IN THE COURT OF CHANCERY OF THE STATE OF DELAWARE

SHAREHOLDER REPRESENTATIVE SERVICES LLC, in its capacity as the Equityholders' Representative for the former stockholders of FerroKin Biosciences, Inc.,	)	
Plaintiff,	)	
v.	)	C.A. No. 2017-0863-KSJM
SHIRE US HOLDINGS, INC. and SHIRE PHARMACEUTICALS LLC,	)	
Defendants.	)	

MEMORANDUM OPINION

Date Submitted: July 31, 2020
Date Decided: October 12, 2020

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McCORMICK, V.C.

This case arises from a merger agreement executed in 2012 under which Defendant Shire Pharmaceuticals LLC ("Shire") acquired FerroKin BioSciences, Inc. ("FerroKin") and its experimental iron chelation drug, deferitazole. The merger agreement required Shire to make a $45 million milestone payment to former FerroKin equityholders upon the initiation of Phase III clinical trials. It further deemed the relevant milestone achieved as of December 31, 2015, regardless of whether Phase III clinical trials had actually been initiated by that date. The merger agreement terminated Shire's obligation to make the milestone payment if its failure to initiate Phase III clinical trials was "as a result of a Fundamental Circumstance," defined as a circumstance in which material safety or efficacy concerns made it impracticable to produce and sell or to obtain regulatory approval for deferitazole.

Shire did not make the $45 million milestone payment after it was deemed achieved on December 31, 2015. Instead, Shire declared the occurrence of a Fundamental Circumstance and terminated the deferitazole program.

The plaintiff filed this lawsuit against Shire to recover the $45 million milestone payment plus interest and attorneys' fees. This post-trial decision finds that Shire's failure to initiate Phase III clinical trials by December 31, 2015 was not "as a result of" any Fundamental Circumstance but, rather, was "as a result of" a series of routine drug development delays and financially motivated business decisions. Judgment is therefore entered in favor of the plaintiff.

I. FACTUAL BACKGROUND

Trial took place over four days. As reflected in the Schedule of Evidence submitted by the parties,[1] the record comprises 393 joint trial exhibits,[2] trial testimony from five fact and five expert witnesses, deposition testimony from nineteen fact and five expert witnesses,[3] and stipulations of facts in the pre-trial order.[4] These are the facts as the court finds them after trial.[5]

A. FerroKin Develops Deferitazole.

In early 2007, Dr. Hugh Rienhoff, Jr. founded FerroKin for the purpose of developing an iron chelator called deferitazole.[6] An iron chelator is a molecule with a "very high affinity for iron" that is used therapeutically to absorb excess iron in patients who are transfusion-dependent,[7] such as patients diagnosed with various hematological diseases including beta thalassemia, sickle cell disease, and myelodysplastic syndrome ("MDS").[8]

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[1] C.A. No. 2017-0863-KSJM, Docket ("Dkt.") 180, Joint Schedule of Evid.

[2] *Id.* Ex. A.

[3] *Id.* Ex. B.

[4] Dkt. 158, Pre-Trial Stipulation and Order ("PTO").

[5] This decision also cites to: trial exhibits (by "JX" number); the trial transcript, Dkts. 167–70 (by "Trial Tr." page, line, and witness); and the deposition transcripts of Ellis Neufeld, Evan B. Siegel, Armand F. Girard, and Paul Streck (by the deponent's last name and "Dep. Tr." page and line).

[6] PTO ¶¶ 3, 13.

[7] Trial Tr. at 16:1–6 (Rienhoff).

[8] JX-498 at 6; Trial Tr. at 16:7–13 (Rienhoff).

On September 3, 2009, FerroKin submitted an Investigational New Drug application to the FDA, seeking permission to begin its first clinical study for deferitazole in the United States.[9] The clinical development process comprises three "phases" that can "take anywhere from five to fifteen years."[10] In Phase I, clinicians typically study "the disposition of the drug" in humans, aiming to "really understand blood concentrations and safety"[11] and to "look[] for any acute safety issues."[12] In Phase II, clinicians assess the drug's safety and efficacy, that is, its ability to affect disease in the body.[13] In Phase III, clinicians conduct studies negotiated and designed with the FDA with the goal of getting the drug approved by the FDA and placed on the market.[14] Clinicians also conduct non-clinical studies both before and during these three phases—where they typically administer the drug to animals rather than humans—in order to further assess the drug's safety and support the continuation of the program in humans.[15]

[9] JX-1860 at 138.

[10] Trial Tr. at 308:10–12 (Henner).

[11] *Id.* at 30:18–31:2 (Rienhoff).

[12] *Id.* at 309:18–23 (Henner).

[13] *Id.* at 31:6–14 (Rienhoff); *id.* at 310:1–7 (Henner).

[14] *Id.* at 31:18–32:4 (Rienhoff); *id.* at 310:19–311:6 (Henner).

[15] *Id.* at 103:1–4 (Streck); *id.* at 977:20–978:5 (Ross); *id.* at 1049:9–11 (Popp).

Around November 2009, the FDA gave FerroKin the green light to proceed with deferitazole's Phase I and Phase II clinical development.[16] Dr. Ellis Neufeld, who was the associate chief of hematology at Boston Children's Hospital at the time,[17] served as deferitazole's lead clinical investigator.[18]

B. Shire Conducts Due Diligence and the Parties Begin Circulating Drafts of a Merger Agreement.

While deferitazole was in clinical development, FerroKin began reaching out to potential acquirers.[19] FerroKin hired an investment bank, Seaview Securities LLC ("Seaview"), to advise in this process.[20] In June 2010, Rienhoff contacted various pharmaceutical companies, including Shire, in order to gauge interest.[21] Initially, Armand Girard, the senior director of business development for Shire, was Rienhoff's primary point of contact.[22]

At the time, Shire's board of directors and senior leadership team sought to build a hematology business unit.[23] While Shire had already amassed some assets in that unit, it did not yet have what Girard called a "corner property" for the

[16] JX-59 at 7–8; Trial Tr. at 29:12–30:4, 32:5–18 (Rienhoff).

[17] Neufeld Dep. Tr. at 17:23–18:17.

[18] Trial Tr. at 22:14–24 (Rienhoff); Neufeld Dep. Tr. at 63:5–7.

[19] Trial Tr. at 45:8–19 (Rienhoff).

[20] *Id.* at 46:12–18 (Rienhoff).

[21] *Id.* at 44:15–17 (Rienhoff).

[22] *Id.* at 44:20–45:7 (Rienhoff); *id.* at 733:4–7 (Girard).

[23] Girard Dep. Tr. at 61:5–62:10; Trial Tr. at 788:7–12 (Girard).

program.[24] Though optimally Shire would acquire an asset that "was marketed and driving revenues," deferitazole was Shire's "latest-stage opportunity."[25] Shire thus viewed deferitazole as a potential "corner stone" for its new hematology business unit.[26]

In early 2011, while deferitazole was in Phase II development, Shire began conducting due diligence regarding a potential acquisition of FerroKin.[27] In May 2011, Shire's diligence team presented an update of its diligence efforts.[28] It explained that iron overload was a "good first entry" for Shire's hematology business unit and that the market for iron chelators—valued at more than $1 billion in the U.S. alone—was "[d]ominated by a single agent (Exjade)."[29] The team observed that there was an "addressable unmet medical need" in the market due to the tolerability and safety concerns associated with Exjade.[30] It further recognized that deferitazole was a "strong opportunity" capable of addressing that unmet medical need, as it could demonstrate "[s]uperior safety" and "comparable efficacy" to

[24] Girard Dep. Tr. at 62:2–10.

[25] *Id.* at 62:13–20.

[26] *Id.* at 62:16–19; Trial Tr. at 789:2–4 (Girard).

[27] PTO ¶¶ 19–20.

[28] JX-84 at 2.

[29] *Id.* at 3.

[30] *Id.*

Exjade.[31] Noting development and commercial risks, the team concluded that deferitazole was a "[h]igh risk / high reward opportunity."[32]

By February 2012, Shire's diligence had revealed several clinical risks affiliated with deferitazole, including "[p]otential drug interactions," a lack of data concerning an "appropriate safe or efficacious dose" in MDS patients, the potential for a black box warning,[33] and the unknown effect of deferitazole on cardiac iron.[34]

Shire's diligence also revealed several commercial risks affiliated with deferitazole, including the release of generic Exjade.[35] At times relevant to this litigation, Exjade was the most popular, "commonly used" iron chelator on the market,[36] as it was the first iron chelator to come in the form of a dispersible tablet that patients can take orally.[37] Yet, as its black box warning indicates,[38] Exjade can cause many serious side effects, including renal impairment and failure, hepatic

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[31] *Id.*

[32] *Id.* at 22.

[33] Black box warnings are "relatively rare among pharmaceuticals." Trial Tr. at 253:24–254:1 (Rienhoff). A drug affixed with a black box warning "has high risks associated with it." *Id.* at 254:2 (Rienhoff); *see also id.* at 486:18–487:9 (Vickers) (explaining that there are "serious safety concerns" associated with black box warnings).

[34] JX-197 at 29, 41.

[35] *Id.* at 6; PTO ¶ 21. Exjade is also known by its generic name, "deferasirox." PTO ¶ 14.

[36] PTO ¶ 15.

[37] *Id.* ¶¶ 14–15; Trial Tr. at 19:2–3 (Rienhoff) (explaining that Exjade was "revolutionary because it was orally available").

[38] *See generally* JX-377.

impairment and failure, and gastrointestinal hemorrhage, all of which can result in death.[39] Shire's diligence report explained:

> The key event affecting . . . commercial potential is the timing of generic competition for Exjade. Exjade loses patent protection in 2019. This is likely to push [deferitazole] into a second line position and limit further market share gains. It is important that [deferitazole] launches sufficiently ahead of 2019 to allow it to build [a] sufficiently strong formulary position and prescriber base in the US.[40]

The report recommended that Shire "proceed but ensure that the deal is structured to ensure confidence that the product can achieve differentiation from Exjade on the key features of renal toxicity and [gastrointestinal] side effects."[41]

In June 2011, Shire submitted to Seaview a "preliminary, non-binding, expression of interest in acquiring FerroKin."[42] In that offer, Shire proposed to make a $10 million up-front payment and two milestone payments thereafter: a $30 million payment upon successful completion of the Phase II trial FerroKin was conducting at the time and a $40 million payment upon the initiation of a Phase III study.[43]

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[39] *Id.* at 3; PTO ¶ 15.

[40] JX-197 at 6; PTO ¶ 22.

[41] JX-197 at 10; PTO ¶ 24.

[42] JX-80 at 2; *see* Trial Tr. at 739:6–741:7 (Girard).

[43] JX-80 at 2–3.

Seaview did not view Shire's offer as competitive and it encouraged Shire to submit a revised one.[44] On July 25, 2011, Seaview's managing director, Joseph Dougherty, emailed Girard and stated: "As you know, Shire is not formally in our second round, but we understand that you continue to work towards participating, and in the interest of not putting you at a disadvantage we attach a draft merger agreement for the acquisition of FerroKin by Shire."[45] Dougherty asked for Shire's revisions to the draft merger agreement by August 8, 2011, ahead of FerroKin's final bid deadline of August 10, 2011.[46] Internally, FerroKin "felt that a sales price of somewhere in the [$]300 to $500 million [range], including initial consideration and milestones, would be a price that [it] should consider."[47]

On July 26, 2011, Shire submitted its "revised, non-binding, expression of interest in acquiring FerroKin."[48] This time, Shire proposed to make a $75 million up-front payment and two milestone payments thereafter: a $30 million payment upon the initiation of a Phase III study and a $50 million payment upon deferitazole's

[44] Trial Tr. at 744:8–14 (Girard).

[45] JX-99 at 1.

[46] *Id.*

[47] Trial Tr. at 319:12–22 (Henner).

[48] JX-98 at 3.

first commercial sale in the U.S.[49] In an email the same day, Rienhoff expressed his view that Shire's offer was "[s]till too little."[50]

On August 8, 2011, Shire sent its third offer to "stay in the game."[51] In an email to Seaview, Girard stated: "In light of our ongoing discussions, we have given further thought to the consideration Shire would be prepared to pay for FerroKin . . . ."[52] Shire proposed to make a $100 million up-front payment and a $25 million milestone payment upon the initiation of a Phase III study.[53]

On August 25, 2011, Dougherty emailed Girard and stated that Shire's $100 million up-front offer was "close to market," but that the "back end d[id] not near the value assigned by others."[54] By September 2011, the parties agreed in principle to a $100 million up-front payment but continued to disagree on the "back end" milestone earn-out structure.[55] As Girard testified, there was a "yin and yang, if you will, of opposing goals."[56] FerroKin sought "to realize as much of [deferitazole's]

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[49] *Id.* at 3–4.

[50] *Id.* at 1.

[51] Trial Tr. at 745:21–22 (Girard); *see* JX-105.

[52] JX-105 at 1.

[53] *Id.*

[54] JX-118 at 2.

[55] *See, e.g.*, *id.* (email from Dougherty to Girard discussing milestone payments, dated August 5, 2011); JX-115 at 2 (email from Girard to Dougherty discussing milestone payments, dated September 7, 2011); *id.* at 1 (email from Dougherty to Girard discussing milestone payments, dated September 24, 2011).

[56] Girard Dep. Tr. at 127:18–22.

value upfront," while Shire sought to "defer as much of that value until future decision points."[57]

Meanwhile, FerroKin's clinical trials of deferitazole had progressed. In November 2011, FerroKin had an "End of Phase [II]" meeting with the FDA.[58] At that meeting, the FDA and certain FerroKin representatives, including Rienhoff and Neufeld, discussed deferitazole's overall clinical development and the design for the drug's Phase III clinical studies.[59]

Generally, clinicians testing an investigational drug must compare that drug's results against a control in order to demonstrate its efficacy.[60] There are at least two ways to make such a comparison: a non-inferiority trial and a superiority trial.[61] In a non-inferiority trial, clinicians "are looking to see if the drug is not much worse than the control."[62] In a superiority trial, "the objective is to test whether [the] investigational drug is significantly better . . . than [the] control."[63]

Although FerroKin had initially proposed a non-inferiority trial with Exjade as the control, the FDA rejected that proposal and informed FerroKin that it would

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[57] Trial Tr. at 790:17–22 (Girard).

