New Product Development – The Intertwined Worlds of Regulations, Patents and Exclusivity

PEER REVIEWED

The regulatory, patent and exclusivity issues as they relate to the animal health industry in the United States are complex and overlapping. Given the scope and breadth of this subject matter, the discussion here will focus on drug development. Other product types such as devices, diagnostic or otherwise, and foods, are not discussed here and may be revisited in future articles. However, some generalities can be made that cover all product types within the industry.

If a company, whether new or established, is in the process of developing new products, two major considerations must be taken into account. One, the regulatory environment that could potentially govern the product in question and two, the prevailing intellectual property landscape that could pose a significant barrier to entry if not explored and understood upfront. Both aspects are complex, expensive and have an enormous impact on any company's bottom line. Although patenting something is still somewhat of a choice that an entity can exercise some degree of control over, the regulatory requirements governing a particular product are not. They must be complied with and pose more of a risk if the company does not.

Within the United States the regulatory bodies that govern animal health products include the United States Department of Agriculture (USDA) and the Food and Drug Administration Center for Veterinary Medicine (FDA/CVM). For certain product categories the United States Environmental Protection Agency (EPA) may also be involved. Within the USDA the Center for Veterinary Biologics oversees the development of products that are extracted from biological sources and have medicinal or therapeutic properties (biologics). The FDA/CVM on the other hand is responsible for regulating drugs, devices and foods.

Traditionally speaking, the process of engaging any regulatory body for any reason usually induces the "roll of the eye" reflex. That the process can be very costly, slow and frustrating is very true, but as the saying goes "you need two to tango". Approaching the regulatory requirements pragmatically and proactively is not only good for limiting the stress associated with the exercise but also makes perfect economic sense. The principle here is very simple and transcends the type of industry or product involved, if predictability of a process is increased, risk is reduced and the returns become more attractive.

This is particularly important given the fact that a blockbuster drug in the animal world only brings in a fraction of the revenue usually associated with a blockbuster drug in the human world. Having said that, there is plenty of economic value still to be had, and with planning and proactive work the regulatory process may not be as daunting or costly and therefore, adding to the overall economic return of a product.

The FDA, in general, and the CVM have certainly, from my experience in the past several years, emphasised the need for early engagement. That is to say, to increase the predictability of the regulatory requirements an entity should not wait late into the full development process to request a pre-submission conference to agree on a development plan with the FDA/CVM, which is then followed up with the full submission of protocols, studies, data…etc.

During the pre-development timeframe or during the early development process and prior to the start of full development of any product, companies are encouraged to seek informal meetings with the FDA/CVM. Those meetings should be used to provide as much early information as possible to the FDA/CVM. This information can be based on short-term studies with fairly narrow scientific focus providing justifications, pharmacological and toxicity information, supporting literature and any available pilot studies. All this early information can then form the basis for the "official" pre-submission conference and flow into the Investigational New Animal Drug file. These early communications should also be used to gather information, identify and leverage existing resources, identify issues and gaps of knowledge and perform a risk analysis with the ultimate aim of making a well-informed decision that if left to be made based on the traditional process could end up being extremely costly in time and money.

This idea of a proactive approach and increased consultation and communication at an earlier stage with the FDA/CVM is not necessarily novel but it's seldom practised. Regulations are unavoidable, and if applied more widely and uniformly, a proactive approach will mitigate the risk and cost of failure and help streamline the approval of new drugs at a faster rate. Similar to the regulatory process, the process for patenting something can be complex, costly and very frustrating, yet for a highly competitive industry with strong growth potential such as the animal health industry, having a robust and successful intellectual property strategy is essential.

Until recently, the United States was the only country in the world with a first-to-invent system versus a first-to-file system. However, in 2011, the United States Congress passed a law that changed the patent system to a first-to-file system, therefore joining the rest of the world. Having said that, the United States still has a special rule that essentially states that if you disclose the invention at a conference or elsewhere, you have a one-year grace period to file a patent for it within the United States. This means that a disclosure will prevent someone else from getting a patent on your invention in the meantime. However, that is a double-edged sword because disclosure may hurt the chances of patenting the same invention elsewhere in the world.

