No. 23-768

IN THE

Supreme Court of the United States

VANDA PHARMACEUTICALS INC.,

Petitioner,

v.

TEVA PHARMACEUTICALS USA, INC.; APOTEX INC.; APOTEX CORP.,

Respondents.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

BRIEF OF *AMICI CURIAE* SALIX PHARMACEUTICALS, INC. AND OCULAR THERAPEUTIX, INC. IN SUPPORT OF PETITIONER

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INTEREST OF *AMICI CURIAE*[1]

Salix Pharmaceuticals, Inc. (Salix), a wholly owned subsidiary of Bausch Health Companies Inc., is one of the largest specialty pharmaceutical companies in the United States and is committed to the prevention and treatment of gastrointestinal diseases and disorders.

Ocular Therapeutix, Inc. (Ocular) is a biopharmaceutical company focused on the formulation, development, and commercialization of innovative therapies for diseases and conditions of the eye. Ocular has built a robust product pipeline of drug delivery solutions developed to reduce the complexity and burden of the current standard of care and position itself to become a leader in the ophthalmic space.

Amici have a strong interest in ensuring a predictable and reliable patent system that encourages high-risk, high-investment pharmaceutical research. *Amici* understand firsthand the long, costly, and risky process of developing a new therapy and obtaining Food and Drug Administration (FDA) approval. As part of this development process, *amici* faithfully comply with government requirements to publicly disclose ongoing clinical trials. But the Federal Circuit's decision here—concluding that the mere existence of a clinical trial would have contributed to a reasonable expectation of success—threatens to undermine the investment-backed expectation of companies like *amici*. This case provides the Court with an opportunity to clarify that pharmaceutical innovators are not undermining the

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[1] Counsel of record for all parties received timely notice of *amici*'s intent to file this brief. No counsel for any party authored this brief in whole or in part, and no entity or person other than *amici* and their counsel made any monetary contribution toward the preparation and submission of this brief.

patentability of the very therapies that the patent system is supposed to incentivize simply by complying with Congress's mandatory disclosure requirements.

SUMMARY OF THE ARGUMENT

Clinical trials are an essential part of bringing new human therapies to the public. In 2019 alone, pharmaceutical innovators invested $83 billion[2] in research and development to identify potentially promising treatment methods and then determine through rigorous clinical testing whether they are safe and effective in human patients. But successes are few and far between. Most potential treatments never make it out of the laboratory. Fewer still go on to receive FDA approval. For the rare treatment methods that are proven to be safe and effective, pharmaceutical innovators depend on a strong and reliable patent system to recoup their investment and fund additional research and development.

Clinical trial transparency and FDA oversight are also essential parts of the drug development process. Indeed, Congress requires sponsors to share information publicly and promptly on ClinicalTrials.gov about their planned and ongoing clinical trials. The required disclosures include, among other details, a summary of the experiment, its design, its primary purpose, the measures to evaluate results, the location(s) of the study, and recruitment information. A sponsor's failure to satisfy these requirements is grounds for criminal liability, as well as hefty civil fines. Thus, before the *results* of a clinical trial are ever disclosed, which typically takes years, the information posted on

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[2] Congressional Budget Office, *Research and Development in the Pharmaceutical Industry* 1 (Apr. 2021) (hereinafter "CBO").

ClinicalTrials.gov provides the public with a summary of the clinical trial protocol intended to be used to conduct the study.

For patents claiming an effective therapeutic treatment method, nonobviousness typically turns not on whether various elements in the prior art could have been combined, but on whether skilled artisans would have reasonably predicted that the method would achieve the claimed results. To establish obviousness, a growing practice exists among patent challengers of using protocol summary disclosures—posted long before any results from a clinical trial are reported—as prior art in obviousness claims. According to these challengers, the mere *commencement* of a clinical trial shows that skilled artisans would have reasonably expected the tested methods to succeed. Challengers make these arguments despite that most clinical trials fail and that it was only with the benefit of hindsight that a skilled artisan could expect a clinical trial to achieve success with a specific method or dosing regimen.

