



PROVIDING CERTAINTY AND PREDICTABILITY

HOW PATENT LINKAGE MECHANISMS HELP
INNOVATORS, FOLLOW-ON MANUFACTURERS, AND PATIENTS



GIPC
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The U.S. Chamber of Commerce's Global Innovation Policy Center (www.theglobalipcenter.com) is working around the world to champion intellectual property rights as vital to creating jobs, saving lives, advancing global economic growth, and generating breakthrough solutions to global challenges.

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This report was conducted by Pugatch Consilium (www.pugatch-consilium.com), a boutique consultancy that provides evidence-based research, analysis, and intelligence on the fastest growing sectors of the knowledge economy. Authors of this report are Meir Pugatch and David Torstensson.

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INTRODUCTION

Since 2012, the U.S. Chamber of Commerce has produced an annual International IP Index (Index), which benchmarks the intellectual property (“IP”) environment in economies around the world. The Index examines a country’s IP framework across eight categories of indicators—patents, copyrights, trademarks, trade secrets and market access, commercialization of IP assets, enforcement, systemic efficiency, and ratification of international treaties—to create a snapshot of a country’s IP system.

This paper builds on the data in the Index, specifically Indicator 4: Pharmaceutical-related patent enforcement and resolution mechanism. Indicator 4 measures the extent to which primary and/or secondary legislation (such as a regulatory or administrative mechanism) provides a transparent pathway for adjudication of patent validity and infringing issues before the marketing of a generic or biosimilar product in a given economy. Such mechanisms are frequently referred to as “linkage” mechanisms or frameworks, as they “link” the exclusivity status of a reference product with the regulatory approval process for follow-on products. As this paper details, the linking of the approval of follow-on biopharmaceutical products to the exclusivity status of a reference (or “innovative”) product is an effective way of achieving a balance between the protection of pharmaceutical exclusivity (usually, but not always, through patent protection) and stimulating early market entry of non-patented “follow-on” or “generic” products.

This paper provides a theoretical and conceptual description of the purpose of linkage mechanisms as well as some examples of global best practices.

1. Patent linkage: What is it, and how does it work?

Patent linkage is essentially a mechanism that conditions marketing approval of follow-on medicines to the expiration of the reference product’s exclusivity (most often a patent). As such, there is a “link” between two government agencies: the sanitary or health regulatory agency and the patent office. At its core, the practice is designed to promote cooperation between the two agencies due to the unique nature of regulations covering pharmaceutical products. Unlike other patented inventions, pharmaceuticals require both regulatory agency approval and patent office approval (“marketing approval”) before market entry. Effective linkage ensures that a drug regulatory agency does not inadvertently approve the marketing of a generic product that infringes the existing term of exclusivity of a patented product.

Linkage systems can be traced to 1984 and the enactment in the U.S. of the Hatch-Waxman Act, formally known as the Drug Price Competition and Patent Term Restoration Act (Public Law 98-417).¹ Prior to Hatch-Waxman, generic manufacturers were required to submit independent clinical testing data proving the safety and efficacy of the follow-on product, in order to gain market approval. This data requirement proved to be a major hurdle that prevented optimal market entry of affordable generics. Hatch-Waxman overhauled the U.S. regulatory framework by



creating an Abbreviated New Drug Application (ANDA) process for small-molecule drugs based on bioequivalence to a reference product rather than on redundant clinical testing, thus streamlining and expediting approval of generics without undermining enforceable patents.

In its most basic form, the linkage system that Hatch-Waxman created includes the following steps:

1. A patented pharmaceutical product is registered in a listing (known in the United States as the Orange Book) of approved prescription drug products (the “reference products”) along with therapeutic equivalence evaluations and relevant patent and exclusivity information.
2. An ANDA is submitted to request Food and Drug Administration (FDA) approval on the basis of bioequivalence to a previously approved product (reference product). The generic applicant must certify that the drug has not been patented, that the patent has already expired, that the generic drug will not go on the market until the patent expires, or that the patent is not infringed and/or is invalid.
3. If the reference product has no valid patents, then ANDA approval may be granted immediately.
4. If the reference product is protected by valid patents listed in the Orange Book, the ANDA applicant must give notice to the patent owner, who in turn has 45 days to file an infringement suit. An automatic 30-month stay of marketing approval is placed on the ANDA.
5. If the patent is found to be valid and infringed, the ANDA is not to be approved until the underlying patent protection expires; otherwise, the ANDA may be approved.²

Additionally, the first successful generic challenger is rewarded with a 180-day market exclusivity—that is, the FDA does not approve subsequent ANDA applications for the same compound and presentation during this exclusivity period.³

2. Best practices around the world

Other economies have also adopted different forms of linkage, modeled, more or less, after the U.S. example and often—but not always—as a result of free trade agreements (FTAs) signed with the U.S. Since 2004, and pursuant to the U.S.-Singapore FTA, Singapore amended its Health Product Act to include linkage provisions.⁴ China is in the process of implementing a linkage system, as part of wider public policy reforms to encourage biopharmaceutical innovation.⁵ And in Taiwan, the linkage mechanism stems from the Taiwanese government’s willingness not only to join international trade agreements but also to secure future growth by fostering innovation-intensive industries, including biopharmaceuticals.⁶



SINGAPORE

Under the Singaporean system, generic manufacturers are required to give notice to patent holders of their belief that their follow-on products do not infringe patents, or, alternatively, that such patents are invalid.⁷ Upon the filing of infringement or invalidity proceedings, the patent holder is granted an automatic stay of 30 months (or until the patent is found not to be infringed and/or invalid) for generic market approval.⁸ Importantly, civil and criminal penalties are imposed in case an applicant provides misleading information to the Health Science Authority regarding patent infringement.⁹ Unlike the U.S., though, Singapore does not have a patent register and does not provide incentives to the first successful generic challenger.

