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Atrigel drug delivery system – an approach for sustained effect

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The Parenteral administration route is the most effective and common form of delivery for active drug substances with poor bio-availability and the drugs with a narrow therapeutic index. Though parenteral administration of drug is often critical and associated with problems such as limited number of acceptable excipients, stringent requirements of aseptic production process, safety issues, and patient noncompliance, still this route maintains its value due to special advantages like quicker onset of action in case of emergency, target the drug quickly to desired site of action, prevention of first pass metabolism etc. The application of advanced drug delivery technology to parenteral administration led to development of liposomes, nanosuspensions, solid implants etc. to overcome limitations of conventional parenteral delivery.There are currently two major types of biodegradable polymer systems for parenteral drug delivery. Solid implants can be made from biodegradable polymers using well-controlled manufacturing processes, such as extrusion, injection molding, and compression molding. These devices normally have very reproducible release profiles. However, because of their size, they require surgical implantation or the use of large trochars to administer the product. These methods of administration often limit the product's market potential due to patient and physician acceptance issues. Delivery systems consisting of microparticles, on the other hand, can be injected into the body using conventional needles and syringes. Thus, they have been the most widely accepted biodegradable polymer system for parenteral uses. However, the manufacturing processes for microparticles are often complex and difficult to control. As a result, there are often questions involving costs and batch-to-batch product uniformity. The rationale for developing the ATRIGEL® technology was the need for a delivery system that had the simplicity and reliability of solid implant devices, but the convenience and ease of administration of microparticles.The Atrigel® system is a proven sustained-release drug delivery platform that delivers therapeutic levelsof a wide spectrum of drugs over a few days toseveral months with a single injection.The Atrigel® drug delivery system consists of biodegradable polymers dissolved in biocompatible carriers.When the liquid product is injected into the subcutaneous space through a small gauge needle or placed into accessible tissue sites through a cannula, water in the tissue fluids causes the polymer to precipitate and trap the drug in a solid implant. The drug encapsulated within the implant is then released in a controlled manner as the polymer matrix biodegrades with time.Atrigel can deliver a wide range of therapeutics including small molecules, peptides, proteins, vaccines, natural products, etc.

Biography

I have completed by B pharmacy from Sri Venkateswara College of Pharmacy and pursuing my M pharmacy (pharmaceutics) in Vignan Institute of Pharmaceutical Sciences. I have presented oral and poster presentations in national level seminars.

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Pharmacophore modeling studies on N-Hydroxy phenylacrylamides and N-Hydroxypyridin-2-yl-acrylamides as inhibitor of human cancer leukemia K562 cells

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In order to understand the essential structural features for inhibitors of human cancer leukemia K562 cells, three-dimensional pharmacophore hypothesis were built on the basis of a set of inhibitors of human cancer leukemia K562 selected from literature using PHASE program. Five point pharmacophore with two hydrogen bond acceptor (A), one hydrogen bond donar (D) and two aromatic rings (R) as pharmacophoric features were developed. Amongst them the pharmacophore hypothesis AADRR62 yielded a statistically significant 3D-QSAR model with as R2 value 0.883 and Q2 value 0.528 and was considered to be the best pharmacophore hypothesis. The developed pharmacophore model was externally validated by predicting the activity of test set molecules. The squared predictive correlation coefficient of 0.765 was observed between experimental and predicted activity values of test set molecules.

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