[58] PTO ¶ 16; JX-129 at 1, 3.

[59] PTO ¶ 16; JX-129 at 3.

[60] Trial Tr. at 987:17–22 (Ross).

[61] *See id.* at 987:14–989:11 (Ross).

[62] *Id.* at 988:5–8 (Ross).

[63] *Id.* at 987:23–988:3 (Ross); Siegel Dep. Tr. 131:24–132:3.

instead require a superiority trial with Exjade as the control, effectively increasing the difficulty associated with drug approval.[64]

Negotiations between FerroKin and Shire progressed in the ensuing months, with these risks known.[65] Those negotiations centered on two issues: the structure of the milestone payments and the degree to which Shire would be obligated to pursue development of deferitazole. On December 22, 2011, Shire circulated a draft reflecting five potential milestone payments totaling $220 million.[66] In that draft, Shire also proposed that it have "the right, in [its] sole and absolute discretion, to direct and control the development, commercialization, manufacture, marketing, distribution and selling of [deferitazole] in all respects."[67]

FerroKin did not react favorably to the "sole and absolute discretion" language inserted by Shire. As Rienhoff testified at trial, FerroKin wanted the agreement to contain "something that would compel [Shire] to go forward and not just can the program . . . at [its] whim."[68] To that end, in a draft dated December 30,

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[64] PTO ¶ 18; JX-129 at 6; *see* Trial Tr. at 988:13–18 (Ross) (responding "[y]es" when asked whether "superiority [is] a higher standard than noninferiority" and whether "the superiority standard is typically harder to achieve").

[65] While negotiations were ongoing, Rienhoff provided Girard with the minutes of FerroKin's November 2011 End of Phase II meeting with the FDA. *See* JX-135 at 4.

[66] JX-159 at 23.

[67] *Id.* at 24.

[68] Trial Tr. at 50:12–17 (Rienhoff); *see* JX-163 at 1 (email from Rienhoff to Shire's Chief Corporate Development Officer Barbara Deptula, identifying several "issues" with Shire's December 22 draft, including "the dollar amount of the milestones" and "the defined efforts

2011, FerroKin replaced the provision affording Shire sole and absolute discretion with the requirement that Shire "use Commercially Reasonable Efforts to develop and commercialize [deferitazole] until achievement of each Milestone."[69] FerroKin also proposed a total of $230 million in milestone payments and added two automatic milestone payment provisions.[70]

The first automatic payment provision applied to the first milestone, which would become payable upon initiation of a Phase III clinical trial: "[I]n the event that [Shire] has not [initiated a Phase III clinical trial] on or before the date that is 545 days after the Closing Date, then the [milestone] shall be deemed to have been achieved on such date."[71] The second automatic payment provision required Shire to pay any outstanding milestones if, "at any time prior to December 31, 2020," Shire "substantially abandoned efforts to develop and commercialize [deferitazole] other than as a result of the occurrence of a Fundamental Circumstance," as defined in the draft.[72]

Shire must make to progress product development"); *see also* Girard Dep. Tr. at 199:12–14 ("What I do recall is [Rienhoff] wanting some sort of assurance that Shire devoted resources to develop this asset.").

[69] JX-166 at 29.

[70] *Id.* at 27–29.

[71] *Id.* at 29.

[72] *Id.*

Shire rejected FerroKin's changes in a draft dated January 17, 2012, and reverted to the majority of the terms in its earlier draft of December 22.[73] Rienhoff viewed Shire's latest draft as "very disappointing."[74] In an email to Deptula dated January 20, 2012, Rienhoff explained: "[A] transaction so heavily dependent on the achievement of milestones . . . must be accompanied by Shire commitments to diligently pursue clinical development and commercialization assuming the product is safe and effective."[75]

The parties met on January 27, 2012 to discuss the terms of the merger and resolve their differences.[76] On February 1, 2012, FerroKin circulated another draft "incorporat[ing] the [parties'] solutions."[77] FerroKin accepted the provision giving Shire "sole and absolute discretion" to direct the development of deferitazole,[78] but it reinserted the automatic payment provision relating to the first milestone.[79] FerroKin also added the "Fundamental Circumstance" language to that automatic payment provision:

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[73] *See generally* JX-184.

[74] JX-189 at 2.

[75] *Id.* at 2–3.

[76] JX-196 (summarizing the parties' discussions at the January 27 meeting); *see* Trial Tr. at 759:4–11 (Girard).

[77] JX-196 at 1; JX-198.

[78] JX-198 at 26.

[79] *Id.* at 25.

> Notwithstanding anything else in this Agreement to the contrary, in the event that the Company has not achieved Initiation of the Pivotal Clinical Trial on or before December 31, 2015, other than as a result of a Fundamental Circumstance, then the Initiation of Pivotal Clinical Trial Milestone shall be deemed to have been achieved on such date.[80]

FerroKin defined the term "Fundamental Circumstance" as

> a material safety or efficacy concern related to the Product that would reasonably be expected to make production and sale of [deferitazole], or receipt of applicable Regulatory Approvals, impracticable.[81]

After receiving the draft, Shire developed an "issues list" indicating that it agreed with FerroKin's position concerning the automatic payment provision, "except that Shire would use its formulation of 'Fundamental Circumstance.'"[82] Shire proposed that the term "Fundamental Circumstance" be defined as "*any* safety or efficacy concerns that Shire determines in its *sole and absolute discretion* would have any of the effects described in [FerroKin's] formulation."[83] FerroKin disagreed, opining that Shire's definition of the term "Fundamental Circumstance"

[80] *Id.* As the parties exchanged drafts, the definition of the first milestone in the agreement flip-flopped from Shire's desired language, "Initiation of Phase III Clinical Trial," to FerroKin's desired language, "Initiation of Pivotal Clinical Trial." *See* JX-184 at 25; JX-198 at 24. Ultimately, Shire's desired language prevailed. JX-241 § 2.9(f), at 27.

[81] JX-198 at 11.

[82] JX-201 at 5.

[83] *Id.* at 4.

would "gut[] the protection afforded by" the automatic payment provision.[84] Shire ultimately agreed to FerroKin's definition of "Fundamental Circumstance" that is block-quoted above.[85]

C. The Merger Agreement

On March 14, 2012, the parties executed an Agreement and Plan of Merger (the "Merger Agreement") that named Plaintiff Shareholder Representative Services LLC ("Plaintiff") as the representative of former FerroKin equityholders.[86] The economic terms of the Merger Agreement called for the former FerroKin equityholders to receive an up-front payment of approximately $95 million and provided for up to $225 million in contingent milestone payments.[87]

Several provisions of the Merger Agreement are relevant to the parties' dispute. The first is Section 2.9(g), which memorializes the "sole and absolute discretion" provision Shire sought to include throughout negotiations.[88] Section

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[84] JX-207 at 6; Trial Tr. at 65:21–66:10 (Rienhoff).

[85] JX-214 at 13.

[86] JX-241; PTO ¶¶ 2, 25.

[87] PTO ¶ 26.

[88] JX-241 § 2.9(g), at 28 (providing that, "[f]ollowing the Closing, [Shire] shall have the right, in [its] sole and absolute discretion, to direct and control the development, commercialization, manufacture, marketing, distribution and selling of [deferitazole] in all respects"); PTO ¶ 27.

2.9(g) also disclaims any obligation, duty, or expectation of Shire to develop deferitazole in any way.[89]

The second provision is Section 2.9(a), which requires that Shire make certain milestone payments upon the occurrence of defined "Milestone Trigger Event[s]."[90] The milestone payment at issue in this litigation is a $45 million payment due upon the occurrence of the "Initiation of Phase III Clinical Trial Milestone."[91] The relevant language of this provision appears in the Legal Analysis, *infra*.

The third provision is Section 2.9(f), which provides that "the Initiation of the Phase III Clinical Trial Milestone will be "deemed achieved" on or before December 31, 2015, unless the failure to achieve the milestone was "as a result of a Fundamental Circumstance."[92] The relevant language of this provision appears in the Legal Analysis, *infra*.

Internal Shire post-closing communications reflect that Shire understood that "[t]he only scenario" in which the Initiation of Phase III Clinical Trial Milestone

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[89] JX-241 § 2.9(g), at 28 (providing that "[n]one of this Agreement or the other Transaction Documents or any other fact, circumstance or matter relating hereto or thereto (including the process of negotiation, execution and implementation hereof or thereof) shall be construed to impose upon [Shire] any express or implied obligation, duty or expectation to test, develop, pursue, market, make any regulatory filings or seek any Regulatory Approvals with respect to, or otherwise advance [deferitazole]").

[90] *Id.* § 2.9(a), at 24–25; PTO ¶ 29.

[91] JX-241 § 2.9(a), at 25; PTO ¶ 29.

[92] JX-241 § 2.9(f), at 27; PTO ¶ 30.

payment "would not be made [was] for a Fundamental Circumstance."[93] It viewed a Fundamental Circumstance as a "rare occurrence where [it] would terminate development prior to initiation of [Phase III]."[94]

D. Shire Begins to Encounter Obstacles in Phase II Studies.

By the time Shire acquired FerroKin, FerroKin had already initiated non-clinical and clinical studies related to deferitazole.[95] These included a non-clinical 104-week long rat carcinogenicity study (the "RatCarc Study"), in which FerroKin—with commentary and permission from the FDA[96]—administered deferitazole to rats that were fed a normal, non-iron overloaded diet.[97] They also included the first Phase II clinical trial, referred to as "Study 201," in which clinicians administered 16 and 32 milligrams per kilogram of deferitazole to patients for a total of 96 weeks with the goal of testing the drug's ability to remove cardiac iron.[98]

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[93] JX-268 at 1 (email dated July 9, 2012 from Susan Drexler, Shire's Director of Corporate Finance).

[94] JX-564 at 3; *see also* JX-271 at 26. Defendant Shire US Holdings, Inc. is the successor-in-interest to Shire under the Merger Agreement. PTO ¶ 7. To simplify things, this decision refers to Shire US Holdings, Inc. and Shire as "Shire" or "Defendants."

[95] PTO ¶ 19.

[96] *Id.* ¶ 16; JX-129 at 4.

[97] PTO ¶ 19. Rat carcinogenicity studies are commonplace in the drug development industry. They "expose[] rats to the drug for an extended period of time, looking for development of tumors . . . that could be potentially indicative of what would happen in humans." Trial Tr. at 113:16–114:1 (Streck).

[98] PTO ¶ 19; JX-723 at 24; Trial Tr. at 107:12–108:4 (Streck).

After acquiring FerroKin, Shire initiated two additional Phase II clinical studies: "Study 202," which was conducted in pediatric patients, and "Study 203," which was conducted in adult patients.[99] Shire also contemplated a "follow-on study" to Study 203 that it would call "Study 204."[100] Initially, Study 204—a "head-to-head" trial against Exjade[101]—was scheduled to begin in early 2014 before Study 203 was complete.[102]

Immediately after closing in April 2012, Shire desired to pursue an "[a]ggressive development and filing strategy" and was "[f]ocused on getting to market [as soon as possible]" with a target launch date set for some time in 2016.[103] Shire's initial goal was to achieve FDA conditional (or "accelerated") approval[104]

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[99] JX-723 at 7; Trial Tr. at 103:5–17 (Streck).

[100] Trial Tr. at 103:18–21 (Streck).

[101] *Id.* at 165:10–14 (Streck).

[102] JX-723 at 7; Trial Tr. at 165:21–166:1 (Streck); *see id.* at 400:5–12 (Vickers).

[103] JX-253 at 10.

[104] The FDA provides drug development programs with two "approval routes": traditional approval and accelerated approval. Trial Tr. at 984:15–20 (Ross). As Shire's regulatory expert explained, "the FDA requires that an adequate and well-controlled study measure outcomes, known as *endpoints*, demonstrating that a drug imparts a tangible clinical benefit, such as improved survival or . . . decreases in symptoms." JX-1698 ¶ 61. If clinicians can demonstrate that the drug affects such an endpoint, the drug is qualified to receive traditional approval. Trial Tr. at 985:1–6 (Ross). "For many chronic conditions, however, direct demonstration of a clinical benefit may require a prohibitively long, large, and expensive clinical trial." JX-1698 ¶ 61. In such cases, to "allow more rapid development of effective therapies, [the] FDA has allowed the use of *surrogate endpoints* in clinical trials." *Id.* ¶ 62. A surrogate endpoint is the "measurement of a laboratory value or physical sign, such as blood pressure, as a proxy for a clinical endpoint, such as death or stroke." *Id.* If the drug has an effect on the surrogate endpoint, clinicians "have

for the treatment of iron overload in MDS patients, with an eye toward achieving "full" FDA approval for the treatment of iron overload in other patients thereafter.[105] Shire planned to begin Phase III clinical trials in late 2013.[106]

In early 2013, Shire received data from Study 201 indicating that a switch from once-daily to twice-daily dosing would help to achieve deferitazole's target efficacy, particularly as to cardiac iron.[107] Study 201 had revealed an increase in

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the hope that that will turn out to translate into a real clinical benefit," and they may seek accelerated approval. Trial Tr. at 985:11–20 (Ross). Shire's regulatory expert provided a useful illustration at trial:

> [I]f you have a patient with cancer, we're interested in preventing that patient from dying prematurely. That would be the clinical endpoint. If you give a drug that shrinks the tumor size for the patient and you look at tumor shrinkage, that's a surrogate endpoint; and that is frequently a basis for accelerated approval. And the hope is that that will turn out to translate into what you're really interested in, which is keeping the patient from dying prematurely.

