

TECH SCAN

INJECTABLES IN DRUG DELIVERY



Injectables are a type of drug that is administered by injection into the body. They offer numerous advantages over other delivery methods, including rapid absorption, precise dosing, and the ability to deliver drugs that cannot be taken orally. Injectable treatments can be tailored to address a diverse range of needs, from aesthetic enhancements to chronic disease management. Many injectable provide long-lasting effects, reducing the need for frequent treatments. Injectable treatments are often quick and easy to administer, fitting seamlessly into busy schedules. As a result, injectables have become increasingly popular in the pharmaceutical industry, accounting for a significant portion of the global drug market.

The field of injectables is constantly evolving, driven by advancements in technology and a growing demand for innovative drug delivery solutions. Recent advancements include nanoparticles and micro particles that can encapsulate drugs and release them in a controlled manner, improving drug targeting and efficacy; biodegradable polymers, that can be used to create implantable drug delivery devices that release drugs over time, reducing the need for frequent injections; and smart injectables which can respond to specific stimuli, such as temperature or pH changes, to release drugs in a controlled manner. Thus, it is important to protect their intellectual property rights in this rapidly evolving field.





Introduction of the Jet Injector for needle-free injections.

1952

First use of insulin pumps for diabetes management.

1953

Development of sustained-release formulations for prolonged drug delivery.

1960

Liposomal drug delivery systems are introduced.

1978

FDA approves the first sustained-release injectable drug, Prolixin Decanoate.

1982

Introduction of pre-filled syringes for convenience and accurate dosing.

1983

Approval of the first biodegradable polymer-based injectable for long-term drug release.

1997

Launch of the first auto injectors for self-administration of drugs.

2003

Development of nanotechnology-based drug delivery systems.

2004

Approval of the first 3D-printed drug, Spritam (levetiracetam).

2011

Advancements in microneedle technology for painless injections.

2014

Expansion of wearable injectors for continuous drug delivery.

2019

Development of mRNA-based COVID-19 vaccines (Pfizer-BioNTech, Moderna).

2020

Approval of the first oral semaglutide for diabetes treatment.

2021

Progress in implantable drug delivery devices for targeted therapy.

2022

2023

Inventing a body-temperature-sensitive injectable hydrogel using HA and PEO-PPO copolymer for enhanced drug delivery.

