Response to QFRs from Rep. Mark DeSaulnier re Hearing: Unsustainable Drug Prices (Part III): Testimony from AbbVie CEO Richard Gonzalez, 18 May 2021

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The company that originally developed Imbruvica and was later acquired by AbbVie filed for its first patents on the drug's active ingredient in 2006. This should mean that patent protection for the drug will expire in 2026. However, AbbVie has obtained or filed for over 150 additional patents, the last of which do not expire until 2036. These additional ten years of patent protection were obtained by employing what is sometimes referred to as a "drip feed" patent strategy.

1. Can you explain how AbbVie used the "drip feed" patent strategy?

As I highlighted in my written testimony, the "drip feed" patent strategy typically involves the following steps.

The initial patent filing(s) on the active ingredient is usually very broad.[1] The purpose of filing broad patents is to ring fence off as much of the territory from the outset so that any potential competitors are blocked or deterred from researching in the same area.

The primary patents on the active ingredient filed by Pharmacyclics, the company that originally discovered the compound that is the active ingredient in Imbruvica (ibrutinib), broadly disclosed:

a) how the active ingredient could be used in relation to over 100 different diseases indications. In some of these first patents, specific protection was claimed for these indications, such as chronic lymphocytic leukemia and Waldenstrom macroglobulinemia;[2]
b) the various techniques and forms i.e., tablet or capsule to formulate the active ingredient;
c) the different inherent molecular structures and formations of the active compound;
d) potential combinations with other drugs; and
e) various processes for synthesising and making the active ingredient.

It is important to note that these primary patents not only serve to protect all these different features relating to the active ingredient from competition for the statutory 20-year patent term, they also lay out the roadmap for future 'drip feed' patenting activity that would add several more years of protection and profitability for AbbVie/Pharmacyclics.

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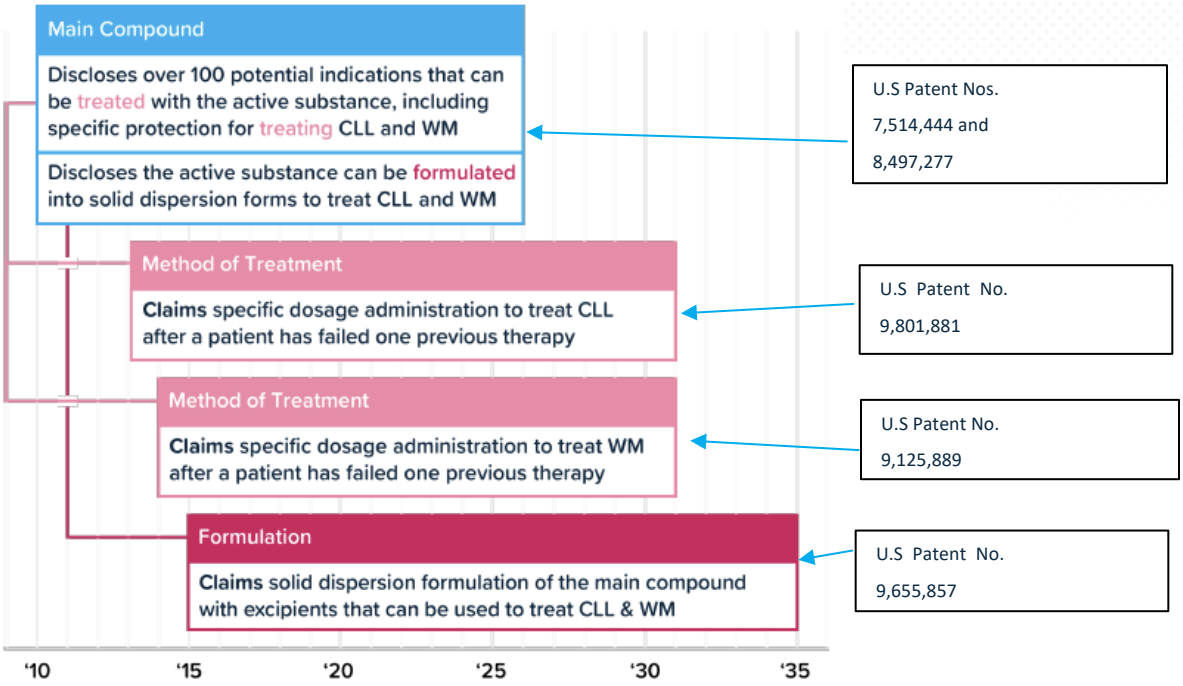
[1] It should be noted that there may be several patents filed and granted in relation to the active ingredient (primary patent). However, as they all form part of the same patent family they usually expire around the same time. This is the case with the primary patents covering the active ingredient in Imbruvica, see for example U.S Patent Nos. 7,514,444, 8,497,277, 8,9520,015, 8,476,284. These patents are all set to expire on 28 December 2026 despite being filed at different times.