TAIWAN

Patent linkage was introduced with a revision of the Pharmaceutical Affairs Law approved in December 2017. The regulations entered into force on August 20, 2019.¹⁰ Under the revised Pharmaceutical Affairs Law, a new drug applicant is obliged to list patents relevant to its drugs.¹¹ Patent listing will have to be made online through the Taiwan Food and Drug Administration's (TFDA) database.¹² Patentees have to list information about the innovative drug's patents within 45 days from approval from the TFDA. As in the U.S. and Singapore, the generic applicant must notify that the proposed product does not infringe the IP rights related to already listed drugs and reference products. The new linkage system addresses a real area of concern: reportedly, from 2000 to 2012, 65 generic drugs were approved and listed for reimbursement while the original drug was still under patent.¹³

CHINA

In early 2017, the China Food and Drug Administration (CFDA) released a linkage proposal (Circular No. 55) tracking the U.S. system, with an automatic stay (Approval Waiting Period) of up to 24 months, the creation of a *Catalogue of Approved Drug Products* (Chinese version of the Orange Book), and incentives for a first generic challenger.¹⁴ In October 2017 the Chinese Communist Party and the State Council issued a joint opinion endorsing the CFDA proposal and calling for a pilot program to begin immediately.¹⁵ In December 2017 the CFDA issued the first edition of the *Catalogue of Approved Drug Products*, covering 131 drugs, with information on the active ingredient, applicant, dosages, and patent and data exclusivity information.¹⁶ As in the U.S. and Singapore, the applicant must certify that the drug's patent is not infringed and/or is invalid, and must notify the patentee of its filing; however, the notice period is currently only 20 days, which might prove too short to properly prepare the case and gather evidence, especially for foreign companies.¹⁷



Table 1 below summarizes and compares the main characteristics of linkage in the U.S., Singapore, Taiwan, and China.

Table 1: Main elements of linkage systems in the U.S., Singapore, Taiwan, and China

	U.S.	SINGAPORE	TAIWAN	CHINA (PROPOSED)
Patent drug register (with adequate listing rules)	✓	✗	✓	✓
Statutorily required notice to innovator (if invalidity/non-infringement is asserted)	✓	✓	✓	✓
Window for patentee to initiate a lawsuit	45 days	45 days	45 days	20 days
Automatic stay for reasonable time	30 months	30 months	12 months	24 months
Incentive for first generic challenger of validity	180 days of market exclusivity	✗	12 months	180 days
Effective litigation mechanisms	✓	✓	✓	✓
Meaningful and proportionate penalties	✓	✓	✓	✓

3. What should a good linkage system look like? Procedural requirements and guarantees

Economies can implement linkage systems effectively in a variety of ways. There is an inherent balancing act between fostering rapid market entry of generics while protecting an innovator’s IP rights. For a linkage system to work properly, it needs to be adapted to the administrative and judicial realities of a given economy. Regardless of the jurisdiction, some key defining characteristics must be in place for the mechanism to be effective. These requirements can be narrowed down to two key elements:

1. a timely, statutorily required notice from generic/follow-on manufacturers to innovators; and
2. an automatic stay coupled with effective litigation mechanisms.

Statutorily required notice

Linkage systems usually mandate the drug regulatory authority to establish a mechanism that informs patent holders of the upcoming approval of a product associated with their patents. Innovators should be informed in a timely manner of potential patent disputes brought about by generic and follow-on product marketing applications. Importantly, it is the task of the applicable regulatory authorities to identify relevant patents and notify innovators. In most cases, applicants declare the relevant patents, certify that they are not being infringed, argue that they are invalid, notify the patentee of their filing, and state the rationale behind their claims. The U.S. and Taiwanese systems also foresee a specific delay (20 days since application is formally received) for the generic to notify the innovator of its application.¹⁸



Guarantees of a proper notification system

To facilitate follow-on applications, many countries require innovators to list patent information relevant to their drug applications in one common location, such as an online register. A statutory period for filing a listing request can ensure prompt registration. In the U.S., patents granted after New Drug Application (NDA) approval must be listed in the Orange Book within 30 days.¹⁹ Generic manufacturers have to certify patents listed only at the moment of their application. Only in specific and limited cases can patent holders assert non-listed patents or patents listed after generic approval. In the U.S., for instance, agreement between the parties or a court order is needed.²⁰

Hence, when in place, requirements for this listing procedure should not unduly limit its scope. For example, in some economies the specific regulatory requirements related to this listing procedure actually reduce the overall effectiveness of the linkage system. In Mexico, process and use patents are excluded from the linkage Gazette.²¹ This greatly limits the type of patents eligible for listing—while leaving process and use patents without effective protection. With restrictions as to the type of patents that can be registered, patent holders cannot enforce their right prior to market authorization and, in parallel, the listings cannot provide the certainty that generic and follow-on manufacturers need to foresee which versions of their product will not be at risk of potential infringement proceedings.²² In effect, this means that both generic manufacturers and innovators face more uncertainty and higher potential costs, as any disputes would have to take place after market authorization through litigation. This would incur legal costs and, potentially, higher damages, as a potentially infringing product would be on the market.

Similarly, listing procedure requirements should not entitle drug or health regulatory authorities to examine the issue of patent validity. In the U.S., the FDA interprets its role with regard to patent listing as “purely ministerial,” arguing that it “lacks both the resources and the expertise to police” the correctness or validity of a patent.²³

Instead, exclusivity listing requirements should be about providing adequate, clear, and correct information.

Furthermore, under the U.S. system—and similar schemes in Korea and Taiwan—follow-on manufacturers are incentivized to challenge patents they suspect of being invalid, as the first to file a successful invalidation action is granted a period of market exclusivity to sell their generic version of the drug; this, in turn, also encourages innovator companies to ensure that the patents they file are of a high quality.

Finally, improper listing practices may be sanctioned through administrative proceedings before the FDA or counterclaims in district court litigation.²⁴ An alleged improper listing potentially may also give rise to penalties for perjury or even antitrust allegations.



Access to effective proceedings and remedies

Once notified, patent holders need to be able to seek available remedies prior to the marketing of an allegedly infringing product and the damages it would cause. This translates into a timing and procedural requirement. First, for innovators to use available legal means to solve patent disputes, drug and health regulators must stay any pending follow-on product market approval.

Litigation mechanisms, such as judicial or administrative proceedings, and remedies, such as preliminary injunctions, should be available for the resolution of disputes concerning the validity or infringement brought about by generic applicants within the stay period. Taiwan, for instance, has proposed procedural improvements to accelerate patent invalidity proceedings so as not to hinder the functioning of the linkage system.²⁵

In this sense linkage mechanisms are of particular importance in developing countries, which often lack early resolution mechanisms and an efficient judiciary. Indeed, the prompt availability of preliminary injunctions, as in the case of most European Union (EU) economies and Japan, partly compensates for the lack of a proper linkage system.

