

## INSIGHT: Orange, Purple Book Patentees Hone PTAB Survival Skills

### Biopharmaceutical Patents

Through thoughtful strategy, patent owners have ensured that Patent Trial and Appeal Board proceedings are not overwhelmingly fatal to Orange and Purple Book patents. In fact, patent invalidity rates at the PTAB now rival those in district court litigation, write Filko Prugo, Scott McKeown, and Jon Tanaka of Ropes & Gray.



BY FILKO PRUGO, SCOTT MCKEOWN, AND JON TANAKA

Patent Trial and Appeal Board proceedings remain a popular avenue for patent challengers. And conventional wisdom posits that patent owners in the biopharmaceutical space should be wary of PTAB proceedings. Indeed, the early overall trends from the PTAB indicated that post-grant proceedings often resulted in a finding of unpatentability. The PTAB has been combating the notion of being a patent “death squad” ever since and recently released a study relating to Orange

Book patents in an attempt to assuage industry concerns.

We have conducted a survey that updates and further elaborates on PTAB’s work — breaking down Orange Book patents by type, looking at Purple Book-related patents, and comparing PTAB outcomes to Hatch-Waxman Act litigation outcomes in district courts. Our study looked at every Orange and Purple Book-related PTAB petition filed since inception of the PTAB to May 1, 2018, and every validity decision in Hatch-Waxman abbreviated new drug application litigation rendered by a federal district court between Jan. 1, 2013, and May 1, 2018.

As an additional forum for challengers to pursue — along with its lower burden of proof and use of the broadest reasonable construction standard — the PTAB undoubtedly has provided new and serious challenges for patent owners in the biopharmaceutical industry. Our findings, however, indicate that these patent owners have embraced that challenge and, through thoughtful strategy, have ensured PTAB proceedings are not overwhelmingly fatal to Orange and Purple Book patents. In fact, our study reveals that patent invalidity rates at the PTAB now rival those in district court litigation. The efforts of the biopharmaceutical in-

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dustry are starting to pay dividends: Our data in conjunction with proposed rule changes being discussed (e.g., use of a *Phillips* construction), indicate that the once-dreaded PTAB forum has the potential to one day be embraced the biopharmaceutical industry.

As the PTAB's study showed, the institution rate for Orange Book-listed patents is essentially the same as the overall institution rate for PTAB petitions: 67 percent for Orange Book-listed patents versus 68 percent overall. Further breaking down that 67 percent Orange Book patent institution rate by type of patent sheds light on significant differences in the PTAB's treatment of different patent types. Method of treatment patents are the most likely to be instituted, with an institution rate of 76 percent. And, unsurprisingly, compound patents, which have claims covering an active pharmaceutical ingredient, are least likely to be instituted at 54 percent. Formulation patents land in between with a 64 percent institution rate.

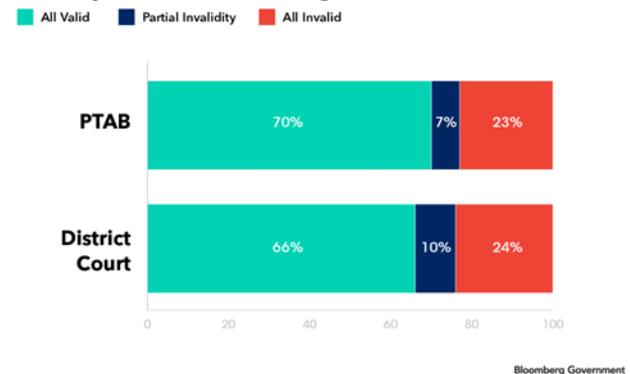
In contrast, the institution rate for Purple Book-related patents is significantly lower, at 56 percent. The sample size for Purple Book-related patents is still relatively small — 102 total petitions for Purple Book-related patents compared with 447 total petitions for Orange Book-listed patents — and the institution rate has been heavily influenced by the successful defense of multiple petitions challenging the same handful of patents. Even so, the complexity of the technology surrounding biologics and biosimilars makes the low rate of institution somewhat expected. Indeed, the relatively low rate of institution for Orange and Purple Book biopharmaceutical patents — especially compound patents — is partially attributable to two hurdles particularly relevant (and difficult to overcome) in the biopharmaceutical space: demonstrating that the claimed results were predictable; and establishing public availability of alleged Food and Drug Administration-related prior art.