Petitioner's case is illustrative. Through painstaking and costly clinical testing, Petitioner took a previously abandoned drug and developed it into a useful therapeutic method for treating specific disorders. Yet a Federal Circuit panel concluded that "the tasimelteon prior art"—which included a description of an "ongoing clinical trial"—"would have given a skilled artisan a reasonable expectation of success" in achieving the claimed results. Pet. App. 7a-8a. Contrary to the panel's conclusion, the mere existence of a clinical trial—without results—does not establish that skilled artisans would have reasonably expected success. If that were the rule, it would make it difficult—in many cases impossible—to obtain patent protection for new treatment methods, which in turn would make it

difficult to recoup the substantial investments necessary to bring such treatment methods to patients.

It is no answer to say that pharmaceutical innovators simply should file their patent applications *before* they ascertain the results of their clinical trials and before mandatory clinical disclosures become "prior art." Challengers will then argue that such patents lack sufficient written description because the claimed methods were merely theoretical, and the inventors did not actually possess the claimed method of treatment at the time of filing. Under the panel's decision here, filing a patent application *after* a clinical trial carries the risk that the patentee's own mandatory disclosures will be used against it. This "heads I win, tails you lose" result effectively cannibalizes the very research and development that the patent system was designed to promote.

Whether by correcting the Federal Circuit's misapplication of the reasonable-expectation-of-success standard or by returning to a predictable-results standard (as Petitioner suggests, Pet. Br. 2-4), this Court should grant review and clarify that the mere existence of a clinical trial is not sufficient to provide a skilled artisan with a reasonable expectation of success, and certainly not predictable success, in achieving the clinically tested method.

ARGUMENT

I. The Obviousness of a Method of Treatment Typically Turns on Achieving the Claimed Results, Not on Whether Prior-Art References Can Be Combined

The "right of exclusion" offered by a patent serves "as an incentive to inventors to risk the often enormous costs in terms of time, research, and development."

Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 480 (1974). Such costs are indeed enormous in the pharmaceutical industry. The Congressional Budget Office recently confirmed that the average cost to develop a new drug from the laboratory to FDA approval ranges from nearly $1 billion to more than $2 billion. CBO at 2; Joseph A. DiMasi et al., *Innovation in the Pharmaceutical Industry: New Estimates of R&D Costs*, 47 J. Health Econ. 20, 31 (2016) (reporting that developing new pharmaceutical treatments averages nearly $1.4 billion in out-of-pocket costs). The investment does not pay off quickly. David Thomas et al., *Clinical Development Success Rates and Contributing Factors 2011-2020*, BIO 3, 24 (Feb. 2021) (reporting 10.5-year average development time from Phase I development to regulatory approval); *see also* CBO at 14.

This right of exclusion is, of course, carefully calibrated to "weed[] out those inventions" that are not "new and useful innovations." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 9, 11 (1966). For more than 170 years, this Court has recognized that "the difference between the new thing and what was known before [must be] considered sufficiently great to warrant a patent." *Id.* at 14 (citing S. Rep. No. 82-1979 (1952); H.R. Rep. No. 82-1923 (1952)); *see also Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 267 (1850) (affirming patent invalidity judgment where "the improvement is the work of the skil[l]ful mechanic, not that of the inventor").

Consistent with these principles, this Court has invalidated patents when the claimed invention was "plainly foreshadowed" or "plainly indicated" in the prior art. *Textile Mach. Works v. Louis Hirsch Textile Machs., Inc.*, 302 U.S. 490, 497-98 (1938); *Altoona Publix Theatres, Inc. v. Am. Tri-Ergon Corp.*, 294 U.S.