Guarantees of automatic stay and accessible remedies

Importantly, the assertion in litigation against a generic drug maker should automatically block the drug and health authorities from approving the generic version. In other words, drug authorities should not examine or take any position on the merits of a pending lawsuit. In Korea, for instance, the authorities review the request for a stay and grants it if they judge that there exists a “need to prevent significant damage” to the innovator due to the generic sales.²⁶

Any stay should also be long enough for administrative or judicial procedures to run their course and resolve the infringement or validity dispute. In the U.S., the innovator’s filing of an infringement suit triggers a 30-month stay. If, during this period, a court decides that the patent is not infringed, invalid, or unenforceable, generic approval can be authorized.²⁷ If the judicial case remains unresolved at the end of the stay—as is sometimes the case—the FDA issues a tentative marketing approval; however, most ANDA applicants wait resolution of any litigation before going to market to avoid potential liability for damages.²⁸ To avoid either party improperly delaying any pending litigation, the Hatch-Waxman Act states that a court may either shorten or lengthen the 30-month period if “either party to the action failed to reasonably cooperate in expediting the action.”²⁹

In short, well-functioning linkage mechanisms are endowed with a series of checks and balances that ensure they can achieve the right balance between protecting innovators and promoting generic competition.³⁰



4. Recommendations for more effective linkage mechanisms: A few economy examples

AUSTRALIA

The Australian system is derived from the 2004 FTA with the U.S. (AUSFTA)³¹—specifically Article 17.10.4—and has only one of the elements of an effective linkage system. This provision and the implementing legislation introduced an element of advanced notice to the patent holder when a third party applies for marketing approval.³²

However, the Australian system, as it has evolved, has several areas that could be strengthened in order to effectively protect life sciences innovators in Australia. To begin with, the system lacks an automatic stay (as provided by Hatch-Waxman in the U.S.) and instead gives patent holders interlocutory injunction relief through a court of competent jurisdiction.³³

In an attempt to balance the interests of innovators and generic producers, the Australian system added both a certification from the generic producer (Section 26B) of invalidity and/or noninfringement, and a certification from the patent holder (Section 26C) that the infringement proceedings are in good faith, have reasonable prospects of success, and will be conducted without unreasonable delay.³⁴ Penalties for providing false or misleading information, however, are disproportionately higher for a 26C certificate (patent holder) than for a 26B certificate (generic producer).³⁵

Currently, patent holders are not made aware consistently and on a timely basis of potentially infringing follow-on products in advance of their approval by Australian drug regulators in the Therapeutic Goods Administration.³⁶ Instead, a certification option is available, which does not require notification to the patentee. In turn, patent holders are informed only after the follow-on products have been approved. As noted above, the most effective patent linkage mechanisms include a window of notice prior to the generic's entry into the market. To ensure that the linkage framework in Australia balances the protection for life sciences innovators with the entry of generic medicines, the Australian government could introduce a sufficient period of notice to enable the innovator to defend its patent prior to generic entry.

In addition to the absence of an effective notice procedure, the uneven penalty structure, and the lack of automatic stay, commercial pressures further undermine legal certainty. Specifically, because Australia's Pharmaceutical Benefit Scheme (PBS) imposes automatic and irreversible price cuts on medicines as soon as competing versions enter the market, there seems to be a strong incentive for generic companies to launch at risk, and innovator companies must pursue preliminary injunctions in order to resolve patent disputes. At the same time, since 2012, Australia's Department of Health has pursued market-sized damages (on top of those sought by the generic company) aimed at compensating for a delay in the PBS price reduction that would have been applied to a patented medicine during the period of a provisional enforcement measure. However, there is no corresponding mechanism for the government to compensate innovators for the aforementioned losses if an infringing product is launched prematurely.³⁷



The policy sends a troubling signal that IP protection can be undermined in an effort to drive down pharmaceutical prices. This weakens Australia’s attractiveness for biomedical foreign direct investment.

Finally, Australia’s system lacks a patent register analogous to the Orange Book in the U.S. In a framework in which there is neither actual nor constructive notice of the existence of patents relevant to the reference product, the risk of experiencing a patent dispute is even higher.³⁸ Australia’s mechanisms would be strengthened through the creation of a patent register, which could reduce the likelihood of patent infringement proceedings and contribute to a more effective linkage system.

CANADA

Canada’s linkage system dates to 1993 and the North American Free Trade Agreement (NAFTA) agreement. The relevant legislation, the *Patented Medicines (Notice of Compliance) Regulations (PMNOC)*, was amended in 2017 to comply with Canada’s commitments under a new trade agreement, the EU-Canada Comprehensive Economic and Trade Agreement (CETA).³⁹

The Canadian linkage regime provides a register similar to the U.S. Orange Book that lists approved products and their respective patents.⁴⁰ However, Canadian listing requirements mean fewer patents can be included. Specifically, timing requirements and the fact that late listing is not possible limit the number of eligible patents.

There is no 20-day or other deadline in Canada for generic producers to notify the innovator of its regulatory filing.⁴¹ Once a notification (notice of allegation⁴²) is given, the innovator has 45 days to file a judicial review application to resolve patent issues, triggering an automatic 24-month stay. The old PMNOC procedures did not provide patent holders (a “first person”) with a right of appeal, and the judicial proceedings determining the merits of the disputed patent or patents was a summary, not full, process. This limited the rights of the patent holder and availability of the full term of protection. While recent amendments have replaced summary proceedings with the possibility to bring fully fledged judicial actions,⁴³ procedural complexity is likely to result in cases not being resolved before the end of the 24-month stay.⁴⁴ This issue of proceedings has long dogged Canada’s linkage regime, with innovators being at a distinct disadvantage, and industry reports suggest that this continues to be a significant hurdle even with new regulatory amendments introduced as a result of CETA.⁴⁵

When infringement is not found, a generic/biosimilar producer is entitled to claim damages (so-called Section 8 damages). Yet, the approach taken by Canadian courts accounts for a disproportionate, almost punitive, liability exposure to patentees. Specifically, in 2015 the Supreme Court of Canada upheld the verdict in two important 2014 Federal Court of Appeal rulings concerning the methodology for determining damages under Section 8 of the PMNOC. These rulings (and their affirmation by Canada’s Supreme Court) have in effect established a judicial precedent whereby an innovator drug company could be held to pay damages to multiple manufacturers of a follow-on generic drug product that together exceed the size of a total



hypothetical generic market. The net effect is that patent holders are less vigorous in defending their rights, as failure to successfully defend these rights may result in excessive damages. Furthermore, under new amended provisions, there is no end for a Section 8 damage period,⁴⁶ enabling generic producers to claim undefined and unlimited future losses.⁴⁷

SAUDI ARABIA

In 2013, Saudi Arabia introduced a patent linkage system. Under Circular Letter No. 7448, the Saudi FDA (SFDA) requires follow-on generic applicants to submit a letter from the Saudi Patent Office and/or the Gulf Cooperation Council Patent Office indicating that no registered patent exclusivity is or will be in place for the relevant reference product at the time of marketing approval. In 2017, the SFDA effectively overrode Saudi Arabia's linkage regime by approving for market a follow-on product to Daclatasvir, a medicine under a registered patent held by Bristol-Myers Squibb (BMS).⁴⁸ This follows actions taken in 2016 by the SFDA when two generic versions of Gilead's Sofosbuvir were approved within the five-year data exclusivity window of the products (first marketed in 2014).⁴⁹ These actions taken by the SFDA have been highly damaging to the IP environment and fundamentally undermine the legal certainty that basic patent protection provides for biopharmaceutical products.

