

## Task Force on Repurposing of Drugs (TFORD) for COVID-19

### Patent status in India: by GNANLEX

#### Oseltamivir

#### A. Active patents

S.no.	Title	Assignee	Patent details	Type of patent	Remarks
1.	Process For The Preparation Of A 4,5-Diamino Shikimic Acid	F. Hoffmann-La Roche Ag	App no/Grant no: IN224636 (1037/MAS/2000) Filing date: 01/12/2000 Grant date: 21/10/2008 Expected expiry date: Form 27: 01/12/2020	Process Patent for Oseltamivir	Patent Barrier. However, process can be worked around.
2.	Pharmaceutical composition comprising oseltamivir phosphate	1) Chugai Seiyuku Kabushiki Kaisha And 2) F.Hoffmann-La Roche AG	App no/Grant no: IN284534 (4966/CHENP/2008) Filing date: 18/09/2008 Grant date: 23/06/2017 Expected expiry date: 20/02/2027 Form 27: invention is not worked in India	Dry Syrup Pharmaceutical Composition Of Oseltamivir	Patent Barrier. However, pharmaceutical composition can be worked around
3.	Novel salts of ethyl (3r,4s,5r)-4,5-imino-3-(1-ethylpropoxy) - 1-cyclohexene-1-carboxylate	MSN Laboratories Limited	App no/Grant no: IN303314 (1974/CHE/2009) Filing date: 19/08/2009 Grant date: 20/11/2018 Expected expiry date: 19/08/2029 Form 27: patented invention has been worked in India	Process For The Preparation Of Pure Oseltamivir	Patent Barrier. However, process can be worked around
4.	Process For The Preparation Of Shikimic Acid Useful For Production Of Avian Flu Drug Tamiflu (Oseltamivir)	Council Of Scientific & Industrial Research	App no/Grant no: IN286011 (575/DEL/2010) Filing date: 12/03/2010 Grant date: 02/08/2017 Expected expiry date: 12/03/2030 Form 27:-	Extraction Of L-Shikimic Acid From Illicium Griffithii Fruits For Oseltamivir	Patent Barrier. However, process can be worked around
5.	Process For The Synthesis Of Methyl 3-Epi-Shikimate And Oseltamivir	Council Of Scientific & Industrial Research	App no/Grant no: IN314403 (3039/DEL/2011) Filing date: 25/10/2011 Grant date: 21/06/2019 Expected expiry date: 25/10/2031 Form 27:	Synthesis Of (-)-Methyl 3-Epi-Shikimate, A Key Intermediate Of Oseltamivir	Patent Barrier. However, process can be worked around

#### B. Pending applications - None

S.no.	Title	Assignee	Application details	Type of patent	Remarks
1.	Oseltamivir Compositions	Lupin Atlantis Holdings SA	App no: 1262/KOL/2014 Filing/Priority date:	Pharmaceutical composition of	No Patent Barrier even if granted.

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			01/12/2014 Status: Status Is Not Available Online. Patent Application 201737020817 Status: Current Status Is Not Available Online.	oseltamivir	Can be worked around
2.	A Process For Preparation Of Ethyl (1r,5r,6r)-5-(1-Ethylpropoxy)-7-Azabicyclo[4,1,0]Hept-3-Ene-3-Carboxylate	Sequent Scientific Limited	App no: 4109/MUM/2014 Priority date: 22/12/2014 Status: FER Has Been Issued On 19/03/2020. Reply To FER Is 19/12/2020	Process for the preparation of ethyl (IR,5R,6R)-5-(l-ethylpropoxy)-7-azabicyclo[4.1.0] hept-3-ene-3-carboxylate of formula II, a key intermediate of oseltamivir	No Patent Barrier even if granted. Can be worked around
3.	Pharmaceutical composition comprising oseltamivir phosphate and process of preparation thereof	Jubilant Generics Limited	App no: 201611038603 Filing/Priority date: 11/11/2016 Status: Current Status Is Not Available Online.	Pharmaceutical composition of Oseltamivir for constitution into solution or suspension	No Patent Barrier even if granted. Can be worked around

### C. Expired/Lapsed applications

S.no.	Title	Assignee	Application details	Type of patent	Remarks
1.	Carbocyclic compound	Gilead Sciences, Inc.,	App No: 396/DEL/1996 Filing Date: 26/02/1996 Status: application was rejected vide controller's order dated 23/03/2009 under rule 55(6) of the patents rule 2003 pursuant to pre-grant opposition Divisional Indian Patent Application No: 514/DEL/2007 Status: Application Refused Vide Order Dated 12/06/2012 By The Controller.	Osetamivir API	No Patent Barrier
2.	A process for preparing neuraminidase inhibitors capsule	Gilead sciences inc.	Grant No: IN190983 App No: 2791/DEL/1998 Filing Date: 17/09/1998 Status: Patent Term Has Expired On 17/09/2018 Divisional Indian Patent Application No: 1132/DEL/1999 Status: application is treated as deemed to have been abandoned under the provisions of section 21(1)	Process for preparing the Osetamivir capsule	No Patent Barrier
3.	Process for preparing	F. Hoffmann-La	Grant No: IN209070	Process For	No Patent