477, 486 (1935). This Court has reached the same result when a claimed invention would have been "perfectly plain to an expert," *Dow Chem. Co. v. Halliburton Oil Well Cementing Co.*, 324 U.S. 320, 327 (1945), or "immediately recognized" and "found ready at hand" by one skilled in the art, *De Forest Radio Co. v. Gen. Elec. Co.*, 283 U.S. 664, 682, 685, *amended by* 284 U.S. 571 (1931).

Yet this Court has also been careful to distinguish plainly foreshadowed inventions from inventions where all the elements were present in the prior art, but the combination of elements produced "a new and beneficial result." *Webster Loom Co. v. Higgins*, 105 U.S. 580, 591 (1881). While in hindsight the new combinations might seem "plain" or "simple" after someone else invented them, that "is often the case with inventions of the greatest merit." *Id.* at 589, 591; *Diamond Rubber Co. v. Consol. Rubber Tire Co.*, 220 U.S. 428, 435 (1911) (recognizing that "[k]nowledge after the event is always easy, and problems once solved present no difficulties"). This has been especially true where "there [was] no means, short of actual experiment, to enable one to anticipate results." *Eibel Process Co. v. Minn. & Ont. Paper Co.*, 261 U.S. 45, 62 (1923). Even when using known components, the inability to predict the results beforehand has meant that the patent "was invention rather than the mere obvious and simple application of known natural forces." *Id.*

Against this backdrop, Congress enacted § 103 of the Patent Act in 1952, providing that an invention is not patentable if that invention would have been "obvious" at the time it was made to a person having ordinary skill in the pertinent art. 35 U.S.C. § 103; *see also Graham*, 383 U.S. at 13-17. In choosing the word "obvious," Congress codified decades of this Court's

precedent underscoring that "plain" or "[e]asily discovered" inventions are not patentable. *See Webster's New Collegiate Dictionary* 581 (2d ed. 1951) (defining "obvious" as "[e]asily discovered, seen, or understood; plain; evident"). This Court has correctly construed the codified standard as still "guard[ing] against slipping into use of hindsight." *Graham*, 383 U.S. at 36 (quoting *Monroe Auto Equip. Co. v. Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (6th Cir. 1964)).

The general law of obviousness applies in a wide variety of contexts, and differences in technologies impact which aspects of the standard are most important. For example, in the mechanical arts, obviousness often depends on whether prior-art references can be combined, and whether using a technique to improve a device is "beyond [the] skill" of a person of ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) ("[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill."). In such cases, "it can be important to identify a reason"—i.e, a motivation—"that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.* at 418.

For patents covering pharmaceutical methods of treatment, however, there is ordinarily no dispute that the teachings of the prior art *can be* combined. Instead, obviousness often turns on whether the claimed method of treatment "does no more than yield predictable results." *Id.* at 416. Take Petitioner's tasimelteon—the first drug that the FDA approved to treat Non-24-Hour Sleep-Wake Disorder (Non-24), a circadian-rhythm

disorder that occurs in individuals whose biological clocks are not synchronized. Pet. Br. 8; Pet. App. 2a-3a. The disorder affects "[a]pproximately 55 to 70 percent of totally blind individuals." Pet. App. 2a (citation omitted). Petitioner determined through clinical experimentation not only an effective dose of tasimelteon for synchronizing the circadian rhythms of blind people suffering from Non-24, but also that tasimelteon should be administered without food. Pet. Br. 8-10. With successful results, Petitioner's patents claimed methods of treating patients with Non-24 with an effective dose of tasimelteon (20 mg/day) administered without food. Pet. App. 9a.