Id. at 985:21–986:7 (Ross). Accelerated approval is a process whereby the FDA "will conditionally approve [a drug using a surrogate endpoint], but the sponsor must then perform a confirmatory trial verifying that the drug in question does in fact provide a true clinical benefit." JX-1698 ¶ 62 (citing 21 C.F.R. § 314.500); *see* 21 C.F.R. § 314.510 ("FDA may grant marketing approval for a new drug product on the basis of adequate and well-controlled clinical trials establishing that the drug product has an effect on a surrogate endpoint . . . . Approval under this section will be subject to the requirement that the applicant study the drug further . . . ."). Only "new drug products that have been studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit to patients over existing treatments" can qualify for accelerated approval. 21 C.F.R. § 314.500.

[105] JX-253 at 10.

[106] *Id.* at 11.

[107] JX-1813 at 49.

cardiac iron upon administration of deferitazole.[108] The data caused Shire's development team to grow concerned that the ongoing Study 203—originally designed to test 50 and 75 milligrams of deferitazole per kilogram in patients once daily—would be "unlikely to generate the required efficacy for a Go into [Phase III]."[109] Thus, in February 2013, it proposed an amendment to Study 203 whereby clinicians would change the once-daily dose in Study 203 to the "same total daily dose given [twice daily]."[110] It proposed a similar switch to twice-daily dosing for the anticipated Study 204.[111] Shire eventually approved the switch to twice-daily dosing in Study 203,[112] and this decision delayed the projected initiation of Phase III clinical trials to early 2015.[113] To Shire, "it was important to demonstrate [that] a reduction in cardiac iron . . . could be achieved" because most patients suffering from iron overload "die of cardiovascular events."[114]

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[108] JX-723 at 24 (summarizing Study 201 results); Trial Tr. at 107:7–108:4 (Streck).

[109] JX-1813 at 47. At trial, Mr. Girard explained that a go/no-go decision is "a common term" in the pharmaceutical industry used to describe the decision to "continue the development of the program," typically "based off of new information." Trial Tr. at 781:2–8 (Girard).

[110] JX-1813 at 49.

[111] *Id.*

[112] Trial Tr. at 212:13–18 (Streck).

[113] JX-1817 at 5; JX-493 at 9; *see* Trial Tr. at 463:21–465:6 (Vickers).

[114] Trial Tr. at 107:12–21 (Streck); *see* Neufeld Dep. Tr. at 25:10–26:14, 28:7–14.

Around April 2013, ongoing Phase II studies had revealed that deferitazole had caused some "treatment emergent Adverse Events" in patients, including a numbness sensation called "hypoesthesia" and a pins and needles sensation called "paresthesia."[115] Clinicians commonly categorize these conditions as symptoms of "peripheral neuropathy," a broad term used to refer to damage to the peripheral nervous system.[116] At the time, "[i]nvestigators deemed the intensity" of these peripheral neuropathies "mainly as mild/moderate, and some as . . . severe."[117] As of March 28, 2013, twelve of the fifty-seven patients enrolled in Study 201 and Study 203 experienced fourteen episodes of peripheral neuropathy.[118] Of those fourteen episodes, twelve were "described as mild to moderate."[119] None of the twelve patients had a documented history of peripheral neuropathy prior to their enrollment in the deferitazole Phase II clinical program.[120] Although Shire could identify no "clear trends . . . in terms of dose relationship and treatment duration," it found that the onset of peripheral neuropathy in some patients occurred after a "recent dose

[115] JX-498 at 17; *see* JX-666 at 9; JX-522 at 31.

[116] Neufeld Dep. Tr. at 197:5–12.

[117] JX-498 at 17; JX-666 at 9 ("The majority of these symptoms have been mild to moderate in nature.").

[118] JX-522 at 29.

[119] *Id.*

[120] *Id.*

increase" of deferitazole.[121] Shire did conclude, however, that symptoms of peripheral neuropathy were "reversible within weeks of withholding [deferitazole] in some cases."[122]

Shire viewed these instances of peripheral neuropathy as "[s]erious and unexpected suspected adverse reaction[s]" worthy of reporting to the FDA at various times throughout Phase II.[123]

By May 2013, eight additional cases of peripheral neuropathy "were reported which showed similar features as seen before,"[124] and Shire identified "a potential trend to increased frequency and an earlier onset at higher doses" of deferitazole.[125] Shire's Executive Safety Review Committee—a group of "the most senior individuals within the organization"[126] to whom "issues and challenges related to the safety . . . of programs would be presented"[127]—determined that, while "a benefit:risk assessment could not be clearly determined" at the time, "demonstrated

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[121] *Id.* at 31.

[122] *Id.* at 13.

[123] *E.g.*, JX-308; JX-462; JX-463; JX-767; *see* 21 C.F.R. § 312.32(c)(1)(i) ("The sponsor must report any suspected adverse reaction that is both serious and unexpected. The sponsor must report an adverse event as a suspected adverse reaction only if there is evidence to suggest a causal relationship between the drug and the adverse event . . . .").

[124] JX-552 at 5.

[125] *Id.*

[126] Trial Tr. at 117:14–21 (Streck).

[127] *Id.* at 389:1–8 (Vickers).

declines in [liver iron concentration] and appropriate measures put in place to assess and manage patients who develop signs and symptoms of peripheral neuropathy . . . justified the continuation of the development program for [deferitazole]."[128] In late 2013, Shire formed a "group of external . . . neurologic experts"[129] called the Peripheral Neuropathy Adjudication Committee ("Peripheral Neuropathy Committee") in order to "assess whether the signs and symptoms observed match the diagnosis of [peripheral neuropathy] and to evaluate the potential relationship to [deferitazole]."[130]

E. Shire Establishes the Pipeline Committee and Makes Additional Changes to the Deferitazole Program.

On April 30, 2013, Shire's Science and Technology Committee—a "subteam" of the board[131]—met to discuss, among other things, Shire's research and development structure and portfolio strategy.[132] At that meeting, the committee discussed "[d]ownward changes in Shire revenue forecasts" that had "resulted in a 2017 projected revenue gap of $700 [million]."[133] "To increase the value of Shire [research and development] long term and to address this gap medium term," the

[128] JX-552 at 6.

[129] Trial Tr. at 108:22–109:2 (Streck).

[130] JX-802 at 4.

[131] Trial Tr. at 456:22–23 (Vickers).

[132] JX-493 at 1, 3.

[133] *Id.* at 50.

committee proposed that Shire "establish a company-wide Pipeline Committee and adopt a more holistic approach to prioritize pipeline investment" and "rebalance spend near term toward late stage assets" while "selectively decreas[ing] investment in early stage programs."[134] In the committee's overall breakdown of Shire's research and development costs for 2013, deferitazole was depicted as Shire's most expensive pre-proof of concept drug with clinical expenditures of $44 million.[135]

The newly created Pipeline Committee considered the deferitazole development program throughout the next few months. Dr. Phillip Vickers chaired the Pipeline Committee.[136] At a meeting on May 15, 2013, the Pipeline Committee discussed the status of the program, including findings from Study 201, the switch to twice-daily dosing in Study 203, and the projected start date for Phase III clinical trials in February of 2015.[137] The presentation given at that meeting indicated that

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[134] *Id.*

[135] *Id.* at 56. The term "proof of concept" was defined as "having clinical data showing that the compound works as intended in patients." *Id.* At the time, Shire "hadn't shown the safety and efficacy that [it] would need . . . in order to say [deferitazole] had clinical proof of concept." Trial Tr. at 476: 3–6 (Vickers). Even though deferitazole was in the midst of Phase II studies, safety and efficacy concerns associated with the drug caused Shire to categorize it as pre-proof of concept. *Id.*; JX-493 at 56.

[136] Vickers described the Pipeline Committee at trial as a "cross-functional team" of "very senior people . . . who played an important role in making decisions on [Shire's research and development programs]," including "clinical, regulatory, commercial, manufacturing, [and] legal" decisions. Trial Tr. at 386:20–387:3 (Vickers). The Pipeline Committee reported directly to the Executive Committee, "the most senior committee within Shire." *Id.* at 387:6–13 (Vickers).

[137] JX-534 at 100–03.

deferitazole's "R&D cost in 2013" totaled $41 million, and that its "Total R&D cost (to 2026)" was $257 million.[138]

In August 2013, the Pipeline Committee discussed deferitazole "due to its high 2014 cost" but concluded that Shire "should wait until [P]hase II data is available in 2014 before considering changing course."[139] On September 26, 2013, the Pipeline Committee discussed that "delay in the [deferitazole] program could impact its commercial value due to the future genericization of Exjade."[140]

In an email dated September 27, 2013, Pipeline Committee member Dr. Howard B. Mayer wrote to other Pipeline Committee members explaining that the deferitazole program was "a complex program" that had not yet been "extensively discussed at the [Pipeline Committee] from a technical standpoint."[141] He further stated that there were "several issues with the program," including safety, efficacy, and the release of generic Exjade.[142] Vickers responded the next day, agreeing with Mayer and further stating: "[F]rom a budget perspective this is a very expensive program. . . . [W]e should consider what will be go/no go criteria- both

[138] *Id.* at 100.

[139] JX-657 at 235.

[140] JX-677 at 64.

[141] JX-665 at 3; *see* Trial Tr. at 493:16–20 (Vickers) (confirming that the individuals to whom the email was sent served on the Pipeline Committee).

[142] JX-665 at 3.

from a pipeline and budget perspective. We plan to move forward, but should all be aligned."[143]

On October 21, 2013, Vickers asked members of Shire's finance team to send him a presentation showing Shire's budget breakdown for 2014, "including a breakdown by program."[144] In that email, he stated: "I would like to have with me the cost of the [deferitazole] program."[145] The presentation indicated that the deferitazole program had the highest projected "Total External Spend" for 2014 out of approximately fifty-five programs, as it was valued at $58 million.[146] On October 22, 2013, Vickers emailed the presentation to Mayer, calling it a "[g]ood reminder on cost vs risk for [deferitazole]."[147] Vickers then observed: "One of us can flag that this is the most expensive program in 2014!"[148]

By late October and early November 2013, deferitazole had been able to demonstrate control of liver iron concentration but had not been able to demonstrate control of cardiac iron concentration.[149] The drug had a "[p]romising renal safety and [gastrointestinal] tolerability profile," but there was a "high incidence" of

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[143] *Id.* at 2; Trial Tr. at 493:21–494:7 (Vickers).

[144] JX-693 at 1; Trial Tr. at 494:12–495:3 (Vickers).

[145] JX-693 at 1.

[146] *Id.* at 12.

[147] JX-695 at 1.

[148] *Id.*

[149] JX-707 at 6.

peripheral neuropathy.[150] Half of the patients in the ongoing studies had "mild residual symptoms."[151] At the time, the deferitazole program had an expected net present value of negative $21 million.[152]

On October 31, 2013, a Shire executive emailed Mayer, expressing his view that the instances of peripheral neuropathy were "a big concern in particular as there are 'residual symptoms'."[153] He stated: "This is a challenging program. . . . I am wondering why we continue working on this with a clearly negative [expected net present value]."[154] Mayer responded: "I completely agree but the analysts apparently love this program!"[155]

On November 13, 2013, Vickers emailed Flemming Ornskov—Shire's new CEO as of April 2013—to update him on numerous programs, including deferitazole.[156] Vickers stated: "Personally, I think that the full risks of this program have not been shared in full previously . . . now that we have had a chance to review the data this program has higher risk than I was aware of."[157] He noted clinical risks

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[150] *Id.*; *see* Trial Tr. at 503:5–10 (Vickers).

[151] JX-707 at 12.

[152] *Id.* at 33.

[153] JX-710 at 1.

[154] *Id.*

[155] *Id.*

[156] *See generally* JX-749.

[157] *Id.* at 2.

affiliated with cardiac iron concentration and peripheral neuropathy and commercial risks affiliated with the release of generic Exjade, and the program's "negative NPV."[158] He also noted—just as he had to Mayer previously—that deferitazole "is the sole most expensive program in [research and development] next year-approximately $58 [million]."[159]

On November 15, 2013, the Pipeline Committee met to discuss the deferitazole program.[160] It again discussed the drug's efficacy in decreasing liver iron concentration, but noted that cardiac iron concentration control was still "To Be Achieved."[161] And although it noted that deferitazole had a "[f]avourable renal and [gastrointestinal adverse effect] profile,"[162] it discussed the "[n]eed to define the Therapeutic Window" for the drug, or the "appropriate dose for each patient to achieve a sufficient net negative iron balance" without symptoms of peripheral neuropathy.[163] Overall, Shire's "[e]fficacy [and] safety targets" for the drug were not yet met, which meant potential "[d]elays for clinical trials."[164] These delays, in

[158] *Id.*

[159] *Id.*

[160] JX-723 at 2; *see* Trial Tr. at 393:5–23 (Vickers).

[161] JX-723 at 11.

[162] *Id.*

[163] *Id.* at 9.

[164] *Id.* at 20.

turn, could hinder deferitazole's commercial opportunity, as the release of generic Exjade was rapidly approaching.

In a meeting the same day, the Pipeline Committee recognized "the competitive risks of further delay," but nonetheless "concluded that [Shire] should wait for the results from [S]tudy 203 before initiating further clinical studies," including Study 204.[165] The data from a completed Study 203, the Pipeline Committee observed, would "inform the decision whether [the] program is viable."[166] In an email to deferitazole's development team, the Pipeline Committee expressed: "Although we recognize that this will delay the overall timeline (and carries some competitive risk), we believe that this is the prudent course given the risks and complexities inherent in the program, and the information that [S]tudy 203 will provide."[167]

As the Pipeline Committee discussed the future of the deferitazole program, the Peripheral Neuropathy Committee continued to assess the patient risk affiliated with symptoms of peripheral neuropathy. More than one month after the Pipeline Committee decided to delay the start of Study 204, on December 18, 2013, the Peripheral Neuropathy Committee submitted a preliminary report to Shire in which

[165] JX-732 at 3.