[2] See for example U.S Patent Nos. 8,497,277, 8,952,015 and 8,476,284.

Subsequently, separate and more specific patents (secondary patents) have been filed for the different features already broadly set out in the first patent. Between 2006 (the year the first patents for Imbruvica were filed) and 2019, 165 patent applications were filed in relation to Imbruvica, 55% of which were after the drug was first approved. That is equivalent of one patent filed every month for the last 13 years and there are undoubtedly more to come.

The following graphic provides just one snapshot of the drip feed patent strategy used by Pharmacyclics and AbbVie to extend their patent protection on the drug Imbruvica.[3] The additional patents in this graphic extend five to nine years beyond the first patent(s) on the main compound (active ingredient) described above.



WM = Waldenstrom macroglobulinemia. **CLL** = Chronic lymphocytic leukemia.

It is important to note that this kind of drip feed patent strategy is not limited to AbbVie, but is pervasive across the pharmaceutical industry as the current patent system permits it.

2. Do you believe our system should protect patents such as those?

Secondary patents that follow the main patent(s) on an active ingredient that is based on small molecule science should not be protected for the following reasons:

First, the primary patent already receives the statutory 20-year patent term for many of the features that are subsequently covered in secondary patents. This protection would deter any competitors entering during this period and allows the patent holder to freely work and profit from

[3] I-MAK, Overpatented, Overpriced, Imbruvica's Patent Wall, July 2020. Available at https://www.i-mak.org/imbruvica/

the invention for the different features it has already laid out in the primary patent. Therefore, secondary patent applications that claim as inventions features already disclosed or claimed in the primary patent should not be considered patentable per se by the U.S Patent and Trademark Office (USPTO).

Second, when litigated fully without any settlement, studies show that two thirds of secondary pharmaceutical patents based on small molecule science are invalidated.[4] Many of the features that appear in secondary patents in the small molecule space are commonly practiced techniques in the industry for the past 40 years and should no longer be considered inventive as a result.

However, the current patent system takes the view that in order to incentivise investment in incremental modifications, secondary patents should be protected. As a result, the patent system has become less about invention, an essential requirement of the patent bargain, but more about driving investment. If this is the system we desire, then we should no longer be calling it a patent system, but simply an 'investment for exclusivity' system.

If we want to keep the invention aspect of the patent bargain, then we need to raise the bar for what is considered patentable. This requires making the standards of novelty, non-obviousness and the written description requirement explaining the invention claimed much stricter at the examination level of the USPTO. Adopting such stricter patenting standards would avoid having to resolve these issues through litigation, which often run the risk of settlements that impact competition entering the market earlier. More importantly, it would bring our patent law up to date with where small molecule pharmaceutical science practice is today and why such practices are no longer inventive as they once were.

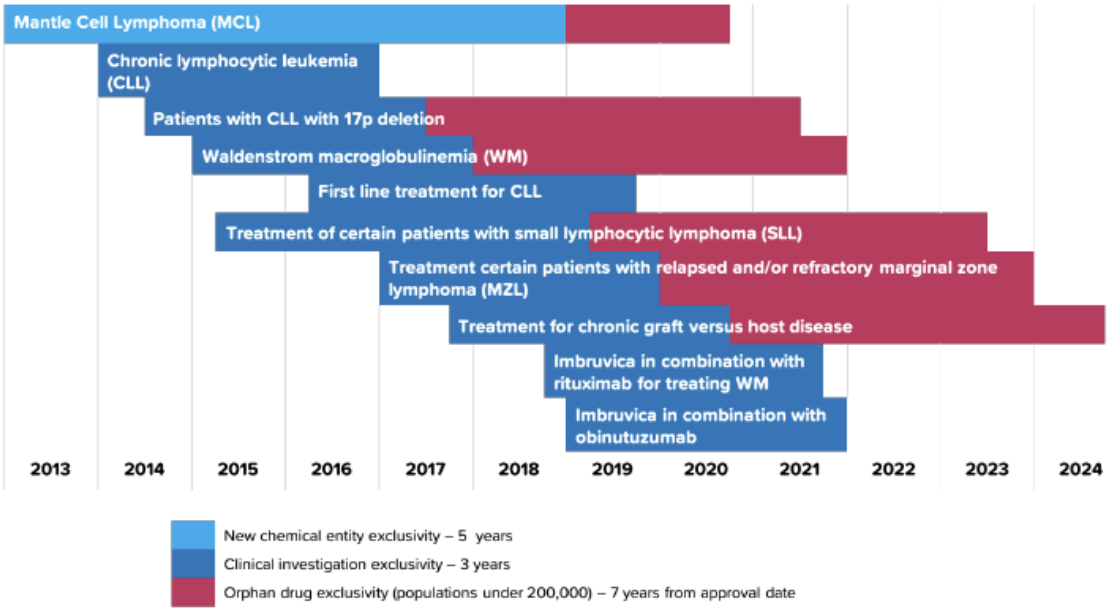
Finally, separate from patent exclusivities, pharmaceutical companies are already provided with individual marketing exclusivities for many of the features that are covered in these 'drip feed' secondary patents. Under the current rules, the U.S Food and Drug Administration (U.S FDA) grants drug makers three years of New Clinical Investigation Exclusivity for each additional disease indication, formulation/dosage regimen, and patient population its drugs are approved for. Unlike patents, these exclusivities cannot be litigated and are a guaranteed period of protection free from any generic competition.