There is no dispute here that a reference disclosing 20 mg/day tasimelteon could have been combined with a reference generally disclosing numerous possible food options for administering drugs, including without food.[3] Pet. App. 9a-11a. Put differently, it would not have been beyond the skill of an ordinary artisan to actually administer 20 mg/day tasimelteon without food. But the ability of skilled artisans to combine the references is not enough to show that a patent claim would have been obvious. Courts must also consider "the likelihood of success in combining references *to*

[3] To be sure, the general 2002 FDA guidance at issue in Petitioner's case only disclosed that food can affect the bioavailability of drugs and generally recommended studying food's effect on drugs. It did not recommend administering any particular drug without food. In fact, the guidance makes clear that there are numerous possible permutations for food options—with food, without food, food agnostic, ignore certain foods, or within a certain time of meals. U.S. Food & Drug Admin., *Guidance for Industry: Food-Effect Bioavailability and Fed Bioequivalence Studies* (Dec. 2002). Petitioner determined only through clinical experimentation that tasimelteon should be administered without food. Pet. Br. 9.

meet the limitations of the claimed invention." *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016) (emphasis added); *see also DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009) ("Although predictability is a touchstone of obviousness, the 'predictable result' discussed in KSR refers not only to the expectation that prior art elements are capable of being physically combined, but also that the combination *would have worked for its intended purpose*." (emphasis added) (quoting *KSR*, 550 U.S. at 416)).

Where, as in Petitioner's case, claims to a method of treatment recite achieving a particular result from administering a drug, the central obviousness dispute is whether skilled artisans would have expected that claimed result. The standard applied by courts to answer this question is critically important to incentivizing discovery of new therapeutic treatments. Weakening the standard to the point where the mere combination of references is enough to show predictability threatens devastating consequences for the future development of new human therapies.

II. The Mere Existence of Clinical Trials—Without Any Disclosed Results—Cannot Constitute Evidence that the Method Being Tested Is Obvious

Regardless of whether this Court replaces the Federal Circuit's reasonable-expectation-of-success test with a predictable-results test (as Petitioner suggests, Pet. Br. 2-4) or instead corrects the Federal Circuit's misapplication of the reasonable-expectation-of-success test, this Court should grant certiorari to clarify that the mere existence of clinical trials does not constitute evidence that skilled artisans would have predicted success.

Under the Food and Drug Administration Modernization Act of 1997, Congress required the National Institutes of Health (NIH) to create a public "data bank of information" cataloguing and describing clinical trials involving experimental drugs for patients with serious or life-threatening diseases or conditions. *See* Pub. L. No. 105-115, § 113, 111 Stat. 2296, 2311 (codified at 42 U.S.C. § 282(j)(1)(A) (1997)). To comply with this mandate, the NIH launched ClinicalTrials.gov in 2000. Congress later expanded those requirements, requiring sponsors to register additional types of trials, publicize more study information, and submit study results under the Food and Drug Administration Amendments Act of 2007. *See* Pub. L. No. 110-85, § 801(a), 121 Stat. 823, 904-20 (codified at 42 U.S.C. § 282(j) (2007)).

Today, pharmaceutical manufacturers are effectively required to register all interventional clinical trials in the United States beyond Phase I with NIH.[4] 42 U.S.C. § 282(j); 42 C.F.R. § 11.22; *see also* 42 C.F.R. §§ 11.2-.66. The disclosure requirements are extensive: the responsible party must describe the study's purpose and design, the primary disease or condition being studied, the drug name and type, dose information, recruitment eligibility and demographic information, and the expected completion date. 42 U.S.C. § 282(j)(2)(A)(ii); 42 C.F.R. § 11.28(a). Moreover, NIH must "ensure that

[4] Phase I trials focus on the safety of the drug and determine the metabolic and pharmacologic actions of drugs, side effects of increasing doses, and early evidence of effectiveness. 21 C.F.R. § 312.21(a). Phase II trials focus on the drug's effectiveness in patients with the disease or condition under study. 21 C.F.R. § 312.21(b). Phase III trials verify the drug's efficacy and safety with several hundred to several thousand subjects. 21 C.F.R. § 312.21(c).

the registry data bank"—i.e., the responsible party's disclosed information—"is made publicly available through the Internet" within 30 days of submission. 42 U.S.C. § 282(j)(2)(A)(i), (D)(i); 42 C.F.R. § 11.35(a).