[166] *Id.*

[167] JX-731 at 1.

it identified peripheral neuropathy as a "dose limiting toxicity" for deferitazole because its frequency was higher at higher doses.[168] The Peripheral Neuropathy Committee recommended that Shire halt dosing at 75 milligrams per kilogram per day, both once daily and twice daily total.[169] On January 10, 2014, the Executive Safety Review Committee "agreed on the decision to discontinue the 75 [milligrams per kilogram per day] . . . dosing in all ongoing clinical trials," but also agreed to continue with "50 and 60 [milligrams per kilogram per day] dosing."[170]

These changes to the deferitazole program—the delay of Study 204 pending the results of Study 203 and the termination of the 75 milligrams per kilogram dose—resulted in a delay of Phase III clinical trials. By January 17, 2014, Shire's internal records indicated that Phase III clinical trials would not begin until May 27, 2016.[171] This "planned program delay" would "reduce [deferitazole's] 2014 budget" by approximately $28.5 million.[172] Nonetheless, Dr. Paul Streck—the vice president of clinical development for Shire at the time[173]—testified in his

[168] JX-802 at 4; PTO ¶ 48. "Virtually all drugs have some kind of limitation in terms of how much you can give until you see some side effect." Trial Tr. at 82:16–24 (Rienhoff). This concept is referred to as a "dose limiting toxicity." *Id.*

[169] JX-802 at 13.

[170] *Id.* at 5; PTO ¶ 48. *See generally* JX-856.

[171] JX-805 at 7; Trial Tr. at 173:24–74:4 (Streck); *see also* PTO ¶ 51.

[172] JX-805 at 8.

[173] Trial Tr. at 102:5–10 (Streck).

deposition that as of early 2014, the deferitazole program remained just as promising as "[a]ny other early Phase II program"[174] and had the "opportunity to be as successful as any other Phase II program that Shire was involved with."[175]

F. The RatCarc Study Reveals Tumors in the Kidneys of Male Rats, and Shire Halts Dosing.

As discussed above, FerroKin had commenced the RatCarc Study before the Merger Agreement was executed. On February 19, 2014, Shire was advised that the pathologist's preliminary review of the tissues from the RatCarc Study indicated an increased incidence of tumors—both benign and malignant—in the kidneys of male rats.[176] In response, Shire's Director of Toxicology, Dr. Richard Pfeifer, noted that, if Shire could show that the tumors "were related to the well-documented rat-specific tumorigenic response . . . described in the literature, . . . [Shire would] be in a better position to discuss the findings as 'noteworthy' rather than 'adverse,' i.e., that the tumors are of no consequence to human health."[177]

One such "rat-specific tumorigenic response" is a condition called chronic progressive nephropathy ("CPN"). CPN is a "disease of rat kidneys"[178] whereby

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[174] *Id.* at 161:11–17 (Streck).

[175] Streck Dep. Tr. at 133:24–134:11.

[176] PTO ¶ 52; JX-862 at 3. The RatCarc Study revealed two types of tumors: tubule cell adenomas and carcinomas. JX-862 at 3. "[A]denomas are benign tumors[,] and . . . carcinomas are malignant tumors." Trial Tr. at 1062:14–17 (Popp).

[177] JX-862 at 2.

[178] Trial Tr. at 1065:15–16 (Popp).

"rats will spontaneously develop . . . benign tumors" because their "cells grow very quickly for various reasons associated with their genetics."[179] Because CPN is a progressive condition, the incidence and severity of the tumors increases over time.[180] By the time male rats are two years old, there is "about a hundred percent incidence."[181] Though CPN is not specific to male rats, its severity and incidence in female rats is much lower.[182] Because CPN can "compromise some of the interpretation of data related to carcinogenicity" in rats,[183] Shire had to figure out if the tumors in the RatCarc Study emerged as a result of CPN or as a result of deferitazole. To Shire, this question was a "very big deal," as there are ethical problems with exposing humans to a drug that could potentially cause cancer.[184]

Shire sought advice from an independent expert pathologist in order to determine whether it should continue dosing in the deferitazole program.[185] On February 25, 2014, Streck emailed Mayer and stated: "Based on expert feedback, the team will recommend continuing dosing in [the deferitazole program]."[186] This

[179] *Id.* at 123:7–11 (Streck).

[180] *Id.* at 1065:8–1066:4 (Popp).

[181] *Id.* at 1065:20–22 (Popp).

[182] *Id.* at 1066:6–9 (Popp).

[183] *Id.* at 412:8–11 (Vickers).

[184] *Id.* at 114:4–15 (Streck).

[185] JX-888 at 1.

[186] *Id.*

recommendation was made in part because there was a less than ten percent incidence of tumors in the RatCarc Study and because the tumors were found toward the end of the study's two-year duration, presumably when the incidence of tumors in rats with CPN would be at its highest.[187] Streck explained that "[t]he team will recommend reporting the finding to regulatory agencies, put together a rationale to continue dosing based on animal and human data collected thus far and performing [sic] additional pathologic analyses."[188] He further explained: "There was team consensus to move forward in this way recognizing regulatory agencies may still put us on clinical hold."[189]

Meanwhile, news of the rat carcinogenicity signal did not sit well with at least one member of the Pipeline Committee. In an email to Ornskov dated February 23, 2014, Vickers summarized the high-level issues with deferitazole, including the drug's ability to control cardiac iron, symptoms of peripheral neuropathy, and the newly-surfaced rat carcinogenicity signal.[190] He stated: "We ha[d] already thought that this program was on[] the ropes and at the end of this coming week we may need to make a more drastic decision on the program."[191]

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[187] *Id.*

[188] *Id.*

[189] *Id.*

[190] JX-871 at 1.

[191] *Id.*

On February 25, 2014, the clinical development team presented its recommendations to the Executive Safety Review Committee.[192] At the February 25 meeting, the committee discussed "whether . . . the evidence to date was robust enough to suggest a rat-specific mechanism of action, such as progressive CPN."[193] The committee noted, among other things, that there was no "clear evidence" that deferitazole "exacerbates CPN to the most advanced stages or that the observed tumors are associated with advanced CPN."[194] It also noted that the incidence of malignant tumors was higher than expected.[195]

The Executive Safety Review Committee also expressed concern about the lack of a safety margin for deferitazole.[196] A safety margin is a "zone of comfort" meant to assure clinicians that "exposing patients [to the drug] in the short term [will] not cause any ill effects."[197] In essence, it is "a comparison between the exposure of a drug in animals [and] the exposure [of] the drug in human subjects."[198] "Where the exposure is greater in animals than in humans, the safety margin is positive," and "[a] higher safety margin generally provides greater confidence that adverse events

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[192] *See generally* JX-1321 at 8–10.

[193] *Id.* at 10.

[194] *Id.*

[195] *Id.*

[196] *Id.* at 9–10; *see* Trial Tr. at 127:4–14 (Streck).

[197] Trial Tr. at 115:5–13 (Streck).

[198] JX-1697 ¶ 32; PTO ¶ 69.

seen in animals will not translate to human subjects, who receive significantly lower exposures."[199] Because the exposure of deferitazole in the rats was "significantly lower than that achieved in patients [enrolled] in the clinical trials," deferitazole had no safety margin, and the Executive Safety Review Committee grew concerned.[200]

Ultimately, although "the potential relevance of the [rat carcinogenicity] finding to humans, if any, [was] unknown at [the] time," the Executive Safety Review Committee "voted in favor of suspending dosing in the clinical studies" pending further investigation.[201] That evening, Vickers wrote to Ornskov and stated: "As you will see . . . the teams [sic] recommendation was to continue with the program. However, the view of the [Executive Safety Review Committee] was that based on the information [at] hand we feel it appropriate to halt dosing in the clinical study."[202]

G. The FDA Places the Deferitazole Development Program on Full Clinical Hold, and Shire Investigates the RatCarc Study Results Further.

On March 4, 2014, Shire informed the FDA of the rat carcinogenicity signal and that Shire had "taken the precautionary measure of implementing a temporary

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[199] JX-1697 ¶ 32; PTO ¶ 69.

[200] JX-1321 at 10. The parties stipulated to the fact that "[t]here was no safety margin between the exposure at which tumor[s] were observed in the male rats in the [RatCarc Study] and the clinical exposure [i.e., exposure in humans]." PTO ¶ 70.

[201] JX-1321 at 10.

[202] JX-878 at 1.

halt to the global clinical development program with the discontinuation of dosing of all subjects in all studies across all countries with immediate effect."[203] Upon receiving Shire's submission, the FDA requested a meeting with Shire on March 6, 2014.[204] The FDA explained that it "fully agree[d] with Shire's approach and path forward."[205] It further explained that, "[t]o acknowledge this and as a formality, we are putting the [deferitazole] program on a Full Clinical Hold with an official letter to follow within 7 days."[206]

The official letter (the "Clinical Hold Letter") came on March 7, 2014.[207] In it, the FDA explained that the deferitazole program was "on clinical hold and all clinical trials must be stopped."[208] The Clinical Hold Letter confirmed that the FDA placed deferitazole on full clinical hold pursuant to 21 C.F.R. § 312.42(b)(2)(i), which authorizes the FDA to impose such a hold if it finds that "[h]uman subjects are or would be exposed to an unreasonable and significant risk of illness or injury."[209] The Clinical Hold Letter explained that Shire was required to submit certain information in order to address the clinical hold, including a final report for

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[203] *See generally* JX-914.

[204] JX-955 at 4; PTO ¶ 57.

[205] JX-955 at 4.

[206] *Id.*

[207] PTO ¶ 58. *See generally* JX-937.

[208] PTO ¶ 58; JX-937 at 1.

[209] PTO ¶ 58; JX-937 at 1.

the RatCarc Study, certain human data to facilitate the interpretation of the RatCarc Study results, and other items.[210] Until Shire submitted this "Clinical Hold Complete Response" and received the green light from the FDA, it could not "legally initiate or resume clinical studies" for deferitazole.[211]

In late March 2014, Rienhoff and Plaintiff's Managing Director Christopher Letang met with Streck and other Shire representatives to discuss the status of the deferitazole program.[212] Letang later described the meeting in an email, explaining that Shire was "grappling with how to respond to the neuropathy and carcinogenicity findings from the recent studies."[213] Letang's impression was that Shire was "hoping to be able to lift the clinical hold by the end of the year" but that this would "require 'clear and compelling evidence' for a rat specific mechanism on the carcinogenicity findings."[214] Letang stated: "[Shire] assured us that they are not losing enthusiasm for the program."[215] Rienhoff had a similar impression, as he testified at trial that it was his "understanding that [Shire was] going to make every effort [it] possibly

[210] JX-937 at 1.

[211] *Id.*

[212] JX-1011; Trial Tr. at 85:3–12 (Rienhoff).

[213] JX-1011.

[214] *Id.*

[215] *Id.*

could to lift the hold"[216] and that Shire "appeared to be enthusiastic" about the continuation of the program.[217]

In response to the results of the RatCarc Study, Shire engaged a Pathology Working Group composed of recognized experts in renal pathology, renal toxicity, CPN, and rodent carcinogenicity studies.[218] The working group examined the RatCarc Study results and confirmed the study pathologist's finding that the tumors appeared only in the kidneys of male rats.[219] In late June 2014, the working group concluded: "The human clinical relevance of the findings in male rats is most likely to be potential renal toxicity. Since there is no comparable renal disease to CPN in man . . . , these findings are unlikely to indicate a carcinogenic risk for humans in the absence of renal toxicity."[220] The working group recommended that Shire conduct two additional rodent studies: a study in iron-loaded rats and a study in mice.[221] Pfeifer believed that the working group's findings "put [Shire] in a better position than anticipated," in part because they were "unlikely to indicate a carcinogenic risk to man."[222]

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[216] Trial Tr. at 86:17–18 (Rienhoff).

[217] *Id.* at 86:23–24 (Rienhoff).

[218] PTO ¶ 60.

[219] JX-1179 at 22.

[220] *Id.* at 23.

[221] *Id.* at 2.

[222] JX-1066 at 1.

On July 7, 2014, the Executive Safety Review Committee met in order to discuss the working group's recommendations.[223] The deferitazole clinical development team suggested that the Executive Safety Review Committee close out the ongoing clinical studies (including Study 202 and Study 203) and move forward with the two additional rodent studies "to ensure that carcinogenicity findings are male rat-specific and are not relevant to humans."[224] They also suggested that Shire continue monitoring patients who had already been exposed to the drug "for renal tumor development until data from the [two additional rodent studies] confirm the current assessment."[225] The Executive Safety Review Committee agreed, adopted these recommendations, and additionally endeavored to "[e]ngage [r]egulatory consultants to endorse [Shire's] strategy."[226] The Executive Safety Review Committee noted: "It would be advisable to understand that the suggested trials would be sufficient from a FDA . . . perspective to conclude that the carcinogenicity findings are male rat-specific and are not relevant to humans, and that this evidence would have a good probability of success in lifting the current clinical hold."[227]

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[223] *See generally* JX-1321 at 5–7.

[224] *Id.* at 6.

[225] *Id.* This monitoring study would come to be known as Study 206—a five-year safety follow-up study in which patients who had participated in previous deferitazole studies would not receive any dose of deferitazole. PTO ¶ 64.

[226] JX-1321 at 6.

[227] *Id.* at 6–7.

At the time, Shire's internal development plan documents showed that Phase III clinical trials were not expected to begin until at least mid-2017 and that deferitazole would not receive approval before mid-2020—after the release of generic Exjade.[228]

H. Shire Sends Plaintiff a Notice of Fundamental Circumstance and Does Not Make the Initiation of Phase III Clinical Trial Milestone Payment.