Regardless of which side of the fence you live on, whether for or against patents, from a social point of view the economic impact of a well-developed patent portfolio or even a well-placed single patent can give a drug company a big boost in the market place. Given the amount of time and resources to put a single molecule drug, for example, out on the market, the costs of any associated patent or patents may pale into insignificance. Furthermore, although patents can be challenged and in certain cases circumvented by other clever inventors, having some protection may afford the company that holds the patent some time to recoup some of the costs of bringing the drug to market in the first place.

Furthermore, only a small fraction of the drugs researched actually make it to market and because of the costs associated with researching all of those "failed" drugs, having patent protection on one or two drugs that are successful in the market place will more than likely guarantee enough uncontested return to encourage continued future investments in other like products, which is essential to the survival of the overall industry.

Patent strategies must be crafted to provide operating space in a very crowded industry sector. The engagement of a competent law firm is only one step in the strategy. Deciding what needs to be protected by a patent and how to design the claims to effectively exclude competitors from the immediate subject matter at the heart of the patent are other aspects that are central to a successful overall strategy. Very few companies approach the issue of patenting in their early stages, mainly because of the costs associated with the patenting process. However, if left until later stages, the patent strategy is more likely to be reactive rather than proactive and may not be as effective in providing exclusivity when the chips fall.

Patents confer exclusivity of use of the subject matter to the patentee, however, there are other instruments that could be employed and that provide exclusivity, albeit for a shorter period of time compared to the protection time covered by an issued patent. Patents are granted by the patent and trademark office and can encompass a wide range of claims. However, the FDA can grant exclusive marketing rights upon approval of a drug. Those "exclusivity" rights can run concurrently with an existing patent or not. Exclusivity here is a statutory provision and is granted if certain statutory requirements are met. Exclusivity was designed to promote a balance between new drug innovation and generic drug competition.

The Generic Animal Drug and Patent Term Restoration Act of 1988, known as GADPTRA, amended the Federal Food, Drug, and Cosmetic Act to provide for the approval of generic copies of animal drug products that have been previously approved and shown to be safe and effective when used in accordance with their labelling. If evidence is provided that a generic animal drug product has the same active ingredients, in the same concentration, as the approved animal drug product, and that it is bioequivalent to the approved animal drug product, the generic drug may be approved under the GADPTRA.

All animal drugs that were approved for safety and effectiveness on November 16, 1988, or have been approved since that date, that have not been withdrawn from the market and are not subject to a Notice of Hearing published in the "Federal Register" and are not protected by patent or exclusivity, can be copied under the provisions of the GADPTRA. The FDA/CVM publishes a list of animal drug products that can be copied as generics (Green Book) to meet the requirements of the law.

The law allows a period of three years of marketing exclusivity for a new use of an animal drug and five years of marketing exclusivity for an animal drug that has not been previously approved in any new animal drug application. During those two periods, respectively, no abbreviated applications for a generic copy may be approved for the new use and no abbreviated applications may be submitted.

The law also provides another type of exclusivity referred to as "Patent Term Restoration". This provision extends the period of protection by US patent for an animal drug, or its method of use, that was approved after November 16, 1988, to compensate for the time that was required for investigation and regulatory review of the animal drug prior to its approval. Patent term restoration is not related to the exclusivity periods described above and may overlap those exclusivity periods.

An outside observer can look at the combined economic impact of the regulations and patent protection mechanisms from two very different points of view. On one hand the regulations and patents can be viewed as counterproductive and a burden on the economy, providing only a net negative in the long run. The other side of this argument would be that approached wisely and methodically at the inception of a new product development cycle; the various regulations, patent protections and exclusivity provisions can in fact enhance the value of a company's products by many fold over a long period of time. Under those circumstances, and if applied across a whole industry sector, an overall positive economic impact cannot be ignored or underestimated.