The following graphic provides a breakdown of all the U.S FDA exclusivities Imbruvica had received as of March 2020[5]:

[4] CS Hemphill and B Sampat, Drug Patents at the Supreme Court, Science. Vol 339, Issue 6126, 1386-1387, 22 Mar 2013. Available at https://science.sciencemag.org/content/339/6126/1386/tab-figures-data

[5] I-MAK, Market Watch: Imbruvica, March 2020. Available at https://www.i-mak.org/imbruvica/. Since this report was written, on 21 April 2020 AbbVie received another FDA approval and marketing exclusivity for Imbruvica in combination with the drug rituximab for chronic lymphocytic leukemia.

- Imbruvica's first FDA exclusivity was the 5-year new chemical entity marketing exclusivity for mantle cell lymphoma in 2013. This marketing exclusivity expired in 2018.
- Eight 3-year clinical investigation exclusivities (CIEs) have been granted for Imbruvica in relation to each subsequent approved indication. Five CIEs have expired; three CIEs are currently in force and expire between August 2020 and January 2022.
- Orphan Drug Exclusivities (ODE) for Imbruvica, which are given for products that treat indications affecting fewer than 200,000 people, have been granted for eight indications and expire between January 2020 and August 2024.



These exclusivities should be ample incentive and reward for any incremental modifications to a drug. As such incremental features for drugs that receive FDA exclusivities (such as additional disease indication, formulation/dosage regimen, and patient population) should not be given separate patent protection.

Another strategy AbbVie uses to protect its Imbruvica profits is to enter into settlement agreements with would-be generic competitors to delay their entry to market. Nearly a dozen generic manufacturers have sought approval from the Food and Drug Administration to sell lower-priced generic versions of Imbruvica. Instead of going to court, which would allow scrutiny of these patents, AbbVie entered into confidential settlement agreements with almost all its potential generic competitors. These agreements will collectively delay generic entry until March 2032 – six years after AbbVie's original patents on Imbruvica expire.

3. How do these types of settlement agreements impact patients?

As a result of all the patents it has accumulated on the drug Imbruvica, AbbVie has managed to extract an additional six years of patent monopoly before competition can enter. This means AbbVie can continue to increase its price for Imbruvica at will until 2032.

The current non-discounted annual price for Imbruvica is $174,156.[6] The price for Imbruvica has increased over 57% in the five years since the drug was first approved in November, 2013. In January 2020, the price of Imbruvica increased by over 7% alone and we can expect this trend to continue until competition eventually enters.

Indeed, Imbruvica is projected to become the fourth highest grossing drug in the U.S, with annual revenues of nearly $9 billion. By our conservative estimates, the total estimated spend for Americans on branded Imbruvica during these extra six years of patent monopoly will be approximately $28.7 billion. In 2019, Medicare alone spent $2.4 billion on Imbruvica and it was the sixth highest spending drug in the programme that year compared to $590 million in 2015.[7]

This is the cost that will impact patients and taxpayers if we do not address our current patent system.

[6] It worth noting that the non-discounted list price is the price uninsured patients pay. It is also the price that co-insurance is based on for patients with Medicare and private insurance.
[7]https://portal.cms.gov/wps/portal/unauthportal/unauthmicrostrategyreportslink?evt=2048001&src=mstrWeb.2048001&documentID=203D830811E7EBD800000080EF356F31&visMode=0&currentViewMedia=1&Server=E48V126P&Project=OIPDA-BI_Prod&Port=0&connmode=8&ru=1&share=1&hiddensections=header,path,dockTop,dockLeft,footer