Taking the latter of these hurdles first, district courts rarely find that a failing to demonstrate a reference is prior art — whereas, in PTAB proceedings, institution has been denied numerous times because petitioners have failed to show the public accessibility or date of publication of references. Challengers have failed to establish that FDA-related documents, clinical studies, drug labels, and product inserts were prior art because of an inability to establish the time or nature of the public's access to the document. For example, in the *Celltrion Inc. v. Biogen Inc. Rituxan®* IPR, the board found that the Rituxan® drug label, patient consent forms, and a clinical study protocol were not prior art. Even FDA regulatory approval of the Rituxan® product itself was insufficient to independently establish that the drug's label was publicly accessible at the time. Certainly, the PTAB appears to be applying a stringent standard for establishing prior art, which can be particularly relevant to the type of references typically relied upon in biopharmaceutical cases.

The other oft-encountered hurdle for challengers at the institution stage is overcoming the unpredictability of the art. Biology and chemistry have long been recog-

nized as unpredictable arts in district court, and PTAB has seemingly adopted that understanding. Petitioners have had trouble establishing that the results claimed in biopharmaceutical patents were predictable. In fact, in drug development, even small modifications may have unforeseeable results. Thus, for example, the PTAB has found that formulating antibodies is a poorly understood art and, as such, that switching one antibody for another in a formulation does not have foreseeable consequences. Similarly, the PTAB has held that creating hydrates and solvates is also unpredictable — and, in both these cases, denied institution.

### Validity Outcomes (Orange Book Patents)



Our survey also looked at final written decisions for Orange and Purple Book patents. We focused on the likelihood that at least one claim survived after final written decision. Conceptually, as long as one challenged patent claim survives, the patent owner is likely capable of preventing FDA approval of a generic product or biosimilar (assuming here that the petitioner has challenged claims that subject it to infringement and has determined the PTAB to be its best forum for a successful outcome). For Orange Book-listed patents, in 51 percent of final written decisions, at least one claim survives. This is much higher than for all patents considered together, where at least one claim survives in only 35 percent of final written decisions. As for Purple Book-related patents, the rate that one claim survives is 36 percent. So, although Orange Book-listed patents are more likely than Purple Book-related patents to be the subject of an instituted trial, Orange Book patents are also more likely to survive.

Next, our survey took into account all possible ways in which Orange and Purple Book petitions had been resolved to determine the overall likelihood a claim survives. These statistics highlight how well prepared patent owners in the biopharmaceutical space have been for PTAB challenges. For Orange Book patents, no challenged claims survive in only 18 percent of all petitions. (For our purposes, we considered no challenged claims

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to have survived when all of the challenged claims were instituted and then either found unpatentable in the final written decision or canceled by the patent owner.) That number is even lower, 13 percent, for Purple Book-related patents. In comparison, when considering all petitions filed with the PTAB, 26 percent end without any challenged claims to assert.

Because it is impossible to know whether a settlement is more favorable to the petitioner or the patent owner, we also examined the data without the inclusion of settlements. Arguably, because Orange and Purple Book petitions are less likely than average to result in settlement, this framing better illuminates the difference between Orange and Purple Book PTAB proceedings relative to PTAB proceedings generally. Here, 61 percent of petitions for Orange Book patents result in at least one surviving claim and 77 percent of petitions for Purple Book-related patents result in at least one surviving claim. (We considered a petition to have at least one surviving claim when at least one claim was either denied institution or found patentable in the final written decision.) Both these rates are significantly higher than the 45 percent for petitions generally.