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	neuraminidase inhibitor ro-64-0796	Roche Ag	App No: 443/MAS/2000 Filing Date: 08/06/2000 Status: Patent Has Ceased On 10/06/2019	Preparing Oseltamivir	Barrier
4.	A process for the preparation of 4, 5- diamino shikimic acid derivative of formula ia	F. Hoffmann-La Roche Ag	Grant No: IN209362 App No: 305/MAS/2001 Filing Date: 09/04/2001 Status: Patent Has Ceased On 09/04/2019	Process For Preparing Oseltamivir	No Patent Barrier
5.	Biosynthetic production of 4-amino-4- deoxychorismate (adc) and [3r,4r]-4-amino-3- hydroxycyclohexa-1,5- diene-1- carboxylic acid (3,4-cha)	1) Dsm Ip Assets B.V., 2) Dsm Biotech Gmbh And 3) Forschungszentrum Julich Gmbh	App No: 7777/DELNP/2006 Filing Date: 20/12/2006 Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	Synthesis of oseltamivir phosphate from 3,4-CHA	No Patent Barrier
6.	Epoxide intermediate in the tamiflu synthesis	F. Hoffmann-La Roche Ag	App No: 3285/CHENP/2008 Filing Date: 26/06/2008 Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	Epoxide intermediate for the synthesis of oseltamivir	No Patent Barrier
7.	Improved process form oseltamivir phosphate	Hetero Drugs Limited	App No: 1724/CHE/2005 Filing Date: Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	oseltamivir phosphate process	No Patent Barrier
8.	Process for obtaining pure oseltamivir	Hetero Drugs Limited	App No: 1191/CHENP/2006 Filing Date: 06/04/2006 Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	highly pure crystalline oseltamivir process	No Patent Barrier
9.	Isoquinuclidine derivative and method for manufacturing 1- cyclohexene-1- carboxylic acid derivative by using the same	The University Of Tokyo	App No: 733/DELNP/2009 Filing Date: 30/01/2009 Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	Isoquinuclidine derivative for the synthesis of oseltamivir	No Patent Barrier
10.	Hplc-method for determination of related substances of oseltamivir phosphate	Ranbaxy Laboratories Limited	App No: 2429/DEL/2006 Filing Date: Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	Determination of purity of Oseltamivir phosphate by HPLC method	No Patent Barrier
11.	Process from shikimic acid to oseltamivir	F Hoffmann La Roche Ag	Grant No: IN284257 App No: 1461/CHENP/2010	Oseltamivir Phosphate	No Patent Barrier

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	phosphate		Filing Date: 15/03/2010 Status: Patent Has Ceased On 09/09/2019	Process From Shikimic Acid	
12.	Polymorphic forms of oseltamivir phosphate	F.Hoffmann-La Roche Ag	App No: 3989/CHENP/2010 Filing Date: 28/06/2010 Status: Application Is Treated As Deemed To Have Been Abandoned Under The Provisions Of Section 21(1)	Oseltamivir phosphate crystalline polymorphs	No Patent Barrier
13.	Process for producing oseltamivir phosphate and intermediate compound	Tokyo University Of Science Educational Foundation Administrative Organization/ Sumitomo Chemical Company Limited	Grant No: IN275216 App No: 4557/KOLNP/2010 Filing Date: 01/12/2010 Status: Patent Has Ceased On 28/05/2019	Process for high yield of oseltamivir phosphate	No Patent Barrier
14.	Nitro group-containing ether compound and method for producing same	National University Corporation Okayama University	Grant No: IN288276 App No: 9735/DELNP/2011 Filing Date: 12/12/2011 Status: Patent Has Ceased On 10/06/2019.	an intermediate for producing oseltamivir	No Patent Barrier
15.	Improved process for the preparation of oseltamivir phosphate and its intermediates thereof	Matrix Laboratories Ltd	App No: 124/CHE/2011 Filing Date: 14/01/2011 Status: Current Status Is Not Available Online. However, It Appears That The Application Has Been Abandoned/ Withdrawn.	Process for Oseltamivir phosphate having HPLC purity greater than 99.5%.	No Patent Barrier
16.	Compound and method for producing same as well as method for producing oseltamivir phosphate	Microbial Chemistry Research Foundation	App No: 8074/DELNP/2013 Filing Date: 16/09/2013 Status: Application Is Treated As Deemed To Have Been Abandoned Under The Provisions Of Section 21(1).	intermediate useful for industrially producing Oseltamivir phosphate	No Patent Barrier
17.	Improved process for the preparation of oseltamivir phosphate and its intermediates thereof	Matrix Laboratories Ltd	App No: 1525/CHE/2011 Filing Date: Status: Application Is Treated As Deemed To Have Been Abandoned Under The Provisions Of Section 21(1).	Oseltamivir phosphate process	No patent barrier
18.	Novel salt of oseltamivir	Cadila Healthcare Limited	App No: 1861/MUM/2011 Filing Date: 28/06/2011 Status: Application Is Treated As Deemed To Have Been Abandoned Under The Provisions Of Section 21(1)	Oseltamivir salts	No Patent Barrier
19.	A composition for treating swine-flu and a process for formulating the same	JSS College Of Pharmacy	App No: 2512/CHE/2011 Filing Date: 22/07/2011 Status: : Application Is Treated As Deemed To Have Been Abandoned Under The	Oseltamivir phosphate sustained release oral solid matrix	No Patent Barrier

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			Provisions Of Section 21(1)	tablet formulation	
<b>20.</b>	Improved process for the preparation of pure crystalline form a of oseltamivir phosphate	Mylan Laboratories Ltd	App No: 3788/CHE/2011 Filing Date: 04/11/2011 Status: Grant Of Patent Was Refused Vide Controller's Order Dated 14/08/2019 For Lacking Inventive-Step.	Pure crystalline form A of Oseltamivir phosphate process	No Patent Barrier

#### Disclaimer:

Search results up to 11<sup>th</sup> April 2020

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