As Shire continued to wrestle with the RatCarc Study findings, members of the Pipeline Committee discussed the implications of "any plans to announce discontinuation" of the deferitazole program, including those arising from the Merger Agreement.[229] In an email dated April 30, 2014, Mayer explained to Vickers: "My understanding is that there is a significant milestone payment . . . based on termination of the program in the absence of a clear efficacy/safety reason and this could be an issue from the perspective of Hugh Rienhoff and other legacy Ferro[K]in investors."[230]

Mayer's concern resurfaced later on in a June 8, 2014 Pipeline Committee "Priority Programs Update."[231] The update noted that the Pathology Working Group's evaluation of the RatCarc Study results was "favorable" and estimated that

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[228] PTO ¶ 62.

[229] JX-1041 at 1.

[230] *Id.*

[231] *See generally* JX-1854.

the clinical hold "potentially could be lifted in ~ 1 year."[232] The update went on to discuss the Merger Agreement, stating that payment of the Initiation of Phase III Clinical Trial Milestone was "required even if [the deferitazole program were] terminated, absent the occurrence of a Fundamental Circumstance."[233] It explained: "If FDA declines to lift Clinical Hold after considering Shire's complete response, this would likely be a Fundamental Circumstance (depending on FDA's actual response)."[234] And if the problems the program faced thus far were to be "considered together," the update explained, a Fundamental Circumstance may also be said to have occurred—but this outcome was "not as clear cut."[235] The update recognized that termination of the deferitazole program "due to changes in Shire's business model or financial forecasts (in and of themselves) would not qualify as a Fundamental Circumstance."[236]

The Pipeline Committee met on July 8, 2014—the day after the Executive Safety Review Committee adopted the recommendation that Shire continue monitoring patients and move forward with two additional rodent studies. During

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[232] *Id.* at 23. The update explained that the two additional rodent studies—the study in iron-loaded rats and the study in mice—would take thirteen weeks and six months, respectively. PTO ¶ 63. The study in iron-loaded rats began in late 2014, and the study in mice began in mid-2015. *Id.*

[233] JX-1854 at 26.

[234] *Id.*

[235] *Id.*

[236] *Id.*

the July 8 meeting, the Pipeline Committee formally terminated the deferitazole clinical studies subject to the full clinical hold, but it neither formally terminated the deferitazole program nor made a determination that a Fundamental Circumstance had occurred.[237]

It was only following the July 8 Pipeline Committee meeting that Streck "began to assemble information in terms of what had happened with the clinical development program . . . from the time it started until the time it was put on clinical hold by the FDA."[238] That exercise culminated in a September 2014 document titled "[deferitazole] Fundamental Circumstance Justification Outline."[239] By October 2014, that outline had evolved into a detailed document that would "likely be used for discussions and legal proceedings with FerroKin."[240] The same month, Mayer expressed: "At the moment, I think we can safely say we have no plans to resurrect this program but we are doing . . . our due diligence in understanding the safety findings and the risks to humans."[241]

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[237] JX-1107 at 6; Trial Tr. at 148:15–19 (Streck).

[238] Trial Tr. at 149:14–18 (Streck).

[239] JX-1131; *see* Trial Tr. at 193:23–194:13 (Streck). The document's unaltered name is "602 Fundamental Circumstance Justification Outline." JX-1131. Internally, Shire used variations of the number 602 to refer to the deferitazole program. Trial Tr. at 35:6–8 (Rienhoff).

[240] JX-1178.

[241] JX-1287 at 145.

At meetings in February 2015, the Pipeline Committee and the Executive Committee made the decision to terminate development of deferitazole completely and to send a Notice of Fundamental Circumstance to Plaintiff.[242] Section 2.9(b) of the Merger Agreement required that, "[i]n the event that [Shire] believes that a Fundamental Circumstance has occurred, [Shire] shall promptly provide notice thereof to [Plaintiff] together with reasonable detail (based upon the information then possessed by [Shire]) of the material facts known to [Shire] giving rise to such belief."[243]

On February 25, 2015, Shire sent Plaintiff a "Notice of Fundamental Circumstance."[244] It cited several safety concerns with deferitazole, including "renal carcinogenicity in animals and peripheral neuropathy, as well as undesirable drug-drug interactions."[245] It noted that "[t]he observation of renal carcinogenicity in preclinical studies resulted in the current FDA-issued full clinical hold."[246] "Taken together," the notice explained, "these observed dose-dependent adverse effects make it improbable that [deferitazole] would demonstrate an improved safety profile compared to Exjade" and even that, "like Exjade, [deferitazole] may carry a 'black

[242] PTO ¶ 71.

[243] JX-241 § 2.9(b), at 25; PTO ¶ 33.

[244] JX-1294 at 57–61.

[245] *Id.* at 58.

[246] *Id.*

box' or similar warning, meaning that [it] would have no meaningful competitive advantage over Exjade in regard to safety."[247]

The notice also cited certain efficacy concerns with deferitazole, stating: "The clinical and commercial success of [deferitazole] further requires that [it] demonstrate efficacy at least comparable to Exjade, including with respect to its effects on both hepatic and cardiac iron."[248] It explained that the results from "one Phase 2 dose-finding study"—Study 201—"raised a signal that [deferitazole] failed to demonstrate adequate control of cardiac iron overload."[249] It also asserted that deferitazole "demonstrated questionable and, at best, dose-dependent iron chelation capacity for managing liver iron overload."[250] The notice went on to explain that "the prospect of finding a dosage level that is effective for managing both liver and cardiac iron overload without seriously compromising [deferitazole]'s safety profile . . . appears remote."[251]

The notice states that these safety and efficacy concerns "rendered the receipt of applicable Regulatory Approvals impracticable" and also meant that deferitazole "could not be launched within the required window for [it] to be commercially

[247] *Id.*

[248] *Id.*

[249] *Id.*

[250] *Id.* at 59.

[251] *Id.*

viable."[252] The receipt of Regulatory Approvals would be impracticable because Shire would have to convince the FDA to lift the full clinical hold and "re-initiate Phase II clinical studies."[253] And the commercial viability of deferitazole was no longer, in light of the "substantial delay stemming from the FDA-issued full clinical hold and the stoppage of the previous Phase II clinical trials" as well as deferitazole's "potential[] inferior[ity] to the current standard of care."[254]

The notice concluded that the Initiation of Phase III Clinical Trial Milestone "shall *not* be deemed to have been achieved on December 31, 2015."[255] Shire did not make the $45 million Initiation of Phase III Clinical Trial Milestone payment with Plaintiff on December 31, 2015, and has not done so since then.[256] Shire did not submit a Clinical Hold Compete Response to the FDA in order to attempt to lift the full clinical hold.[257]

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[252] *Id.* at 59–60.

[253] *Id.* at 59.

[254] *Id.* at 60.

[255] *Id.* at 61 (emphasis added).

[256] PTO ¶ 75.

[257] *Id.* ¶ 74.

I. This Litigation

Plaintiff filed the Verified Complaint in this action on December 4, 2017.[258] Trial took place over four days in October 2019.[259] Post-trial briefing concluded on February 19, 2020,[260] and the Court heard post-trial arguments on March 2, 2020.[261] Thereafter, the parties made supplemental submissions, which were complete by July 31, 2020.[262]

II. LEGAL ANALYSIS

Plaintiff asserts two causes of action. In its First Cause of Action, Plaintiff claims that Shire breached its obligation to make the Initiation of Phase III Clinical Trial Milestone payment.[263] In its Second Cause of Action, Plaintiff claims that it is entitled to its attorneys' fees in connection with this lawsuit.[264]

A. Breach of Contract

In its First Cause of Action, Plaintiff claims that Shire breached its obligation to make the Initiation of Phase III Clinical Trial Milestone payment under Sections

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[258] *Id.* ¶ 81.

[259] Dkts. 167–170.

[260] Dkt. 171, Pl.'s Opening Post-Trial Br.; Dkt. 174, Defs.' Post-Trial Br.; Dkt. 177, Pl.'s Reply Post-Trial Br.

[261] Dkt. 181, Post-Trial Oral Arg. ("Oral Arg. Tr.").

[262] Dkt. 185, Shire's Post-Trial Suppl. Opening Br. ("Defs.' Opening Suppl. Br."); Dkt. 187, Pl.'s Opening Suppl. Post-Trial Br. ("Pl.'s Opening Suppl. Br."); Dkt. 193, Pl.'s Answering Suppl. Post-Trial Br.; Dkt. 194, Shire's Reply Post-Trial Suppl. Br.

[263] Dkt. 1, Verified Compl. for Breach of Contract ¶¶ 59–64.

[264] *Id.* at ¶¶ 65–70.

2.9(a) and 2.9(f) of the Merger Agreement. "To prevail on a breach of contract claim, the plaintiff must prove: 1) the existence of a contract; (2) the breach of an obligation imposed by the contract; and (3) damages suffered because of the breach."[265]

Section 2.9(a) of the Merger Agreement provides:

> Upon the first occurrence of any of the events set forth in the table below under "Milestone Trigger Event" (each a "Milestone"), [Shire] shall promptly . . . deliver a notice to the Equityholders' Representative of such occurrence, and, within fifteen (15) Business Days of such notice, deposit or cause to be deposited the amount of cash in U.S. dollars set forth in the table below under "Milestone Payment" opposite such Milestone . . . with the Equityholders' Representative . . . .[266]

The table referenced in the above language lists the "trigger event" for the milestone payment at issue in this litigation as the "Initiation of Phase III Clinical Trial Milestone."[267] Section 1.1 defines "Initiation of Phase III Clinical Trial Milestone" as "the earlier to occur of (i) the first dosing of the first patient in the first Phase III Clinical Trial or (ii) the filings of an NDA or an MAA with respect to a Covered Product."[268]

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[265] *Zayo Gp., LLC v. Latisys Hldgs., LLC*, 2018 WL 6177174, at *10 (Del. Ch. Nov. 26, 2018).

[266] JX-241 § 2.9(a), at 24–25.

[267] *Id.* § 2.9(a), at 24.

[268] *Id.* § 1.1, at 11.

Section 2.9(f) provides that

> Notwithstanding anything else in this Agreement to the contrary, in the event that the Company has not achieved the Initiation of the Phase III Clinical Trial Milestone on or before December 31, 2015, other than as a result of a Fundamental Circumstance, then the Initiation of Phase III Clinical Trial Milestone shall be deemed to have been achieved on such date.[269]

Neither the first dosing of the first patient in the first Phase III clinical trial nor the filings of an NDA or an MAA with respect to a Covered Product occurred on or before December 31, 2015. The Initiation of Phase III Clinical Trial Milestone is therefore "deemed achieved" under Section 2.9(f) unless the failure to achieve the milestone was "as a result of a Fundamental Circumstance." Plaintiff's claim thus hinges on the clause "other than as a result of a Fundamental Circumstance," which this decision refers to as the "Fundamental Circumstance Clause."

1. Shire Bears the Burden of Proof.

Typically, the party seeking to enforce the contract must prove each element of its breach of contract claim by a preponderance of the evidence.[270] Contracts that

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[269] *Id.* § 2.9(f), at 27; PTO ¶ 30.

[270] *Dermatology Assocs. of San Antonio v. Oliver St. Dermatology Mgmt. LLC*, 2020 WL 4581674, at *19 n.214 (Del. Ch. Aug. 10, 2020); *Braga Invs. & Advisory, LLC v. Yenni Income Opportunities Fund I, L.P.*, 2020 WL 3042236, at *8 (Del. Ch. June 8, 2020); *Simon-Mills II, LLC v. Kan Am USA XVI Ltd. P'ship*, 2017 WL 1191061, at *36 (Del. Ch. Mar. 30, 2017); *Zimmerman v. Crothall*, 62 A.3d 676, 691 (Del. Ch. 2013); 23 *Williston on Contracts* § 63:14 (4th ed. 2020).

contain conditions, however, require another layer of analysis when allocating the burden of proof.

Where a contractual obligation is subject to a "condition precedent," that obligation will only mature on satisfaction of a contractually specified condition.[271] In that situation, the party seeking to enforce that obligation bears the burden of proving that the condition has been satisfied in order to establish the first element of a claim for breach of contract—the existence of a contractual obligation.[272]

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[271] *SLMSoft.com, Inc. v. Cross Country Bank*, 2003 WL 1769770, at *12 (Del. Super. Apr. 2, 2003) ("A term rendering performance by one party contingent upon a condition . . . is generally a condition precedent."); 13 *Williston on Contracts* § 38:7 ("A condition precedent is either an act of a party that must be performed or a certain event that must happen before a contractual right accrues or a contractual duty arises."); *Restatement (Second) of Contracts* § 224 & cmt. e (Am. Law Inst. 1981) ("A condition [precedent] is an event, not certain to occur, which must occur . . . before performance under a contract becomes due."); 2 *Farnsworth on Contracts* § 8.02, at 8-5 & n.2 (4th ed. 2019) (same (quoting *Restatement (Second) of Contracts* § 224)); 8 *Corbin on Contracts* § 30.7, at 14 (rev. ed. 1999) (defining conditions precedent as "those facts and events occurring after the making of a valid contract, that must exist or occur before there is a right to immediate performance, before there is a breach of contract duty and before the usual judicial remedies become available" (emphasis removed)).

[272] *Ewell v. Those Certain Underwriters of Lloyd's, London*, 2010 WL 3447570, at *3 (Del. Super. Aug. 27, 2010) ("The burden of allegation and proof of a condition precedent is on the plaintiff . . . ."); 13 *Williston on Contracts* § 38:26 ("[T]he ultimate burden of proof with regard to conditions precedent . . . remains on the plaintiff."); *see, e.g.*, *El Paso Nat. Gas Co. v. Amoco Prod. Co.*, 1994 WL 148263, at *9 (Del. Ch. Mar. 29, 1994) (explaining that the plaintiff had "met its burden of proving" that certain events "satisfied the condition precedent" in the agreement the plaintiff sought to enforce); 2 *Farnsworth on Contracts* § 8.02, at 8-13 ("[T]he plaintiff ha[s] the burden of pleading and proof as to a condition precedent to the defendant's duty . . . ."); 8 *Corbin on Contracts* § 30.7, at 13 & n.19 (noting that the plaintiff bears the burden of proof with regard to conditions precedent).