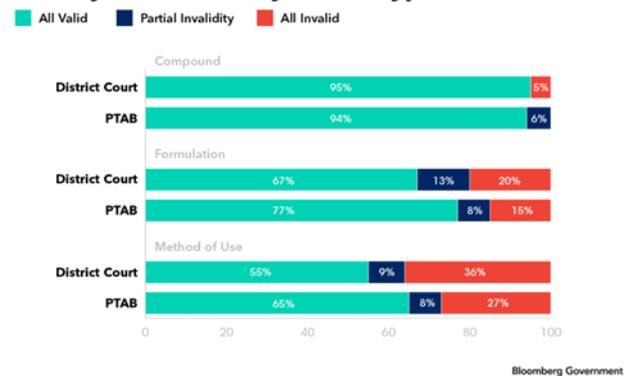
Further breaking down Orange Book PTAB proceeding outcomes by patent type helps to provide context to the overall numbers. Here, again, compound patents are the strongest, while method of treatment patents are the most susceptible to challenge. For compound patents, at least one claim survived in 93 percent of petitions, and the remaining 7 percent settled — meaning the PTAB has *never* found all challenged claims of a compound patent to be unpatentable. Formulation patents, too, fare relatively well in PTAB proceedings: at least one formulation claim survived in 57 percent of petitions, compared with only 11 percent of petitions resulting in all challenged claims found unpatentable. Notably, 32 percent of petitions for formulation patents result in settlement, a much higher number than for compound patents (7 percent) or method of treatment patents (21 percent), possibly indicating that patent owners have less confidence in their formulation patents. Finally, method of treatment patents are the most vulnerable in PTAB proceedings. Similar to formulation patents, 54 percent of petitions result in at least one challenged claim surviving. However, 25 percent of these petitions ended with no surviving claims — similar to the rate for patents generally at PTAB (26 percent).

The sample size for Purple Book-related patents (broken down by patent type) is too small to glean meaningful trends. However, there are a couple interesting data points to note. Similar to Orange Book patents, no Purple Book compound patent claim has been found unpatentable by the PTAB. And, more surprisingly, *no* formulation patent claim has been found unpatentable by the PTAB. (With dozens of PTAB proceedings in the Purple Book space pending, these numbers are likely to change soon).

In isolation, the statistics for Orange Book PTAB proceedings are promising and demonstrate that a patent is not doomed simply because a PTAB petition is filed. Of course, biopharmaceutical patent disputes are not fought in isolation. Accordingly, we compared our PTAB statistics to district court proceedings — surveying all district court patentability decisions in Hatch-Waxman litigation between Jan. 1, 2013, and May 1,

2018, roughly the equivalent time frame as for our PTAB statistics.

### Validity Outcomes (By Patent Type)



These results are perhaps the most surprising: validity outcomes for Orange Book patents are roughly equivalent in district court and at the PTAB. Not including settlements, 76 percent of patentability decisions result in at least one claim surviving at district court, compared with 77 percent at the PTAB. We excluded settlements to focus on the actual outcomes of PTAB and district court proceedings. Moreover, because PTAB proceedings only concern validity, only district court validity outcomes were considered (albeit under *any* doctrine).

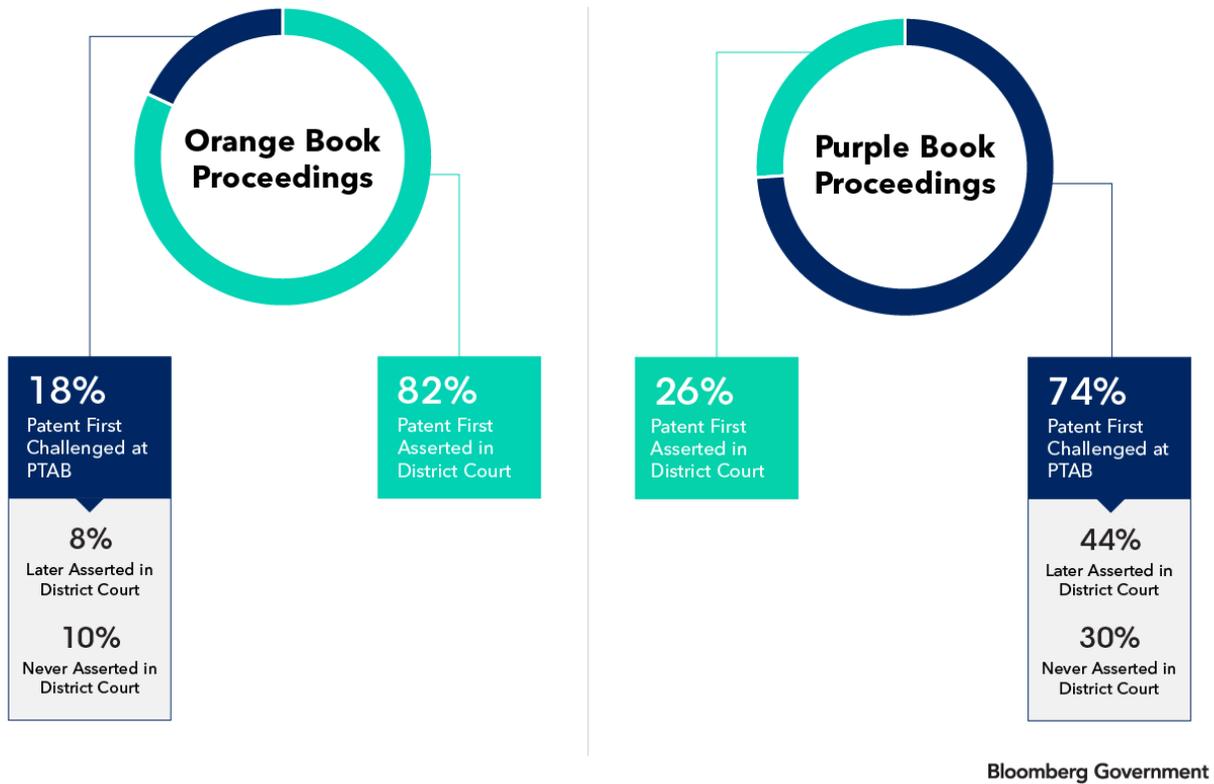
Breaking these numbers down by patent type highlights some more interesting disparities.