The consequences of noncompliance—or even delaying compliance—with these disclosure requirements are severe. Failure to timely submit clinical study information to NIH is a "prohibited" act that carries criminal liability, including potential imprisonment and fines. 21 U.S.C. §§ 331(jj), 333(a)(1). NIH can also impose large civil penalties—up to $10,000 per day—for ongoing and uncorrected violations. 42 C.F.R. § 11.66(b); 21 U.S.C. § 333(f)(3).

Clinical trial transparency undoubtably benefits the public. Through ClinicalTrials.gov, physicians, patients, and the interested public may access a detailed summary and protocol for a clinical trial long before any results from the trial are ever reported. The law requires as much. While companies hope that clinical trials will report successful results, success is usually far from certain.

Of course, if a skilled artisan already knows the *results* of a clinical trial, then she likely would have good reason to expect (or predict) that a tested method would achieve the results shown in the trial. But across a variety of proceedings, patent challengers are increasingly relying on the mere fact that a clinical trial has *commenced*—with no disclosed results—as evidence that a skilled artisan would have expected success with the methods being tested.[5] Such reliance is misplaced.

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[5] *See, e.g.*, *Bausch Health Ir. Ltd. v. Padagis Isr. Pharms. Ltd.*, No. 20-5426 (SRC), 2022 WL 17352334, at *31 (D.N.J. Dec. 1, 2022) (challenger relying on existence of clinical trial as prior art);

Indeed, commencing a clinical trial does not provide a reasonable expectation of success. Far from it. Several studies have shown that fewer than 14% of drug products that enter clinical trials emerge with an FDA approval; for many therapeutic areas, the odds are even lower. *See* Chi Heem Wong et al., *Estimation of Clinical Trial Success Rates and Related Parameters*, 20 Biostatistics 273, 277 (2019) (finding a 13.8% success rate that "ranges from a minimum of 3.4% for oncology to a maximum of 33.4% for vaccines"); CBO at 2 (finding a 12% success rate); Thomas, *supra*, at 3 (finding a 7.9% success rate); Michael Hay et al., *Clinical Development Success Rates for Investigational Drugs*, 32 Nat. Biotechnol. 40, 41 (2014) (finding a 10.4% success rate). At bottom, "there is no means, short of actual experiment, to enable one to anticipate results." *Eibel*, 261 U.S. at 62.

To be sure, certain panels at the Federal Circuit have correctly found that the mere existence of a clinical trial does not show obviousness. For example, in *OSI Pharmaceuticals, LLC v. Apotex, Inc.*, the Federal Circuit considered claims directed to methods of treating non-small cell lung cancer (NSCLC) using the compound erlotinib. 939 F.3d 1375, 1378-79 (Fed. Cir. 2019). The patent challenger pointed to the

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Janssen Pharms., Inc. v. Mylan Lab'ys Ltd., No. 20cv13103 (EP) (LDW), 2023 WL 3605733, at *18 (D.N.J. May 23, 2023) (same); *Sanofi-Aventis U.S. LLC v. Sandoz, Inc.*, No. 20-804-RGA, 2023 WL 4175334, at *13-14 (D. Del. June 26, 2023) (same); *Celltrion, Inc. v. Chugai Seiyaku Kabushiki Kaisha*, No. IPR2022-00579, Paper 9 at 9-10 (P.T.A.B. Aug. 31, 2022) (same); *Sun Pharm. Indus. Ltd. v. Aurinia Pharms. Inc.*, No. IPR2022-00617, Paper 9 at 11-12 (P.T.A.B. July 26, 2022) (same); *Miltenyi Biomed. GmbH v. Trs. of the Univ. of Pa.*, No. IPR2022-00852, Paper 9 at 5 (P.T.A.B. Oct. 11, 2022) (same); *Pfizer, Inc. v. Genentech, Inc.*, Nos. IPR2017-01726, -01727, Paper 9 at 3-5 (P.T.A.B. Jan. 23, 2018) (same).