UNITED ARAB EMIRATES (UAE)

Under Ministry of Health Decree 404, in the UAE it is not permissible for an applicant to receive marketing approval for a product that would infringe on an existing patent in the country of origin of the product. In operation, Ministry of Health officials either will reject such an application or will hold the application in abeyance until such time as the patent protection in the country of origin (i.e., the country from which the product is imported) has expired. Like in Saudi Arabia, in the UAE the authorities have in the past few years authorized two generic versions of a pharmaceutical product that was still on patent in the economy of origin. This development seriously undermines the life sciences IP environment in the UAE.



5. Patent linkage as a tool for increasing competitiveness and spurring growth?

Since its third edition, the U.S. Chamber’s International IP Index includes a statistical annex that examines the relationships between the strength of IP protection and performance in a variety of social and economic variables. The body of evidence in this annex reveals a clear, positive, and strong connection between the scope and level of protection of life sciences-related IP rights and biopharmaceutical innovation outputs.

Put simply, economies that act to strengthen and improve their biopharmaceutical IP environments experience significantly higher rates of desired outputs that spur social and economic growth. An established and well-functioning linkage regime can be an important part of this biopharmaceutical IP rights environment.

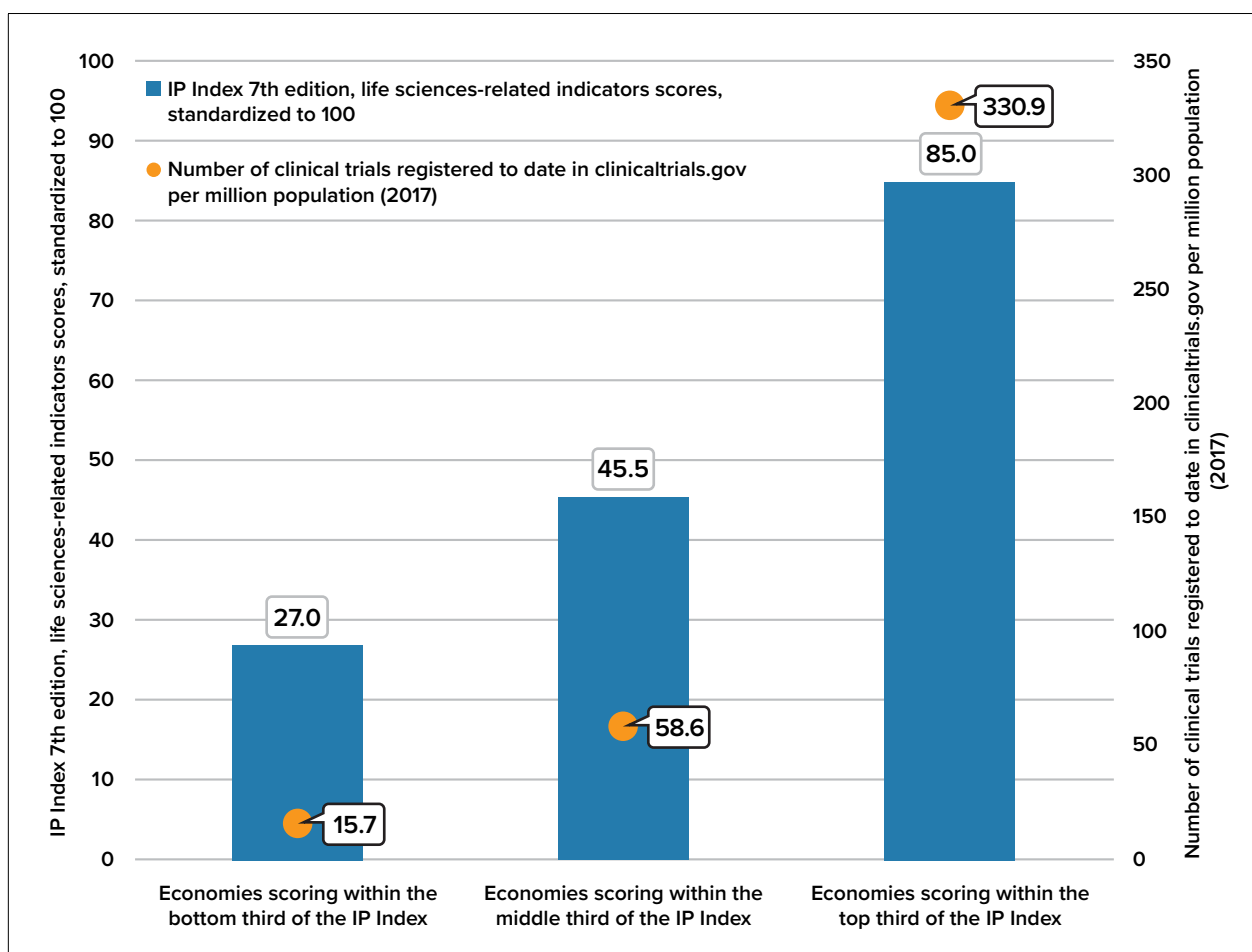
Clinical research—the cornerstone of biopharmaceutical Research & Development (R&D)—gravitates toward robust IP environments

Clinical research—in which the safety and efficacy of a drug candidate are determined through clinical trials on human subjects—represents the longest, most risky, and most expensive component of the biopharmaceutical R&D process, accounting for an estimated 60% of R&D costs.⁵⁰ High levels of clinical trial activity bring multiple benefits. Clinical trials provides patients with early access to cutting-edge therapies; it improves the skills and knowledge of participating healthcare staff and creates high-skill jobs for supporting services; and it also generates taxable income and a source of government revenue.⁵¹



Thus, the intensity of clinical trials acts as a reliable proxy for an economy's attractiveness for foreign direct investment (FDI) in the biopharmaceutical sector.⁵² Evidence shows a strong correlation between Index scores and clinical trial activity per million population, at 0.73. As seen in Figure 1 below, economies scoring in the top third on the Index's life sciences-related indicator host, on average, five times more clinical trials per capita than do economies scoring within the middle third, which in turn host on average almost three times more clinical trials per capita than do economies scoring within the bottom third.