The multiple regulatory hoops to jump through and the seemingly unending costs associated with patenting a new product may appear to be a dark cloud at first; however, upon a more thorough and deliberate second look the same dark cloud may end up with a very prominent silver lining.

References: 1) www.fda.gov

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Catching up with Zoetis Canada

What does it mean to be an independent global animal health company?

It means that Zoetis has the enthusiasm of a start-up, yet we're building on six decades of experience — delivering quality medicines and vaccines, diagnostic products, genetic tests, and a range of relevant services.

It means that Zoetis works hard on the real-world challenges facing those who raise and care for animals, helping to improve outcomes and productivity while bringing new medicines and vaccines to veterinarians.

The Zoetis name derives from the word "zoetic", which means "pertaining to life." It signals our company's dedication to supporting veterinarians, livestock producers, and all those who raise and care for the farm and companion animals on which we depend.

The Zoetis vision:
That our products, services, and people will be the most valued by animal health customers around the world.

The Zoetis mission:
We build on a six-decade history and singular focus on animal health to bring customers quality products, services, and a commitment to their businesses.

Zoetis provides vaccines, parasiticides, anti-infectives, medicated feed additives, and other pharmaceuticals. Our complementary businesses include diagnostics and genetics, as well as services such as dairy data management, hatchery *in ovo* injection equipment, e-learning, and professional consulting. Zoetis experts also provide extensive customer service, technical education, and business support across seven core species (cattle, horses, poultry, sheep, pigs, cats, and dogs). We aim to help our clients manage their businesses more effectively.

Putting our customers first: We strive every day to put our customers first. Zoetis field representatives lead the way by developing beneficial business relationships with customers that endure for years. Technical and veterinary specialists, who provide in-depth technical expertise and disease education, support these relationships. With extensive on-the-ground presence, Zoetis can react quickly to local-market needs and be well positioned to help our customers continually increase their business productivity and sustain long-term success. When our customers thrive, we thrive.

A Singular Focus on Animal Health

It's who we are and what we do. And with this singular focus, Zoetis puts customers first and assists them in making a real difference in the world. We're dedicated to the business of animal health so that our customers can be dedicated to theirs. We know how deeply the world depends on animals, so animals — and the people who care for them — can depend on us.

Research and Development

Zoetis is focused on continuous innovation to develop animal health. R&D is at the core of our efforts to provide innovative outcomes that anticipate the future needs of veterinarians and livestock producers in their local markets around the globe.

Our new product R&D leverages relevant discoveries from the agribusiness, pharmaceutical, and biotechnology industries. Combining this capability with the most promising discoveries from existing Zoetis R&D generally yields a faster, less expensive, and more predictable process and more sustainable pipeline as compared to human health R&D.

Zoetis R&D for existing products focuses on broadening and enhancing our existing portfolio through the addition of new species or claims, securing approvals in additional countries, or creating new combinations and reformulations that extend Zoetis innovations to a growing range of those who raise and care for animals worldwide.

R&D Areas of Focus

Our research is fuelled by both innovation within Zoetis and collaboration with external partners. We apply our research to a broad and diverse range of species, therapeutic areas, and geographic regions, with research that encompasses vaccines and medicines. In addition, our R&D activities include the development of genetic and diagnostic products as well as biodevices and engineering investments for *in ovo* poultry applications.

Vaccines: Zoetis is a global leader in the research and development of products that help prevent infectious diseases in companion animals and livestock, including poultry and aquaculture. Our research includes modified-live, inactivated and gene-modified approaches to disease prevention. Zoetis' technical expertise, innovative models, and global presence facilitate rapid response to address new and emerging infectious diseases.

Medicines: Zoetis is the leader in the identification, research, and development of small and large molecules for therapeutic use in companion animals, and for therapy and improvement of production efficiencies in livestock, poultry, and aquaculture. We seek approaches that improve animal health with a keen eye to environmental sustainability, safety, and food security.

