012-43-7
- Trade Name : Elestat and Relestat
- Routes : Eye drops
- Antihistamine and a mast cell stabilizer
- Usually as the hydrochloride salt





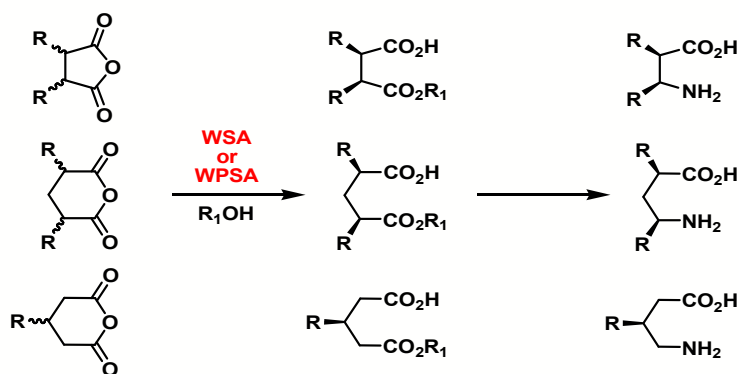
Unnatural Beta & Gamma-Amino acid : Pregabalin

(S)-Pregabalin

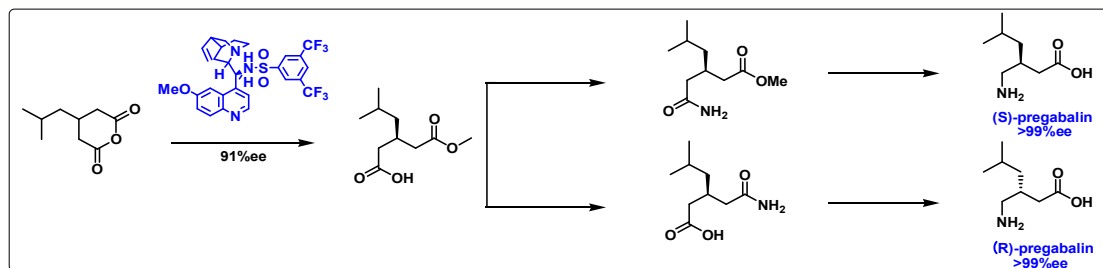


- **CAS Number** : 148553-50-8
- **Trade Name** : Lyrica
- **Formula** : $C_8H_{17}NO_2$
- **M.W.** : 159.23
- **Specification** : ee >99%
- **Application** : Anticonvulsant, anxiolytic
Analgesic in treatment of peripheral neuropathic pain.

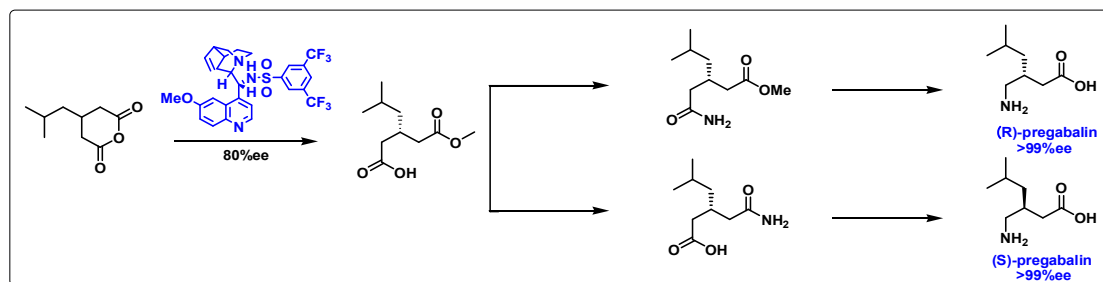
WPSA & WSA are applied to Beta & Gamma-Amino acid



❖ Preparation of pregabalin by using quinine-WSA

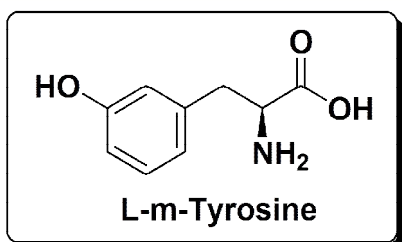


❖ Preparation of pregabalin by using quinine-WSA





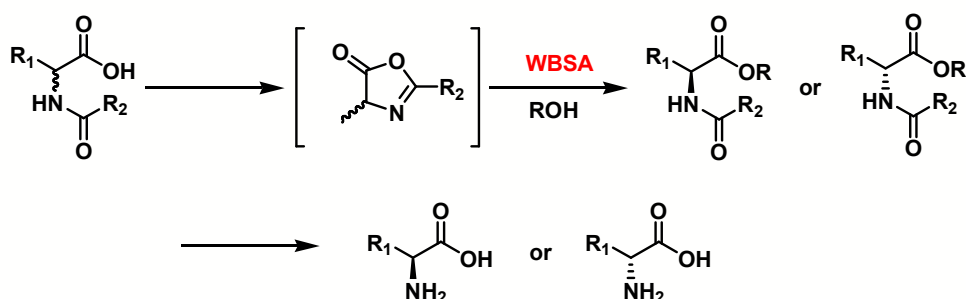
Unnatural alpha-amino acid : L-m-Tyrosine



- **CAS Number** : 32140-49-1
- **Name** : L-m-Tyrosine
- **Synonyms** : (S)-2-amino-3-(3-hydroxyphenyl) propanoic acid
- **Formula** : $C_9H_{11}NO_3$
- **M.W.** : 181.19
- **Specification** : ee >98%
- **Application** : Used in peptide synthesis

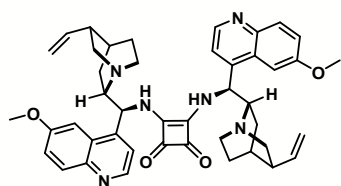
- **Representative Unnatural Amino acid**
- **High purity (>99%) & High ee value (>98%)**
- **Large scale up production**
- **Preparing to submit OPRD journal**

WBSA is applied to **alpha**-amino acid

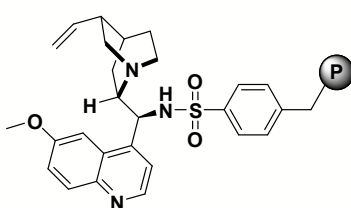


WELL E&C Catalyst

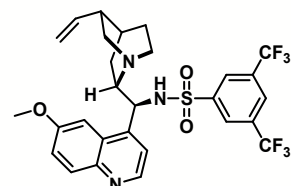
- **Metal-Free Organic Catalyst**
- **Self-Association Free Bifunctional Catalyst**
- **Indefinite Stability**
- **Easy Catalyst Recycling**



WBSA
(Bisquinine-Sulfonamide Catalyst)



WPSA
(Solid Supported Q-S Catalyst)



WSA
(Quinine-Sulfonamide Catalyst)