Where a contractual obligation is subject to what was traditionally referred to as a "condition subsequent," or what the *Restatement (Second) of Contracts* § 230 refers to as "Event that Terminates a Duty," that obligation exists unless it is extinguished by the occurrence of a contractually specified event.[273] In that situation, the party seeking to avoid a finding of breach bears the burden of proving that the event has occurred and its obligation was extinguished.[274]

For the purpose of allocating the burden of proof, Shire contends that the Fundamental Circumstance Clause creates a condition precedent and that Plaintiff

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[273] *Restatement (Second) of Contracts* § 230 cmt. a ("Parties sometimes provide that an obligor's matured duty will be extinguished on the occurrence of a specified event, which is sometimes referred to as a 'condition subsequent.'"); *id.* § 224 cmt. e ("Parties sometimes provide that the occurrence of an event . . . will extinguish a duty after performance has become due, along with any claim for breach. Such an event has often been called a 'condition subsequent' . . . ."); 13 *Williston on Contracts* § 38:9 ("A condition subsequent has been defined as a future event, the happening of which discharges the parties from their otherwise binding agreement."); 2 *Farnsworth on Contracts* § 8.02, at 8-12 ("[A]n event that extinguishes a duty that has already arisen . . . has traditionally been called a 'condition subsequent.'"); 8 *Corbin on Contracts* § 30.7, at 14 ("'Conditions subsequent' are traditionally those facts and events that . . . terminate both the right to immediate performance and also the right to a judicial remedy."); *see also Redux, Ltd. v. Com. Union Ins. Co.*, 1995 WL 88251, at *3 n.7 (D. Kan. Feb. 7, 1995) ("There is no reason to believe that the semantic change [in Section 230] affected the viability of the law concerning burden of proof which developed around 'conditions subsequent.'").

[274] *Ewell*, 2010 WL 3447570, at *3 ("[T]he burden of proof and allegation of a condition subsequent is on the defendant."); 16 *Williston on Contracts* § 49:87 ("[T]he burden of proof with respect to conditions subsequent is on the defendant . . . ."); 2 *Farnsworth on Contracts* § 8.02, at 8-13 ("[T]he defendant ha[s] the burden as to a condition subsequent."); 8 *Corbin on Contracts* § 30.7, at 13 & n.19 (noting that the defendant bears the burden of proof with regard to a condition subsequent).

must prove the absence of a Fundamental Circumstance in order to prevail.[275] Shire relies solely on syntax, arguing that "[t]he basic structure of Section 2.9(f) is one of if-then conditionality": "*if* Shire did not start Phase III Clinical trials by December 31, 2015 as a result of a Fundamental Circumstance, *then* the milestone *was never achieved* and any resulting milestone payment obligation *never arose*."[276]

Shire is technically correct that the structure of Section 2.9(f) uses conditional language, but this observation does not resolve the parties' dispute. Conditions subsequent are often expressed using conditional language.[277] For this reason, the difference between a condition precedent and a condition subsequent "is one of substance and not merely of the form in which the provision is stated."[278] "If performance under the contract is not to become due until occurrence of an event," that event is a condition precedent.[279] But if "an obligor's matured duty will be

[275] Defs.' Post-Trial Br. at 17, 59–62.

[276] *Id.* at 60; *accord.* PTO ¶ 97; *see also* Defs.' Opening Suppl. Br. at 4.

[277] *See, e.g.*, *Restatement (Second) of Contracts* § 230 cmt. a, illus. 1 (describing conditions subsequent and providing the following illustration: "A, an insurance company, insures the property of B under a policy providing that no recovery can be had *if* suit is not brought on the policy within two years after a loss. A loss occurs and B lets two years pass before bringing suit. A's duty to pay B for the loss is discharged and B cannot maintain the action on the policy." (emphasis added)).

[278] *Restatement (Second) of Contracts* § 230 cmt. a.

[279] *Id.*

extinguished on the occurrence of a specified event," that event is a condition subsequent.[280]

In substance, the Fundamental Circumstance Clause provides for an event that terminates Shire's duty rather than a condition precedent to Shire's duty. Section 2.9(a) provides that Shire's payment obligations arise "[u]pon the first occurrence" of the earliest of the two events listed in the definition of the Initiation of Phase III Clinical Milestone.[281] Section 2.9(f) automatically deems the Initiation of Phase III Clinical Trial Milestone to have occurred on December 31, 2015. At that point, the Merger Agreement imposes a mandatory obligation, providing that Shire "*shall* promptly . . . deposit or cause to be deposited"[282] the Initiation of Phase III Clinical Trial Milestone payment with Plaintiff. That mandatory obligation could be extinguished only upon the occurrence of the specific "event" set forth in the Fundamental Circumstance Clause. The Fundamental Circumstance Clause is thus a condition subsequent that Shire must prove.

The same outcome is reached when drawing by analogy from decisions allocating the burden of proof on parties asserting material adverse effect and similar

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[280] *Id.*

[281] JX-241 § 1.1, at 12; *id.* § 2.9(a), at 24–25.

[282] *Id.* § 2.9(a), at 24–25 (emphasis added).

contractual provisions as a basis for termination.[283] In *Hexion*, for example, this court allocated the burden to prove the existence of a material adverse effect on the party seeking to excuse performance. The court explained that "[t]ypically, conditions precedent are easily ascertainable objective facts, generally that a party performed some particular act or that some independent event has occurred."[284] The court further observed that "[a] material adverse effect clause does not easily fit into such a mold," and concluded that it was preferable to allocate the burden on the party seeking to avoid its contractual obligation.[285] In this case, as in *Hexion*, the relevant provision does not call for "easily ascertainable objective facts" and thus does not

[283] *Hexion Specialty Chems., Inc. v. Huntsman Corp.*, 965 A.2d 715, 739 (Del. Ch. Sept. 29, 2008) (finding that "the burden of proof with respect to a material adverse effect rests on the party seeking to excuse is performance under the contract"); *see also Channel Medsys., Inc. v. Boston Sci. Corp.*, 2019 WL 6896462, at *16 (Del. Ch. Dec. 18, 2019) (observing that the terminating party "bears the burden of 'proving by a preponderance of the evidence the facts supporting the exercise of its termination rights'" (quoting *Akorn, Inc. v. Fresenius Kabi AG*, 2018 WL 4719347, at *4 (Del. Ch. Oct. 1, 2018), *aff'd*, 198 A.3d 724 (Del. 2018))); *Akorn*, 2018 WL 4719347, at *47 ("Because [the buyer] seeks to establish a General MAE to excuse its performance under the Merger Agreement, [the buyer] bore the burden of proving that a General MAE had occurred."); *Frontier Oil Corp. v. Holly Corp.*, 2005 WL 1039027, at *25 (Del. Ch. Apr. 29, 2005) ("[T]he expectation of the parties, as reflected in the Merger Agreement and as informed by the case law, was that the burden of demonstrating that [a material adverse effect occurred] falls on [the party seeking to terminate the agreement]."); *cf. In re IBP, Inc. S'holders Litig.*, 789 A.2d 14, 68–71 (Del. Ch. 2001) (applying New York law and placing the burden of proving the existence of a material adverse effect on the terminating party).

[284] 965 A.2d at 739.

[285] *Id.*

fit the mold of a condition precedent.[286] As the party seeking to avoid its contractual obligation, Shire bears the burden of proof.

2. Shire Has Not Proven That Its Failure to Initiate Phase III Clinical Trials Was "as a Result of" a Fundamental Circumstance.

To escape its obligation to make the Initiation of Phase III Clinical Trial Milestone payment, Shire must prove that its failure to initiate Phase III trials by December 31, 2015 was "as a result of a Fundamental Circumstance." This clause requires Shire to prove two things: (i) the existence of a "Fundamental Circumstance" and (ii) that the failure to initiate Phase III trials was "as a result of" that Fundamental Circumstance.

To demonstrate the first element, Shire points to the RatCarc Study results and subsequent FDA clinical hold, which Shire says "caused the early termination of all ongoing human clinical trials" and therefore prevented Shire from initiating Phase III clinical trials by December 31, 2015.[287] This opinion assumes for the sake of argument that either of these events constituted a Fundamental Circumstance. Nevertheless, Shire has not met its burden of proving the second element—that its failure to initiate Phase III clinical studies before December 31, 2015 was "as a result

[286] *Id.*

[287] Defs.' Post-Trial Br. at 2, 18–45; *see id.* at 21 ("The cancer finding injected years of delay to Shire's projected development timeline and caused an expectation of huge monetary losses should development continue.").

of" any Fundamental Circumstance it claims occurred. The record reflects that, post-closing, Shire altered deferitazole's development timeline such that Shire's failure to initiate Phase III clinical studies by December 31, 2015, was inevitable, notwithstanding any Fundamental Circumstance that later occurred.

Immediately after closing in April 2012, Shire desired to pursue an "[a]ggressive development and filing strategy" and was "[f]ocused on getting to market [as soon as possible]" with a target launch date set for some time in 2016.[288] At that time, Shire planned to begin Phase III clinical trials in late 2013—approximately two years ahead of the December 31, 2015 automatically-deemed date.[289] But Shire made two primary decisions in 2013 that collectively prevented the initiation of Phase III clinical trials by December 31, 2015.

The first decision that delayed deferitazole's overall development timeline was Shire's choice to switch to twice-daily dosing in Study 203. That decision was made in early 2013, after Shire received data from Study 201, which indicated that deferitazole's ability to decrease cardiac iron concentration was not as strong as its ability to decrease liver iron concentration.[290] As Neufeld testified, it takes longer to see a decrease in cardiac iron than it does to see a decrease in liver iron—in fact,

[288] JX-253 at 10.

[289] *Id.* at 11.

[290] JX-1813 at 49; *see* JX-723 at 24 (summarizing Study 201 results); Trial Tr. at 107:7–108:4 (Streck).

"it really can take a year longer to get the heart to move in the same direction [as] the liver."[291] Shire was aware that "[c]ardiac iron can take longer to really adequately come down,"[292] but did not feel as though the Study 201 data was enough for it to "walk away from the program."[293] It was thus "somewhat optimistic" that switching from once-daily dosing to twice-daily dosing in Study 203 would "be the key to appropriately controlling iron concentrations in various tissues."[294] As Streck testified at trial, Shire "felt that the benefit associated with [the switch to twice-daily dosing in Study 203] outweighed risks" and therefore elected to move in that direction.[295] The switch to twice-daily dosing in Study 203 delayed the projected initiation of Phase III clinical trials from late 2013 to early 2015.[296]

Decisions like the one Shire made to switch to twice-daily dosing in Study 203 are routinely made in the drug development context. Streck testified at trial that

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[291] Neufeld Dep. Tr. at 117:22–118:6; *id.* at 263:1–9.

[292] JX-1014 at 8.

[293] *Id.* at 8–9.

[294] *Id.* at 9; *id.* at 9–10 (Mayer stating: "The cardiac iron in the first study was . . . not a reason necessarily to walk away from the program, but there was concern that it was trending in the wrong direction and so one of the things we were hoping to get out of this study . . . is to see whether that [was] going to happen again or is this something that could actually control cardiac iron."); Trial Tr. at 215:7–11 (Streck) ("We felt that increasing the dosing frequency to twice daily would certainly increase the amount of time the drug was in the bloodstream and, subsequently, hoped that it would have impact on the outcome of the trial.").

[295] Trial Tr. at 215:12–14 (Streck).

[296] JX-1817 at 5; JX-493 at 9; *see* Trial Tr. at 463:21–465:6 (Vickers).

Shire's experience with Study 203 "was very classic drug development in terms of things coming up, questions about efficacy."[297] He went so far as to agree that it could be called "progress."[298] This testimony is consistent with the general purpose of Phase II clinical studies. Phase II studies are exploratory in nature—they seek to better understand the efficacy of the drug while addressing any safety issues patients might encounter.[299] They are typically called "dose-range-of-findings" or "dose-ranging" studies.[300] Clinicians might therefore "change the criteria for the patients [they]'re treating, . . . drop particular doses or add particular doses, or chang[e] [their] dosing strategy during Phase II."[301] Shire did just that.

The second decision that delayed deferitazole's overall development timeline was the Pipeline Committee's decsion to delay the start of Study 204 until completion of Study 203. Around April 2013, instances of peripheral neuropathy began to emerge in Phase II clinical studies.[302] By May 2013, the Executive Safety Review Committee determined that "demonstrated declines in [liver iron

[297] Trial Tr. at 217:21–23 (Streck).

[298] *Id.* at 217:24–218:3 (Streck).

[299] *Id.* at 310:15–17 (Henner); *id.* at 31:6–14 (Rienhoff).

[300] *Id.* at 31:6–14 (Rienhoff); *id.* at 310:8–9 (Henner).

[301] *Id.* at 310:8–17 (Henner); Siegel Dep. Tr. at 38:13–23 (explaining that it is "very common" for "a sponsor to make changes to dosing or frequency of dosing based on the emergence of new clinical data").

[302] JX-498 at 17; *see* JX-666 at 9; JX-522 at 31.

concentration] and appropriate measures put in place to assess and manage patients who develop signs and symptoms of peripheral neuropathy . . . justified the continuation of the development program for [deferitazole]."[303] But at its November 15, 2013 meeting, the Pipeline Committee hedged the continuation of deferitazole's development plan and "concluded that [Shire] should wait for the results from [S]tudy 203 before initiating further clinical studies," including Study 204.[304]

Two aspects of the Pipeline Committee's decision are particularly striking. The first striking aspect is that it was made before the Pipeline Committee received the Peripheral Neuropathy Committee's preliminary conclusions. By November 15, 2013, the Peripheral Neuropathy Committee had not yet had its first meeting—its first meeting was scheduled for December 2, 2013.[305] And it was not until December 18, 2013, that the Peripheral Neuropathy Committee preliminarily concluded that peripheral neuropathy was a "dose limiting toxicity" for deferitazole.[306] Prior to December 18, 2013, peripheral neuropathy had not yet been identified as a dose limiting toxicity—and the Peripheral Neuropathy Committee

[303] JX-552 at 6.