Genetics: Zoetis Genetics R&D delivers comprehensive, state-of-the-art genetic information and support

services that deliver genetic predictions and solutions to beef, dairy, and sheep producers. From breeding through to marketing, our solutions address real-world needs and help customers unlock the value of an animal's genetic potential.

Diagnostics: Zoetis R&D offers a world-class portfolio of immunodiagnostic products that utilise such technologies as enzyme-linked immuno-sorbent assay (ELISA), Rapid Immuno Migration (RIM™) tests, and agar gel immuno-diffusion (AGID) tests. Our Diagnostics portfolio consists of more than 90 diagnostic tests, including those that veterinarians can use at point-of-care and for use in diagnostics-reference laboratories.

Biodevices: Zoetis R&D offers a novel and innovative pipeline of automated bio-mechanical solutions to the poultry industry that include cutting-edge technologies for *in ovo* vaccination of embryonated eggs prior to hatch; identification of embryonated egg status, including live and non-live and other related needs. Our Poultry Biodevice portfolio consists of devices for both the large and small poultry producer and the manufacturer of egg-based vaccines for either human or veterinary use.

R&D Capabilities

Expertise: The Zoetis R&D organisation is comprised of scientific experts across numerous disciplines in science and veterinary medicine. These experts leverage state-of-the-art research facilities, and the latest technologies and innovative approaches to deliver complete health solutions to veterinarians and livestock producers.

Worldwide presence: In addition to our global R&D headquarters in Kalamazoo, Michigan, the Zoetis research network includes R&D teams throughout the United States (California, Iowa, Maryland, Missouri, Nebraska, New Jersey, and North Carolina), Europe (Belgium and Spain), Australia, and in key emerging markets (Brazil, India, and China).

This worldwide network allows us to listen to livestock producers and veterinarians, region by region, and translate their challenges into practical and cost-effective innovations tailored to meet their needs.

Our regional footprint, supported by our in-country and global market research, is at the core of our ability to respond rapidly and accurately when emerging infectious diseases spread and threaten the lives of people, animals, and livelihoods.

Zoetis Canada, At a Glance

Cattle and companion animals are the leading divisions at Zoetis Canada. Zoetis Canada oversees the care of 10.3 million beef cows and 2 million dairy cows throughout the country, while 8.5 million cats and 6.4 million dogs comprise the companion animal population in Canada.

Looking after 1.2 million sows and 685 million birds, the swine and poultry divisions are important industry leaders in Canada; as is the equine division, which ensures the health of over 1 million horses, nationwide.

Zoetis Canada markets 270 products in Canada; the top sellers in this portfolio are:

1. Revolution — a topical solution for the treatment and control of fleas, ear mites, sarcoptic mange mites, ticks, and heartworm.

2. Draxxin — a single-dose low-volume antibiotic for the treatment of bovine and swine respiratory disease, infectious bovine kerato conjunctivitis and bovine foot rot.

3. Excenel — for the treatment and control of respiratory disease in cattle and swine and foot rot in dairy cattle.

4. Bovishield — a range of viral respiratory and reproductive cattle vaccines.

5. Vanguard — a vaccine that aids in preventing canine distemper caused by canine distemper virus.

Zoetis Canada has the industry's leading animal health professionals, including 25 technical service veterinarians. Zoetis' colleagues, from sales, technical services and enabling functions are totally dedicated to animal health.

Working Closely with Each Customer

We have the local presence and knowledge to serve the needs of each individual customer, as well as the global reach and resources to help advance animal health around the world. First and foremost, we strive to form deep, enduring relationships with our customers through the largest direct sales force in the industry. Our sales teams and veterinarians provide expertise and disease education on the ground in more than 70 countries. We're in the clinic, on the ranch, and just a click or phone call away.

At Zoetis, it's always: For animals. For health. For you.