PATENTABLE ASPECTS OF THE TECHNOLOGY

NOVEL COMPOSITIONS

New formulations of drugs, excipients, and delivery systems

DRUG DELIVERY SYSTEMS

Novel designs of syringes, needles, and other drug delivery devices

TARGET DELIVERY MECHANISMS

Methods for selectively targeting injectable to specific cells or tissues

BIODEGRADABLE IMPLANTS

Implantable drug delivery devices that degrade over time

METHODS OF PREPARATION

Innovative processes for manufacturing
Injectable

THERAPEUTIC APPLICATIONS

New uses of existing injectable drugs or new combinations of drugs

CONTROLLED RELEASE FORMULATIONS

Technologies for controlling the release rate of drugs from injectables

SMART INJECTABLES

Injectables that respond to specific stimuli

INNOVATIVE PACKAGING

Helps in stable transport of injectable

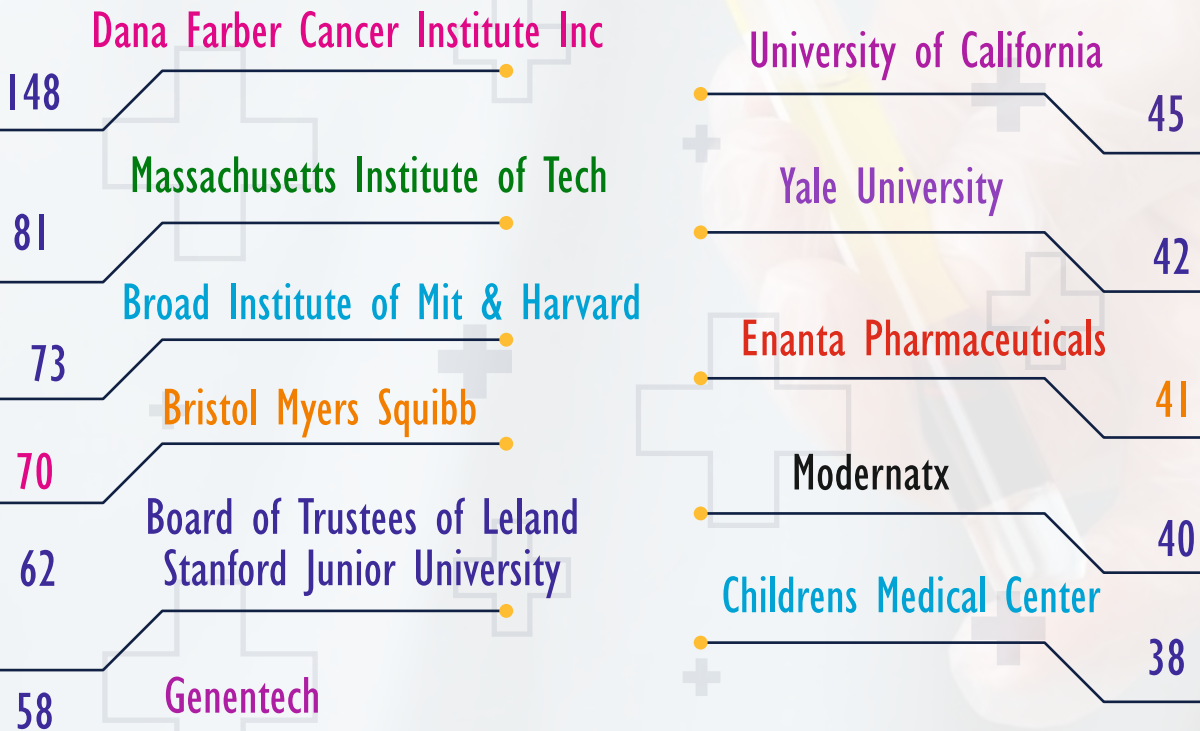


PATENT STATISTICS

The Text Below Represents Year Wise Patent Filing Trend



The Table below represents Top Applicants and the Patent Applications filed by them



Database: Questel, Orbit



European Patent Office

2,107



USA

2,039



China

1,228

Canada



1,207

PATENT LANDSCAPE



1,190

Japan



946

Australia



774

Korea



569

India

Database: Questel, Orbit



NOTABLE INVENTIONS

Patent Application	Priority Date	Title	Assignee
US11344503 B2	May 31, 2022	Cariprazine release formulations	Halo Science LLC
W02023212033	Apr 26, 2022	Extended-release formulation containing cresol	University of Maryland, Baltimore
US20230017509	Jul 6, 2021	Injectable drug delivery implant composition and method of use thereof	King Abdulaziz University
W02023278695	June 30, 2021	Injectable, biodegradable and removable polymer based drug suspension for ultra-long-acting drug delivery	The University of North Carolina at Chapel Hill
W02022119868	Dec 02, 2020	Injectable biodegradable polymeric complex for glucose-responsive insulin delivery	The Regents of the University of California
US2022/0054639 AI	Aug 24, 2020	In-situ stable injectable collagen-based hydrogels for cell and growth factor delivery	The Board of Trustees of the Leland Stanford Junior University
W02021/258062 AI	Jun 19, 2020	Endovascular Injectable Stents for Cardiovascular Drug Delivery	Massachusetts Inst Technology
W02021/257784 AI	Jun 18, 2020	Injectable Meloxicam Formulations	Verte Therapeutics LLC
W02021248109	Jun 5, 2020	Dynamically Cross-linked Injectable Hydrogels with Chemically Stabilized Multilamellar Vesicles	The Board of Trustees of the Leland Stanford Junior University
W02021011715	Jul 18, 2019	Drug Delivery System with Adjustable Injection Time and Method of use	AMGEN INC.
W02019175615	Mar 14, 2018	Dose control system for injectable-drug delivery devices and associated methods of use	Biocorp Production Sa
W02018140894	Jan 30, 2017	Norepinephrine compositions and methods therefor	Nevakar Inc

WHITESPACES

Targeted Drug Delivery

Personalised Medicine
Injectable

Response-activated
Injectable

Human-centred
Injectable

Remote Therapeutic
Monitoring

Develop Injectable
Formulations

Enhance Stability and
Effectiveness of Injectable
Drugs

Develop Smart Injectable
Hydrogels Responsive to
Various Stimuli
for Controlled Drug Release

Thermosensitive Injectable
Hydrogel for Improved
Drug Delivery

Painless Injection
Technologies

Gene Therapy and RNA
Interference-based
Treatments Delivered Through
Injectable Systems

Advancement of Drug Delivery
System Based on Nanotechnology
and Green Chemistry: Green Nano
Medicine



If you would like to learn more about any of these areas or have specific questions, we're here to provide further information and insights. Our team is dedicated to driving progress and staying at the forefront of Injectables In Drug Delivery.

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