[304] JX-732 at 3; Trial Tr. at 493:7–11 (Vickers).

[305] JX-723 at 9.

[306] JX-802 at 4, 10.

had not yet recommended that Shire terminate the 75 milligrams per kilogram per day dose.[307]

The second striking aspect of the Pipeline Committee's decision was that it was made in the context of a company-wide effort to shift corporate spending to products in later stages of development. On April 30, 2013, Shire's Science and Technology Committee discussed "[d]ownward changes in Shire revenue forecasts" that had "resulted in a 2017 projected revenue gap of $700 [million]."[308] It was from this projected revenue gap that the idea of the Pipeline Committee sprang.[309] The Pipeline Committee's purpose would be "to prioritize pipeline investment" and "rebalance spend near term toward late stage assets" while "selectively decreas[ing] investment in early stage programs."[310] The Pipeline Committee would "[a]dvance the cross-Shire prioritization process to define which programs should be included in [Shire's] 2013 and 2014 plans/budgets."[311]

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[307] In briefing, Defendants suggest that the Peripheral Neuropathy Committee's conclusions and recommendation to terminate higher doses of deferitazole played some role in the Pipeline Committee's decision to delay the start of Study 204. Defs.' Post-Trial Br. at 9–10. But the record does not support this assertion.

[308] JX-493 at 50.

[309] *Id.*; *see* Trial Tr. at 472:19–24 (Vickers) (confirming that the Pipeline Committee had not been a committee at Shire prior to April 30, 2013).

[310] JX-493 at 50.

[311] JX-538 at 28.

At a meeting on August 20, 2013, the Pipeline Committee identified a "target budget" for 2014 R&D spending and noted that it would "require[] significant savings to be identified."[312] The minutes of that meeting explain that "[p]otential levers were discussed including further portfolio refinement (focus on reducing early stage)."[313] They also explain, under the heading "Portfolio Prioritization Refresh," that Shire's then-current "pipeline dr[ove] sub-optimal growth" and that this sub-optimal growth was "the fundamental driver for the need to rebalance the pipeline toward later-stage opportunities."[314] In the same section, the minutes reflect that the Pipeline Committee reviewed "[r]evised prioritization of [Shire's] development programs" and that "several programs [were] selected for reassessment."[315] The Pipeline Committee discussed deferitazole "due to its high 2014 cost" but concluded that Shire "should wait until [P]hase II data is available in 2014 before considering changing course."[316]

Approximately one month later, on September 26, 2013, the Pipeline Committee discussed that "delay in the [deferitazole] program could impact its

[312] JX-657 at 233.

[313] *Id.*

[314] *Id.* at 235.

[315] *Id.*

[316] *Id.*

commercial value due to the future genericization of Exjade."[317] The Pipeline Committee resolved to "[o]btain commercial perspective on the impact of the delay."[318]

The next day, on September 27, 2013, Mayer emphasized the need for the Pipeline Committee to discuss the deferitazole program "from a technical standpoint."[319] In response, Vickers stated: "[F]rom a budget perspective this is a very expensive program. . . . [W]e should consider what will be go/no go criteria-both from a pipeline and budget perspective. We plan to move forward, but should all be aligned."[320]

On October 21, 2013, Vickers asked certain members of Shire's finance team to send him a presentation showing Shire's budget breakdown for 2014, "including a breakdown by program."[321] In that email, he stated: "I would like to have with me the cost of the [deferitazole] program."[322] The presentation indicated that the

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[317] JX-677 at 64.

[318] *Id.*; *see* Trial Tr. at 492:18–493:6 (Vickers) (confirming that, at the September 26, 2013 Pipeline Committee meeting, "[t]here was a review of the timelines of the program and the fact that it would take it to that time point").

[319] JX-665 at 3; *see* Trial Tr. at 493:16–494:5 (Vickers).

[320] JX-665 at 2. At trial, Girard explained that a go/no-go decision is "a common term" in the pharmaceutical industry used to describe the decision to "continue the development of the program," typically "based off of new information." Trial Tr. at 781:2–8 (Girard).

[321] JX-693 at 1; *see* Trial Tr. at 494:12–18 (Vickers).

[322] JX-693 at 1.

deferitazole program had the highest projected "Total External Spend" for 2014 out of approximately fifty-five programs, valued at $58 million.[323] On October 22, 2013, Vickers emailed the presentation to Mayer, calling it a "[g]ood reminder on cost vs risk for [deferitazole]."[324] Vickers then observed: "One of us can flag that this is the most expensive program in 2014!"[325]

By late October 2013, the deferitazole program had an expected net present value of negative $21 million.[326] On October 31, 2013, a Shire executive emailed Mayer and stated: "This is a challenging program. . . . I am wondering why we continue working on this with a clearly negative [expected net present value]."[327] Mayer responded: "I completely agree but the analysts apparently love this program!"[328]

On November 1, 2013, Jeremy Chadwick—Shire's Vice President of Clinical Development Operations—emailed Mayer and Vickers, stating that he "struggle[d] to see the justification for the [deferitazole] program."[329] He explained that, in light of the issues facing the program, "[e]ven the best case appear[ed] totally

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[323] *Id.* at 12.

[324] JX-695 at 1.

[325] *Id.*

[326] JX-707 at 33.

[327] JX-710 at 1.

[328] *Id.*

[329] JX-715 at 2.

unconvincing."[330] In response, Mayer identified several "reasons for concern" with the deferitazole program and explained: "[W]e could look at this program vs other programs in development."[331]

On November 13, 2013, Vickers emailed Ornskov and again noted—just as he had to Mayer previously—that deferitazole was "the sole most expensive program in [research and development] next year- approximately $58 [million]."[332]

Collectively, this evidence demonstrates that, in the months leading up to the November 15, 2013 meeting, the Pipeline Committee was actively engaged in an effort to reduce the deferitazole program's budget in light of its sheer expense and its "tight squeeze with generic Exjade."[333] The Pipeline Committee's decision to delay the start of Study 204 until the end of Study 203 was made in the midst of that effort. It was also made before the Peripheral Neuropathy Committee met for the first time or provided Shire a preliminary conclusion concerning the severity of the peripheral neuropathies observed in patients and deferitazole's correlation with those peripheral neuropathies. The Pipeline Committee also knew that the decision would "delay the overall timeline" for deferitazole's development program[334] and

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[330] *Id.*

[331] *Id.* at 1.

[332] JX-749 at 2.

[333] Trial Tr. at 493:12–15 (Vickers); *see* JX-677 at 64.

[334] JX-731 at 1.

specifically delay the initiation of Phase III clinical trials "until after [Study] 204 reports."[335]

By January 2014—after Shire made decisions to switch to twice-daily dosing in Study 203 and to delay the start of Study 204—Shire's internal records indicated that Phase III clinical trials would not begin until May 2016.[336] This delay fulfilled the Pipeline Committee's reprioritization goal, reducing deferitazole's 2014 budget by approximately $28.5 million.[337] May 2016 was of course several months past the December 31, 2015 automatically-deemed date, but Shire's potential contractual obligation to pay $45 million as of that date was not raised in the budgeting discussions leading up to the November 15, 2013 meeting.

The delay in the initiation of Phase III clinical trials to May 2016 occurred before even the preliminary results of the RatCarc Study were announced. It was not until February 19, 2014, that the study pathologist's preliminary review of the data indicated an increased incidence of tumors in the kidneys of male rats.[338] And

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[335] JX-750 at 2 (email from Streck to Mayer dated November 21, 2013, confirming that there would be an 18 month delay in deferitazole's projected launch and stating, "[t]he 18 month delay is accurate and predicated on delaying the 204 program until completion of 203, and then delay of the phase 3 programs until after 204 reports").

[336] JX-805 at 7; *see also* PTO ¶ 51.

[337] JX-805 at 8; Trial Tr. at 401:8–14 (Vickers) (testifying that, in the year the decision was made to postpone Study 204, "there was . . . cost saving . . . that was a consequence of the decision").

[338] PTO ¶ 52; JX-862 at 3.

it was not until February 25, 2014, that the Executive Safety Review Committee "voted in favor of suspending dosing in the clinical studies" pending further investigation.[339] Before these events occurred, however, the deferitazole program remained just as promising as "[a]ny other early Phase II program"[340] and had the "opportunity to be [just] as successful."[341]

Defendants respond to this timeline with two points. Defendants first argue, on the factual record, that the May 2016 projection was conjectural and not actual, such that the decisions to switch to twice-daily dosing in Study 203 and to delay the start of Study 204 did not necessarily result in the relevant delay. Defendants next argue, as a matter of law, that the delay in the initiation of Phase III clinical trials to May 2016 "did not foreclose the possibility that a Fundamental Circumstance could occur and prevent the initiation of Phase III clinical trials on or before December 31, 2015."[342]

For their first argument—that the May 2016 date was not firm—Defendants cite only Vickers' testimony at trial that the delay was not "set in stone."[343] But the documentary and other testimonial evidence presented at trial tell a contrary story.

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[339] JX-1321 at 10.

[340] Trial at 161:11–17 (Streck).

[341] Streck Dep. Tr. at 133:24–134:11.

[342] Defs.' Post-Trial Br. at 46.

[343] *Id.* at 45–46. *See generally* Trial Tr. at 429:3–31:22 (Vickers).

Delay in the initiation of Phase III clinical trials to May 2016 was more than mere projection. The record reflects that, as of January and early February 2014, the initiation of Phase III clinical trials simply would not occur until May 2016—it was a "planned" and inevitable delay, not a projected or estimated one.[344] This was most evident in a "Progress Memo" dated February 3, 2014, in which Streck explained to Plaintiff that the "[f]irst patient first visit in a Phase [III] study [is] *currently planned* as May 2016."[345] At his deposition, Streck explained that, as of the date he authored this Progress Memo on February 3, 2014, it "seem[ed] to be the case" that Shire's plan was to begin Phase III clinical trials in May 2016.[346] This conclusion is further

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[344] JX-805 at 8 (draft presentation in which Shire refers to the "[i]mplementation of delay" to the deferitazole program and identifies the program delay as "[p]lanned"); JX-789 at 5 (minutes of the deferitazole development team's meeting dated January 7, 2014, stating: "It was confirmed that the amendment to study 204, and consequent delays, *will go ahead* regardless of any decision on the conduct of study 203, ie there will not be a reversion to a quick start for study 204." (emphasis added)); JX-750 at 2 (email from Streck to Mayer dated November 21, 2013, confirming that there would be an 18-month delay in deferitazole's projected launch and stating, "[t]he 18 month delay *is accurate*" (emphasis added)); *see also* Trial Tr. at 173:24–174:4 (Streck) (counsel asking Streck whether the development timeline in JX-805 indicated that Phase III clinical trials were "not even scheduled to start . . . until May of 2016," and Streck responding, "[y]es, that's correct"); Trial Tr. at 111:2–9 (Streck) (testifying that "there was *going to be* a delay with not starting the 204 at the same time that the 203 study was running" (emphasis added)).

[345] JX-831 at 50 (emphasis added).

[346] Streck Dep. Tr. at 172:15–23. This testimony is consistent with Plaintiff's own interpretation of the Progress Memo at the time it was sent. In an email dated February 19, 2014, Letang explained his view that Shire was continuing to move forward with the deferitazole program, but that "timelines ha[d] slipped significantly." JX-866 at 1. He stated: "You'll recall that the first milestone (initiation of a Phase 3 study, *now planned for mid-2016*) is deemed achieved on December 31, 2015 unless there has been a Fundamental Circumstance . . . . That provision is now implicated based on the current timelines." *Id.* at 1–2 (emphasis added). Henner replied: "Drug development at Shire

buttressed by general testimony that delays in drug development processes are commonplace.[347]

For their second argument—that a later Fundamental Circumstance could independently prevent the initiation of Phase III clinical trials—Defendants rely on the plain meaning of the phrase "other than as a result of a Fundamental Circumstance." Defendants contend that this language compels the conclusion that, if "a Fundamental Circumstance occurred that would have been independently sufficient to result in a delay of the initiation of Phase III clinical trials . . . , it would extinguish Shire's obligation to pay."[348] Taken to its logical extremes, under Shire's interpretation, Shire could have done nothing to develop deferitazole, but if a Fundamental Circumstance precipitated, Shire would be excused from making the milestone payment.

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looks to be glacially slow." *Id.* at 2. At trial, Henner explained: "Well, drug development . . . is an inherently risky process and goes through fits and starts, and sometimes things happen that make your initial plan change. But at this point, it appeared that the program was about two years behind what the initial estimates had been of when Phase III would have started." Trial Tr. at 331:16–22 (Henner).

[347] *See* Trial Tr. at 467:11–13 (Vickers) ("Delay is common. Well, there are challenges associated with . . . drug development which you need to overcome."); *id.* at 467:23–468:2 (Vickers) (responding "[y]eah" when counsel asked whether he would "agree that the problems that cause and increase delays happen more often than the challenges that result in the program speeding up"); Siegel Dep. Tr. at 65:16–23 (testifying that delay in drug development processes are "very common" and that he has "seen programs delayed six months, a year, two years, three years"); Trial Tr. at 331:24–332:3 (Henner) (confirming that "delays such as those [he] observed in the development of deferitazole" were common in drug development).

[348] Defs.' Opening Suppl. Br. at 1.