Figure 1: Association between Index (seventh edition) life sciences-related indicators' scores and clinical trial activity, adjusted per million population (2017)

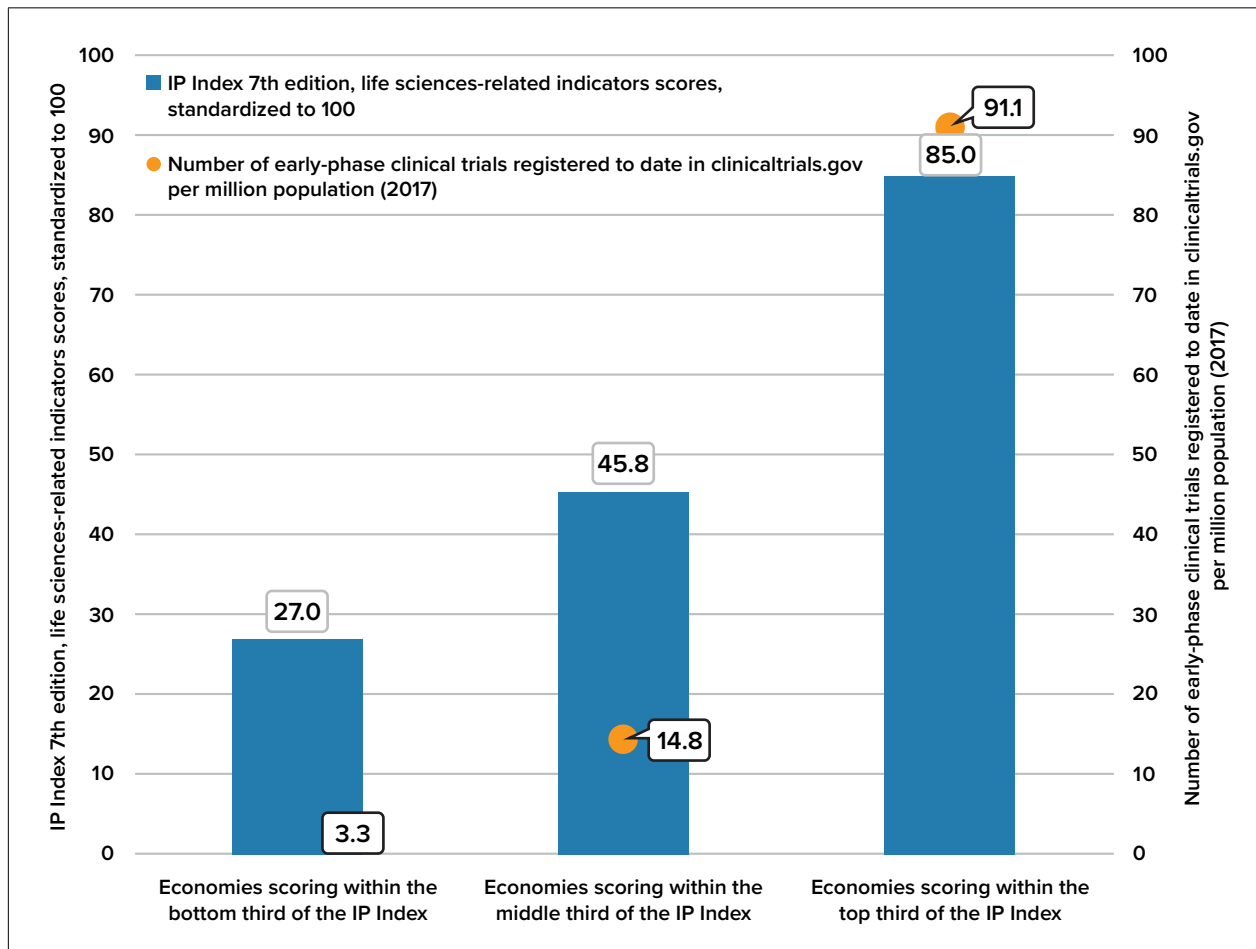


Sources: Clinicaltrials.gov (2018); The World Bank (2018); GIPC (2018)



The effect of the IP environment is equally pronounced with regard to early-phase clinical trial activity. The early phases of clinical trials (called phase I and phase II) often require highly specialized doctors and researchers who rely on sophisticated clinical infrastructure. Importantly, phase I and II trials provide early access to novel therapies for patients with unmet medical needs. The Index scores for life sciences-related indicators exhibit a strong correlation of 0.77 to rates of early-phase clinical trial activity. As Figure 2 suggests, six times more early-phase clinical trial activity tends to take place in economies that provide strong IP rights—compared with economies scoring in the middle third of the Index.

Figure 2: Association between Index (seventh edition) life sciences-related indicators' scores and early-phase clinical trial activity, adjusted per million population (2017)