For district courts and the PTAB, compound patents are almost never invalidated: 0 percent were completely invalidated by the PTAB, and only 5 percent were invalidated by district courts. Only two compound patents had all asserted claims invalidated by a district court during the time frame we considered. See *Novartis Pharms. Corp. v. Breckenridge Pharm. Inc.*, No. 1:14-cv-1043 (D. Del. Apr. 3, 2017); *Bristol-Myers Squibb Co. v. Teva Pharms. USA Inc.*, No. 10-cv-00805 (D. Del. Feb. 11, 2013).

Formulation patents are better off at the PTAB: 15 percent completely invalidated by the PTAB versus 20 percent for district courts. Method of treatment patents also see significantly greater survival rates at the PTAB. Only 27 percent of method of treatment patents are completely invalidated by the PTAB, compared with 36 percent in district court validity decisions stemming from Hatch-Waxman litigation. This difference may be because of the PTAB's relative technical sophistication, which may make the board more receptive to the nuanced arguments for validity that are required for method of treatment patents, as opposed to the relatively streamlined and now well-understood validity test for compound patents.

Lastly, our study analyzed the choice of forum and timing issues. First, we looked to see whether patents were litigated first in district court or before the PTAB — regardless of the parties' identities.

Here, clear differences are apparent between Orange Book patents and Purple Book-related patents. For Or-



ange Book patents, the vast majority of the time (82 percent), district court litigation was initiated before the first PTAB challenge. These numbers are almost perfectly reversed for Purple Book patents, where 74 percent of patents are challenged at the PTAB before any corresponding district court litigation has ensued. One possible explanation for this is the different regulatory frameworks governing small-molecule drugs and biologics. For Hatch-Waxman cases, a 30-month stay of FDA approval is virtually assured because innovators are likely to bring suit on their Orange Book-listed patents. In contrast, the Biologics Price Competition and Innovation Act of 2009 includes no provision for a stay of FDA approval and all of the currently targeted biologics are not subject to FDA regulatory exclusivities. So, speed matters more right now for biosimilars, making the PTAB the more appropriate forum.

Taking party identity into account further sheds light on how PTAB challenges are being used. Again, in the majority of cases (64.5 percent), the PTAB petition was filed after the parties were already litigating the patent in district court. This number is somewhat lower than the 82 percent discussed above, as it accounts for later-ANDA filers, who are more likely to join or file their own petitions prior to litigation being initiated in to

“catch up” to first-ANDA filers already subject to a contested patent proceedings. Of the remaining 35.5 percent of petitions that are filed before the parties are engaged in district court litigation, litigation between the parties follows the PTAB proceedings only 6.6 percent of the time. That means more than 80 percent of the time, no litigation between the parties ever occurs. This seemingly indicates that generic challengers are selective in determining which patents are ripe for early challenges at the PTAB, resulting in successful invalidation that precludes litigation.

Our findings indicate that the PTAB’s impact in the biopharmaceutical space has been muted by well-prepared patent owners. Indeed, the PTAB’s treatment of Orange Book patents is now remarkably similar to their treatment by district courts. Further, the PTAB has treated various biopharmaceutical patent types — compound, formulation, and method of treatment patents — differently at the institution and final written decision stages. Our findings also show how parties in these proceedings have used the different forums in relation to each other. Participants should consider all of these factors in crafting their litigation strategies and substantive arguments.