Plaintiff counters that the phrase "other than as a result of a Fundamental Circumstance" invites a but-for causation analysis and "means that Shire cannot be excused from its duty to pay . . . unless Shire demonstrates that, but for a Fundamental Circumstance, it would have initiated Phase III on or before December 31, 2015."[349] To Plaintiff, "[d]emonstrating only that a Fundamental Circumstance *could have* caused Phase III to be delayed beyond December 31, 2015 is not enough,"[350] and Defendants must demonstrate that the Fundamental Circumstance was the actual cause of the failure to initiate Phase III clinical trials.

The analysis starts with the text of the Merger Agreement. "When interpreting a contract, the Court will give priority to the parties' intentions as reflected in the four corners of the agreement."[351] "[B]ecause Delaware adheres to an objective theory of contracts, the contract's construction should be that which would be understood by an objective, reasonable third party."[352] Accordingly, "[t]he Court will interpret clear and unambiguous terms according to their ordinary meaning."[353] "Contract terms themselves will be controlling when they establish the parties'

[349] Pl.'s Opening Suppl. Br. at 10.

[350] *Id.* at 12.

[351] *GMG Cap. Invs., LLC v. Athenian Venture P'rs I, L.P.*, 36 A.3d 776, 779 (Del. 2012).

[352] *Leaf Invenergy Co. v. Invenergy Renewables LLC*, 210 A.3d 688, 696 (Del. 2019).

[353] *GMG Cap.*, 36 A.3d at 780.

common meaning so that a reasonable person in the position of either party would have no expectations inconsistent with the contract language."[354]

The parties' dispute again finds itself centered on the meaning of the clause "other than as a result of a Fundamental Circumstance." For the purpose of this discussion, two portions of this clause inform its meaning: (i) "other than," and (ii) "as a result of." The plain meaning of the phrase "other than" is "with the exception of" or "except for."[355] Put differently, the phrase signals an exception. The plain meaning of the phrase "as a result" is "because of something."[356]

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[354] *Id.* (quoting *Eagle Indus., Inc. v. DeVilbiss Health Care, Inc.*, 702 A.2d 1228, 1232 (Del. 1997)).

[355] *Other Than,* Merriam-Webster, https://www.merriam-webster.com/dictionary/other%20than (last visited October 12, 2020); *see, e.g.*, *Bathla v. 913 Market, LLC*, 200 A.3d 754, 761 (Del. 2018) (interpreting a contract and explaining: "Section 2.3 requires [the defendant] to convey title 'free and clear of all liens and encumbrances *other than* real and personal property taxes not yet due and payable and the Permitted Exceptions (hereinafter defined).' In other words, [the defendant] must convey title without any liens or encumbrances on the property, *except for* certain liens and encumbrances that the parties have decided are acceptable." (emphasis added)); *Trunkline Gas Co. v. Miss. State Tax Comm'n*, 119 So. 2d 378, 379 (Miss. 1960) (interpreting the words "other than" in a Mississippi statute "to have the identical meaning as the word 'except'"); *Sullivan v. Ward*, 24 N.E.2d 672, 673 (Mass. 1939) (interpreting a Massachusetts statute and observing that the words "'other than' . . . have the same legal effect" as the word "except").

[356] *As A Result*, Merriam-Webster, https://www.merriam-webster.com/dictionary/as%20a%20result#:~:text=%3A%20because%20of%20something%20He%20sprained,of%20work%20for%20three%20months (last visited October 12, 2020); *see, e.g.*, *United States v. Sandlin*, 589 F.3d 749, 757 (5th Cir. 2009) (interpreting a federal statute and analogizing the "as a result of" language therein to the phrase "because of").

Piecing it together, the phrase calls on the court to answer the following questions: Did Shire fail to initiate Phase III clinical trials on or before December 31, 2015 because of a Fundamental Circumstance? If the answer is yes, then Shire's payment obligation is excused. Because the clause is cast as an exception, the converse question becomes equally informative: Did Shire fail to initiate Phase III clinical trials on or before December 31, 2015 because of anything except for a Fundamental Circumstance? If the answer to this question is yes, then Shire's payment obligation is not excused. In other words, if the delay would have transpired notwithstanding the absence of the Fundamental Circumstance Shire claims to have occurred, Shire's payment obligation remains intact.[357]

[357] This interpretation is also supported by the "but-for" causation analyses applied by courts interpreting similar language, albeit in different contexts. *See, e.g.*, *Finocchiaro v. D.P., Inc.*, 2006 WL 3873257, at *2, *6 (Del. Super. Dec. 29, 2006) (interpreting a Delaware statute limiting an employee's entitlement to workers' compensation if the employee is "injured as a result of [his] own intoxication" and concluding that the statute required the employer to establish that "intoxication was a 'but for' cause of the accident which led to the injury"); *State v. Richardson*, 245 S.E.2d 754, 762–63 (N.C. 1978) (interpreting a North Carolina statute requiring the suppression of evidence "obtained as a result of" of police misconduct and concluding that such statutory language "require[s], at a minimum," a but-for causal relationship between the police misconduct and the collection of the evidence sought to be suppressed); *cf. Burrage v. United States*, 571 U.S. 204, 214 (2014) (interpreting the federal Controlled Substances Act and stating: "[I]t is one of the traditional background principles against which Congress legislate[s] that a phrase such as 'results from' imposes a requirement of but-for causation."). Under Delaware's formulation of but-for causation, "[t]he defendant's conduct is a cause of the event if the event would not have occurred but for that conduct; conversely, the defendant's conduct is not a cause of the event, if the event would have occurred without it." *Culver v. Bennett*, 588 A.2d 1094, 1097 (Del. 1991).

Three aspects of the contractual scheme further support this interpretation of Section 2.9.(f).[358] First, the economic terms of the Merger Agreement called for former FerroKin equityholders to receive approximately $320 million in Merger consideration.[359] That consideration was structured in terms of one up-front $95 million payment and up to $225 million in post-closing milestone payments.[360] Under this scheme, approximately seventy percent of the total Merger consideration was deferred post-close. Second, Section 2.9(g) of the Merger Agreement broadly gave Defendants "the right, in their sole and absolute discretion, to direct and control the development, commercialization, manufacture, marketing, distribution and selling of [deferitazole] in all respects, including the determination . . . to make any strategic product portfolio decisions affecting [deferitazole]."[361] Third, Section 2.9(g) also emphasizes that no provision of the Merger Agreement "shall be construed to impose upon [Shire] any express or implied obligation, duty or

[358] *GMG Cap.*, 36 A.3d at 779 ("In upholding the intentions of the parties, a court must construe the agreement as a whole, giving effect to all provisions therein." (quoting *E.I. du Pont de Nemours & Co. v. Shell Oil Co.*, 498 A.2d 1108, 1113 (Del. 1985))); *HUMC Holdco, LLC v. MPT of Hoboken TRS, LLC*, 2020 WL 3620220, at *6 (Del. Ch. July 2, 2020) (describing the "whole-text canon," which "stems from the theory that context is the primary determinant of meaning").

[359] PTO ¶ 26.

[360] *Id.*

[361] JX-241 § 2.9(g), at 28 (emphasis added).

expectation to test, develop, pursue, market, make any regulatory filings or seek any Regulatory Approvals with respect to, or otherwise advance [deferitazole].[362]

Read together with the text of Section 2.9(f), these aspects of the Merger Agreement indicate that Section 2.9(f) is a FerroKin-friendly backstop. Section 2.9(f) requires generally that the Initiation of Phase III Clinical Trial Milestone "be deemed to have been achieved" on December 31, 2015, even "in the event that [Shire] has not achieved [it]."[363] Given that (i) payment of the bulk of the Merger consideration was deferred post-close, (ii) Shire wielded control over "all respects" of the drug development and commercialization process, and (iii) there was no obligation, duty or expectation imposed on Shire to advance deferitazole in any way, it makes sense that Section 2.9(f) provides Shire with only a narrow escape.

Shire's failure to initiate Phase III clinical trials by December 31, 2015 did not come "as a result of" a Fundamental Circumstance. As discussed above, the record reflects that by the time Shire received the RatCarc Study results, Shire had already made decisions—the decision to switch to twice-daily dosing in Study 203 and the Pipeline Committee's decision to delay the start of Study 204—that delayed the initiation of Phase III clinical trials to May 2016.[364] In other words, even in the

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[362] *Id.*

[363] *Id.* § 2.9(f), at 27.

[364] Defendants do not assert that a Fundamental Circumstance occurred prior to these decisions being made.

absence of the Fundamental Circumstance Defendants claim to have occurred, Phase III clinical trials would still have been delayed past December 31, 2015.

In support of a contrary outcome, Defendants claim that this reading of Section 2.9(f) would render Section 2.9(b) of the Merger Agreement "unworkable."[365] The portion of Section 2.9(b) upon which Defendants focus provides:

> [I]n the event that there occurs a Fundamental Circumstance, but [Shire] pursues development of an Alternative Covered Product that constitutes a Covered Product, then any remaining Milestone Payments that first become due and payable following the occurrence of such Fundamental Circumstance shall be one-half (1/2) the applicable amount set forth in the table above.[366]

To Defendants, "if Shire elected to develop an Alternative Covered Product, as provided for in Section 2.9(b), [Plaintiff's] . . . interpretation would require Shire to pay the full amount of the milestone payment regardless of whether Shire ever initiated Phase III clinical trials, as opposed to half of the amount upon initiation of Phase III clinical trials, as Section 2.9(b) specifies."[367]

Defendants' reading of Section 2.9(b) is unreasonable. If Shire's failure to initiate Phase III clinical trials by December 31, 2015 was as a result of a

[365] Defs.' Opening Suppl. Br. at 9.

[366] JX-241 § 2.9(b), at 25.

[367] Defs.' Opening Suppl. Br. at 9.

Fundamental Circumstance, then the Initiation of Phase III Clinical Milestone would not be deemed achieved under Section 2.9(f), regardless of whether Shire elected to develop an Alternative Covered Product. By contrast, if Shire's failure to initiate Phase III clinical trials by December 31, 2015 was not as a result of a Fundamental Circumstance, then the Initiation of Phase III Clinical Milestone would be "deemed achieved" under Section 2.9(f), and one of two payment scenarios could kick in: (1) a scenario in which Shire elects to develop an "Alternative Covered Product," or (2) a scenario in which Shire does *not* elect to develop an "Alternative Covered Product." In the former scenario, Section 2.9(b) would require Shire to pay only one-half of the Initiation of Phase III Clinical Trial Milestone. In the latter scenario—which is the scenario here—Section 2.9(b) has no application, and Shire would be required to pay the full amount of the Initiation of Phase III Clinical Trial Milestone payment. Shire's attempt to manufacture inconsistencies in the provisions of Section 2.9 fails.[368]

Because Shire has not met its burden of proving that its failure to initiate Phase III clinical trials by December 31, 2015 was "as a result of a Fundamental

[368] In any event, Section 2.9(f) contains a "notwithstanding" clause. Its mandate survives "[n]otwithstanding anything else in [the Merger Agreement] to the contrary." JX-241 § 2(f), at 25. Thus, even if it were to somehow conflict with Section 2.9(b)—it does not—Section 2.9(f) would prevail.

Circumstance," Shire must make the $45 million Initiation of Phase III Clinical Trial Milestone payment pursuant to Section 2.9(a) of the Merger Agreement.

Plaintiff is also entitled to interest on the First Milestone Payment calculated in accordance with Section 2.9(a) of the Merger Agreement. The parties shall confer on the precise calculation of the interest due and submit any disputes to the Court.[369]

B. Attorneys' Fees

In its Second Cause of Action, Plaintiff requests reasonable attorneys' fees and costs in connection with this lawsuit under Section 10.3 of the Merger Agreement.[370] Section 10.3 of the Merger Agreement, captioned "Costs and Attorneys' Fees," provides:

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[369] Section 2.9(a) entitles Plaintiff to interest on the $45 million Initiation of Phase III Clinical Trial Milestone payment calculated as follows:

> [I]n the event that [Shire] fails to deliver timely notice of a Milestone Triger Event to the Equityholders' Representative or fails to deposit any Milestone Payment, in each case in accordance with this Section 2.9(a), then the applicable Milestone Payment shall bear interest from the date upon which such Milestone occurred until the date of deposit with the Equityholders' Representative or its designated agent at a rate per annum equal to (i) the prime rate as published in the Wall Street Journal, Eastern Edition in effect from time to time during such period plus (ii) one percent (1%).

JX-241 § 2.9(a), at 25; *accord.* PTO ¶ 34; *see also id.* ¶ 82 (stipulating that "[a]pplying the interest rate set forth in Section 2.9(a) of the Merger Agreement, the interest on the $45 million [Initiation of Phase III Clinical Trial Milestone] is approximately $9.0 million from January 1, 2016 through June 30, 2019, and is projected to be approximately $10.8 million from January 1, 2016 through December 31, 2019, assuming the applicable prime rate stays relatively stable").

[370] PTO ¶ 87; Pl.'s Opening Post-Trial Br. at 64 n.14.

> [I]n the event that any action, suit or other proceeding is instituted concerning or arising out of this Agreement, the prevailing party shall recover all of such party's costs and reasonable attorneys' fees incurred in connection with each and every such action, suit or other proceeding, including any and all appeals and petitions therefrom.[371]

In the Pre-Trial Order, the parties stipulated to the fact that Section 10.3 is implicated "in the event that litigation *such as this lawsuit* is instituted."[372] Because Plaintiff has prevailed in this action, Plaintiff is entitled to "recover all of [Plaintiff's] costs and reasonable attorneys' fees incurred in connection with" this action.[373]

III. CONCLUSION

For the foregoing reasons, judgment is entered in favor of Plaintiff. The parties shall confer on a form of order implementing this decision. If an agreement cannot be reached as to an amount of interest or fees to include in the form of order, the parties shall confer on an appropriate means of presenting those issues to the court for resolution.

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[371] JX-241 § 10.3, at 71–72.

[372] PTO ¶ 35 (emphasis added).

[373] JX-241 § 10.3, at 71–72.