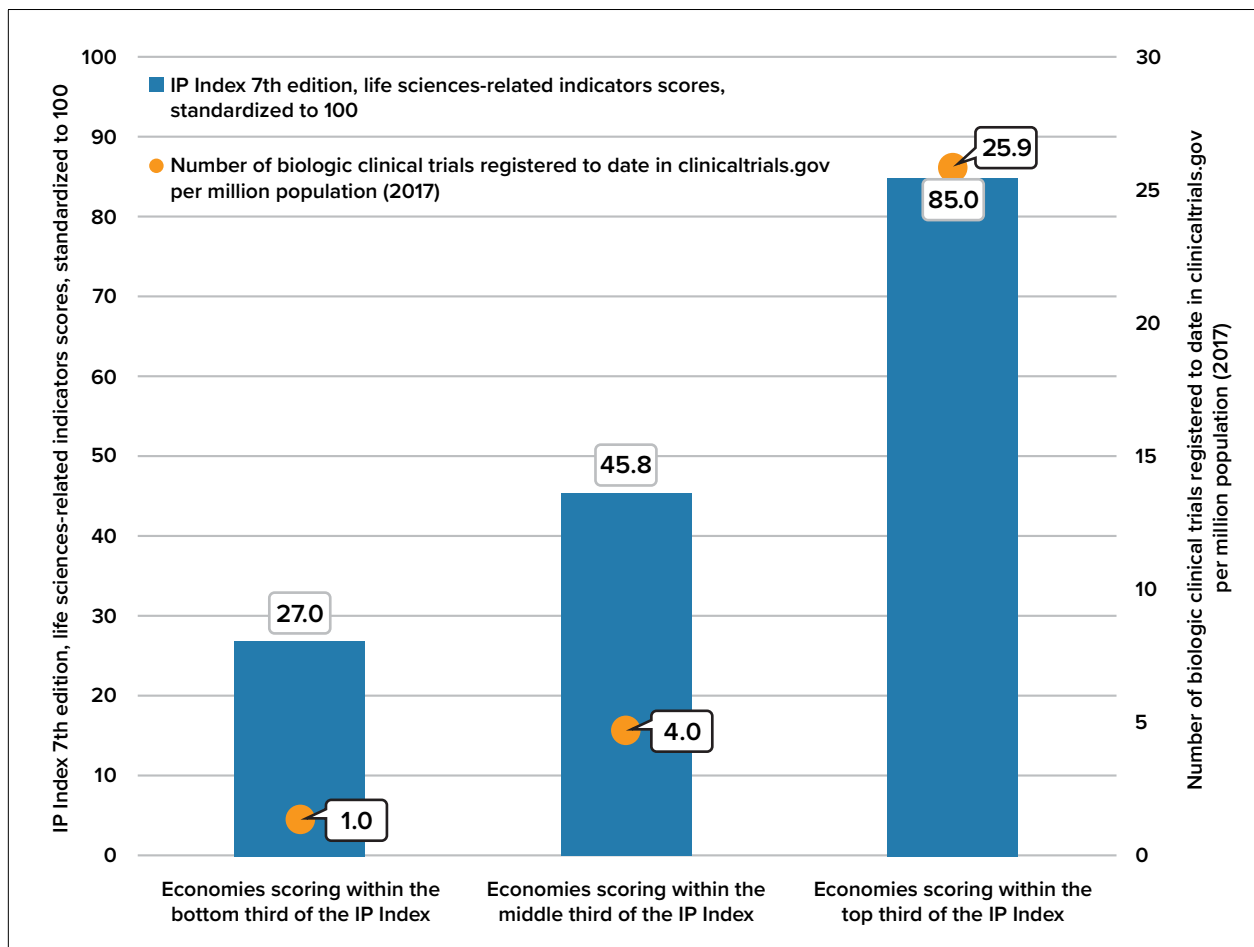


Sources: Clinicaltrials.gov (2018); The World Bank (2018); GIPC (2018)



The positive relationship between the level of protection of IP rights within the life sciences and clinical trial activity can also be seen in relation to trials on biologic drugs—a new generation of therapies that use gene-based and cellular biologics to treat a variety of unmet medical needs. Often these new medical products interact cleverly with the patient’s body (such as the immune system) and with the disease so that treatment is significantly more effective and carries fewer side effects. The trials involved in developing biologics are highly complex and require exceptional levels of skill; this is the high end of the value chain in clinical research. Here too there is a strong correlation (of 0.76) with the Index scores for life sciences-related indicators, attesting that clinical trials for these complex novel therapies take place largely in environments with strong IP protection for the life sciences.

Figure 3: Association between Index (seventh edition) life sciences-related indicators’ scores and activity of clinical trials on biologic drugs, adjusted per million population (2017)



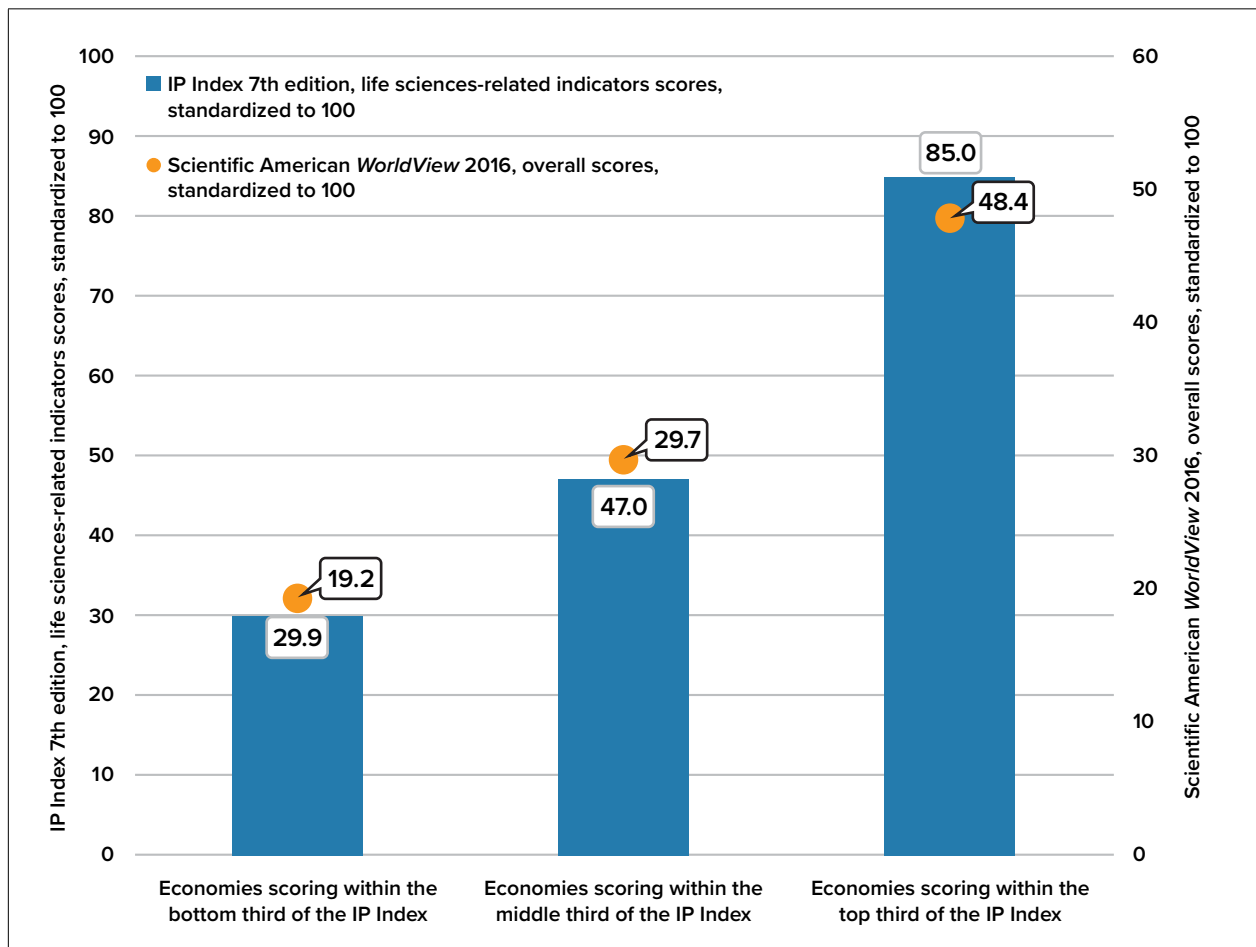
Sources: Clinicaltrials.gov (2018); The World Bank (2018); GIPC (2018)



Leadership in biotechnological innovation requires robust IP protection

Protecting IP rights related to the life sciences—such as patents, patent term restoration, patent linkage, and regulatory data protection—has a very clear and direct impact on an environment in which biotechnology innovation can thrive. The *Scientific American WorldView Scorecard*, which analyzes sector-related outputs that cover 27 components in seven categories, offers a useful indicator of an economy’s innovation potential in biotechnology. Figure 4 below displays a positive, stepwise relationship between the Index life sciences-related indicators and the *WorldView Scorecard* scores, at a correlation strength of 0.79. In fact, economies that score in the top third of the IP Index life sciences-related indicators are, on average, 63% more likely to provide environments that are conducive to biotech innovation than economies that score in the middle third of the Index.