existence of Phase II clinical trials disclosed in the patentee's 10-K statement as evidence that the claims would have been obvious. *Id.* at 1380. Recognizing the high failure rate of other drugs entering Phase II trials for the treatment of NSCLC—99.5%—the court of appeals held that "a fact finder could not reasonably find that the 10-K statement combined with [the prior-art patent] would have been sufficient to create a reasonable expectation of success." *Id.* at 1385; *see also Novartis Pharms. Corp. v. W.-Ward Pharms. Int'l, Ltd.*, 923 F.3d 1051, 1060-61 (Fed. Cir. 2019) (affirming district court's finding of no reasonable expectation of success for a method of treating cancer where a similar anti-cancer agent had shown positive Phase I study results and had entered Phase II clinical trials).

The reasoning of *OSI* and *Novartis* is not limited to cancer drugs—success is unpredictable in most clinical trials. Yet the panel here used Petitioner's public disclosure of clinical trials it was undertaking as evidence that a person of ordinary skill in the art would have had a "reasonable expectation of success" that the tested methods would succeed. Pet. App. 7a-8a. The Federal Circuit's inconsistent treatment of clinical trials as evidence of obviousness only bolsters the case for certiorari. As it stands now, whether the mere existence of a clinical trial creates a reasonable expectation of success is a panel-specific inquiry. While some panels may recognize that a clinical trial provides "no more than hope" that "a potentially promising drug" will succeed, *OSI*, 939 F.3d at 1385, others assume—with the benefit of hindsight—that the mere existence of a clinical trial shows an expectation of success.

Patentees cannot avoid the fallout from the panel's error by filing their patent applications earlier. In

Biogen International GMBH v. Mylan Pharmaceuticals Inc., the Federal Circuit held that the written description requirement of 35 U.S.C. § 112 "limits patent protection only to individuals who perform the difficult work of producing a complete and final invention featuring all its claimed limitations and publicly disclose the fruits of that effort." 18 F.4th 1333, 1344 (Fed. Cir. 2021). Although Biogen's patent disclosed a range of therapeutically effective doses, the court nevertheless held that it did not comply with the written description requirement because "at the time of filing the disclosure—well before the Phase III study even commenced—a skilled artisan could [not] deduce simply from reading the specification that" one particular dose within that range "would be a therapeutically effective treatment." *Id.* at 1343-44 ("At the time of filing the original disclosure in 2007, the Nrf2 insights that proved critical in the Phase III study had not yet been translated to clinical use.").

The panel's treatment of clinical trials here places pharmaceutical innovators in an untenable Catch-22. If inventors file their patent application *after* a clinical trial, challengers will argue—with full benefit of hindsight—that required ClinicalTrials.gov disclosures are prior art showing that skilled artisans would have expected the clinical trial to be successful. *See* Pet. App. 7a-8a. But if inventors file their patent application *before* a clinical trial shows the drug's effectiveness, challengers will argue that the claimed methods were merely "theoretical" and that inventors did not actually "possess" the claimed method of treatment. *Biogen*, 18 F.4th at 1344.

Under the current state of the law, pharmaceutical innovators are left with uncertainty as to whether their required clinical trial disclosures will ultimately

be used to invalidate their patents. The panel decision here only exacerbates the problem. This Court should intervene to clarify that the mere existence of a clinical trial does not show that skilled artisans would have reasonably expected the tested methods to succeed.