Figure 4: Association between Index (seventh edition) life sciences-related indicators scores and *Scientific American WorldView Scorecard* overall scores⁵³



Sources: *Scientific American WorldView Scorecard* (2016); GIPC (2018)

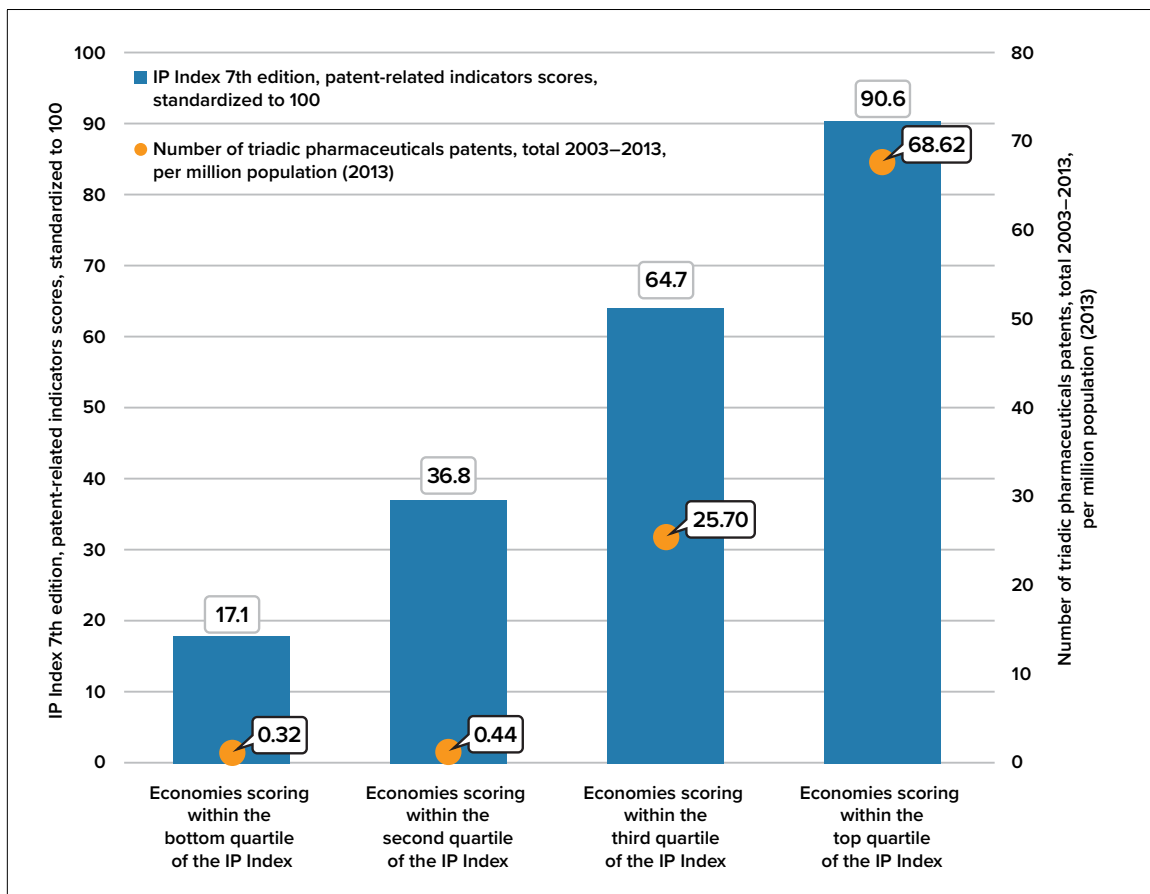


Levels of high-value innovative activity increase in strong IP environments

Developing an innovative biopharmaceutical compound requires high technological capacity, extensive research efforts, and financial resources. Inventors of compounds that show potential for high clinical value and global outreach typically seek patent protection in the three major markets—the U.S., Europe, and Japan—a practice known as triadic patenting. Triadic patenting rates for pharmaceuticals are a good proxy for a given economy’s capacity for producing high-value innovative biopharmaceutical products that generate clinical and commercial benefits to patients and healthcare systems around the world.

The Index patent-related indicators’ scores display a strong relationship (a correlation of 0.63) to triadic pharmaceutical patenting rates standardized per population. Economies that offer favorable conditions for innovators to protect their pharmaceutical inventions—including enforcement through, for example, a well-functioning patent linkage system—generate significantly more pharmaceutical innovation than do economies with weaker protection for patents.

Figure 5: Association between Index (seventh edition) patent-related indicators’ scores and total triadic pharmaceutical patents 2003–2013, per million population (2013), selected economies



Sources: OECDStat, World Bank; GIPC (2018)



6. Summing up: The benefits of patent linkage

The grant of a patent is no guarantee that an innovator’s IP rights will be protected. Patent holders must rely on the economy’s judicial and administrative systems to enforce such rights. As recognized by Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement in Article 41, member countries “shall ensure that enforcement procedures... are available under their laws so as to permit effective action against any act of infringement of intellectual property rights.” Linkage systems do not modify the nature and effects of patents, as patents should be enforced even without them. They do, however, provide certainty about patent rights and assist generic and follow-on manufacturers in avoiding infringement:

A predictable and transparent mechanism for the launch of generic medicines

Through the publication of patent information-covering reference products, linkage mechanisms make it easier for generic manufacturers to review patent information and determine the status of patents that correspond to their products. Generic drug companies gain faster access to clear information on the scope and duration of patents—notably those that could prove an impediment to their products’ commercialization. This reduces market entry risks and enhances their business strategies by allocating resources to products less likely to incur litigation.

Certain and more predictable enforcement proceedings and remedies

A well-designed and functioning linkage mechanism limits the likelihood that any major litigation takes place **after** the marketing of a follow-on product. In essence, from an innovator’s perspective, linkage mechanisms reduce uncertainty about the length of the exclusivity period granted. A linkage system grants innovators a fair opportunity to secure a return on their long-term, high-risk R&D investment by ensuring that they can effectively use their legally granted exclusivity without worrying over the premature market entry of a generic follow-on product. At the same time, linkage mechanisms provides follow-on product manufacturers with certainty that their products do not infringe valid patents, preventing costly litigation and potential payment of damages based on loss of profits and sales to the innovator. By ensuring that a follow-on product is not approved for marketing before the expiration of the reference product’s exclusivity, linkage largely takes the issue of post-marketing litigation and high damages out of the equation. Thus, linkage provides both innovators and follow-on product manufacturers with a more stable and predictable business environment.

Meeting patients and healthcare systems needs

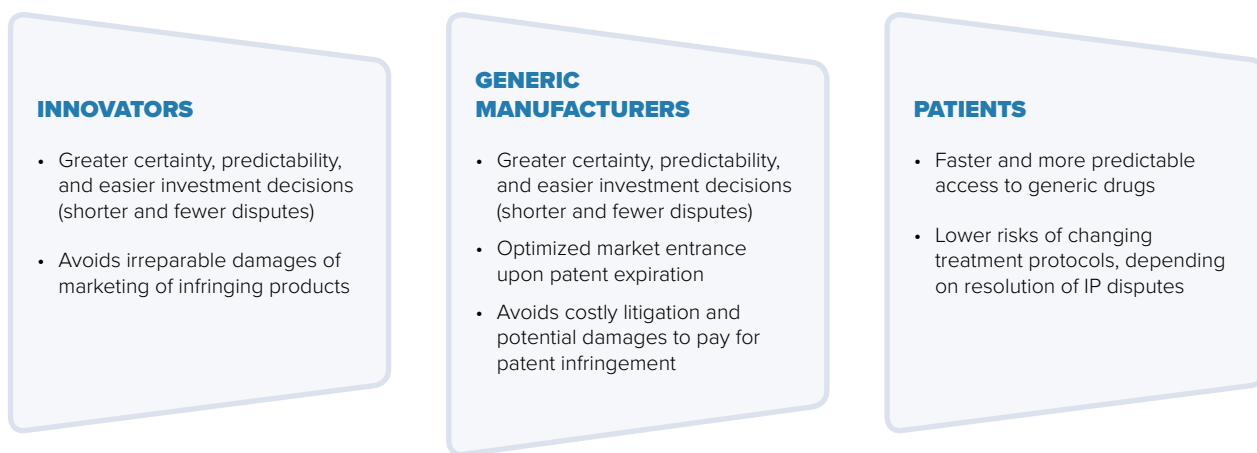
Linkage maintains the balance between a certain, clearly defined period of market exclusivity for innovators and a competitive market for follow-on products upon that period’s expiry. This balance helps incentivize continuous investment in biopharmaceutical innovation for future healthcare needs, while patients and payers gain timely access to generic and biosimilar products that significantly lower healthcare costs. In this respect, well-functioning linkage mechanisms that define and help enforce an innovator’s exclusivity do not stand in the way of generic penetration.



For example, the U.S. market, which provides the highest IP protection standards in the world for biopharmaceuticals and has one of the most sophisticated and well-functioning linkage mechanisms,⁵⁴ also has the highest rate of generic market penetration rate in the world.⁵⁵

In sum, a well-balanced linkage system recognizes the crucial role of patent protection in promoting innovation—and the role of generic entry in providing lower-cost biopharmaceuticals.

Figure 6: Patent linkage win-win scenario





ENDNOTES

- ¹ Text available at <https://www.congress.gov/bill/98th-congress/senate-bill/01538>
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- ³ Id. at (j)(5)(B)(v).
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- ⁵ China Food and Drug Administration (October 2017), “National Drug Review, Approval System Reform Policy,” <http://samr.cfda.gov.cn/WS01/CL1033/215801.html>
- ⁶ Jack Ellis/Geneva Network (February 2017), “The Promise of Patent Linkage,” <https://geneva-network.com/article/patent-linkage/>
- ⁷ R Bhardawi et al. (July 2013), “The Impact of Patent Linkage on Marketing of Generics,” *Journal of IP Rights* 18, <https://pdfs.semanticscholar.org/66ac/d3c41daffc6f7f94b4a891ac54e7ed2a0b09.pdf>
- ⁸ Health Products (Therapeutic Products) Regulations 2016, Part 5, Section 23, Singapore Statutes Online, <https://sso.agc.gov.sg/SL/HPA2007-S329-2016?DocDate=20180301&ProvIds=P15-#pr22->
- ⁹ Id. at Section 24.
- ¹⁰ R Chang (September 28, 2018), “Four Important Aspects of Upcoming Implementation of Patent Linkage in Taiwan,” <http://www.leeandli.com/EN/Newsletters/6114.htm>
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- ¹³ Taiwan Healthcare (February 12, 2018), “Taiwan Passes Patent Linkage Legislation,” <https://www.taiwan-healthcare.org/biob2b/breaking-news?articleSysid=BhsArticle20180212095942576780007&articleTypeSysid=A>
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- ¹⁵ Id.
- ¹⁶ Id.
- ¹⁷ Id.
- ¹⁸ Barnes & Thornburg LLP (January 12, 2018), “Taiwan and China Introduce the Patent Linkage System,” <http://www.btlaw.com/Taiwan-and-China-Introduce-the-Patent-Linkage-System-01-12-2018/>; Smart & Biggar (2018), “Canada’s New Linkage Litigation Scheme: A Comparison to Hatch-Waxman,” <https://sites-smart-biggart.vuturvevx.com/36/233/uploads/sbf---new-linkage-litigation-chart.pdf>
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- ²⁷ DA Conde, C Tracy, & KA Gavin/Fitzpatrick Cella (2018), “Extending the 30-Month FDA Stay in an ANDA Litigation,”
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- ³³ Therapeutic Goods Act 1989, Chapter 3, Part 3-2, Division 2, 26D.
- ³⁴ Id., Section 26C(3).
- ³⁵ Patent holders are liable up to AUD10 million in profits from the interlocutory injunction and losses suffered by any person (including the government), while generic manufacturers are subject to 1,000 penalty units, or about AUD150,000. See Section 26B(2), 26C(5A).
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- ³⁸ In fact, one of the recommendations from the Pharmaceutical Patents Review established by the Australian Parliamentary Secretary for Innovation calls for the adoption of a “transparency register” to promote “certainty for both originator and generic pharmaceutical manufacturers, thereby increasing efficiency, with minimal additional costs to industry or the Government.” T Harris, D Nicol, N Gruen (2013), “Pharmaceutical Patents Review Report,” p.152, https://www.ipaustralia.gov.au/sites/g/files/net856/f/2013-05-27_ppr_final_report.pdf
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- ⁵¹ See Pugatch Consilium (2014), “Scaling Up Global Clinical Trial Activity: Lessons Learned from the International Experience.”
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- ⁵³ Overall scores of Scientific American *WorldView* are based on performance in seven categories: productivity, intellectual property protection, enterprise support, intensity, education/workforce, foundations, and policy and stability. See Scientific American *WorldView* (2016).
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