III. Uncertainty Regarding the Use of Clinical Trials to Invalidate Method-of-Treatment Patents Has Significant Negative Consequences for the Pharmaceutical Industry

The uncertainty created by the panel's decision upends the "delicate balance" of patent incentives for developing new human therapies. *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 590 (2013). The limited exclusivity afforded by strong and reliable patents is critical to ensuring the steady stream of capital required to offset the massive costs of bringing new human therapies to market. Threatened with losing their stake in the very innovations that the patent system is meant to create by fulfilling the congressional mandate to conduct clinical studies in public view, pharmaceutical innovators can no longer count on recouping their investments. That uncertainty will necessarily thwart pharmaceutical innovation.

The path between identifying a potential new therapy and FDA approval is risky enough as already a treacherous journey. Most compounds never make it anywhere close to human trials. Henry Grabowski, *Patents, Innovation and Access to New Pharmaceuticals*, 5 J. Int'l Econ. L. 849, 851 (2002) ("[F]ewer than 1% of the compounds examined in the pre-clinical period make it into human testing."). Only a small fraction of those needle-in-the-haystack compounds that begin clinical trials ever reach FDA approval. *See* Wong, *supra*, at 277 (finding a 13.8% success rate); CBO at 2 (finding a 12% success rate); Thomas, *supra*, at 3

(finding a 7.9% success rate); Hay, *supra*, at 41 (finding a 10.4% success rate). Even at Phase II or Phase III, clinical trials are more likely to fail than they are to succeed.[6] The only predictable result is that most clinical trials will fail.

This lengthy—typically a decade or more—and uncertain path to FDA approval is also enormously expensive, totaling nearly $1 billion to over $2 billion in research and development costs per new drug. *See* Thomas, *supra*, at 2; CBO at 2. To be sure, the cost of successful clinical trials alone is significant.[7] But as discussed above, for every approved treatment, many more have failed. A substantial share of the required investment to bring a new therapy to market includes expenditures on therapies that do not make it past the laboratory-development stage, that fail clinical trials, or that are not approved by the FDA. *See* CBO at 2. Indeed, this is precisely why reliable patent protection—and the corresponding return on investment—is critical for the rare therapies that *do* receive FDA approval. *Id.* at 2, 20-21 (noting that market exclusivity under

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[6] *See* John Arrowsmith, *Phase II Failures: 2008-2010*, Biobusiness Briefs, 10 Nat. Rev. Drug Discov. 1 (2011) ("Analysis by the Centre for Medicines Research (CMR) of projects from a group of 16 companies (representing approximately 60% of global R&D spending) . . . reveals that the Phase II success rates for new development projects have fallen from 28% (2006-2007) to 18% (2008-2009) . . . ."); U.S. Food & Drug Admin., The Drug Development Process, Step 3: Clinical Research (Jan. 4, 2018), *available at* https://www.fda.gov/patients/drug-development-process/step-3-clinical-research (last visited Feb. 2, 2024) (estimating that 33% of Phase II trials and 25-30% of Phase III trials are successful).

[7] Thomas Moore et al., *Cost of Clinical Trials for New Drug FDA Approval Are Fraction of Total Tab*, Johns Hopkins Bloomberg Sch. Pub. Health (Sept. 24, 2018).

the patent system provides pharmaceutical companies with a return on research and development spending and encourages development of new drugs).

Allowing challengers to use a patentee's required disclosures of clinical trials as evidence that the tested methods would have been obvious will deter investment and ultimately harm individuals in need of new, potentially life-saving therapies. Without reliable patent protection, pharmaceutical innovators cannot recoup their costs, much less secure the capital investment necessary for future research and development. *See* Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 Tex. L. Rev. 503, 512-15 (2009) (noting that "patents appear to be a prerequisite for the vast majority of pharmaceutical innovation"). The panel's decision reduces the incentives to create new therapies, impeding—rather than promoting—"the Progress of . . . useful Arts." U.S. Const. art. I, § 8, cl. 8.

CONCLUSION

For these reasons, the petition for a writ of certiorari should be granted.

Respectfully submitted,

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