Federal Court Cour fédérale

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Dockets: T-896-19
T-897-19
T-898-19
T-899-19

Citation: 2021 FC 384

Ottawa, Ontario, May 12, 2021

PRESENT: The Honourable Mr. Justice Manson

BETWEEN:

HOFFMANN-LA ROCHE LIMITED AND INTERMUNE, INC.

Plaintiffs

and

SANDOZ CANADA INC.

Defendant

JUDGMENT AND REASONS

Contents

I. Introduction

[1] This proceeding involves four patent infringement actions (T-896-19, T-897-19, T-898-19 and T-899-19), under subsection 6(1) of the *Patented Medicines (Notice of Compliance) Regulations*, SOR/93-133 [the "*Regulations*"].

[2] The Plaintiff Hoffmann-La Roche Limited is a “first person” under the *Regulations*. It is a Canadian corporation, which markets and distributes pirfenidone capsules and tablets, under the brand name ESBRIET® [respectively, “ESBRIET Capsules” and “ESBRIET Tablets”].

[3] The Plaintiff InterMune, Inc. [InterMune] is the owner of Canadian Patents Nos. 2,667,654 [654 Patent] and 2,709,997 [997 Patent] and is a party to this action under subsection 6(2) of the *Regulations*. It is a corporation pursuant to the laws of Delaware in the United States of America.

[4] The Defendant Sandoz Canada Inc. [Sandoz] has an office located in Boucherville, Quebec. It is seeking approval to sell its own pirfenidone capsules and tablets in Canada [the “Sandoz Products”], based on a comparison to ESBRIET.

[5] The Plaintiffs [collectively, “Roche”] claim that the making, using, importing, offering for sale, selling and/or exporting of Sandoz’s pirfenidone tablet [the “Sandoz Tablet”] and capsule [the “Sandoz Capsule”], and that in accordance with Sandoz’s Abbreviated New Drug Submissions [the “Sandoz ANDSs”], will infringe and/or induce infringement of the 654 and 997 Patents.

[6] Sandoz challenges both the claim of infringement and the validity of the 654 and 997 Patents. Collectively, Sandoz asserts the following basis of invalidity for either the 654 or 997 Patent: anticipation (654 Patent only), double patenting (997 Patent only), obviousness,

unpatentable subject matter/method of medical treatment, lack of utility/lack of sound prediction, insufficiency of disclosure, overbreadth, and/or ambiguity (654 Patent only).

II. Background

A. *The 654 and 997 Patents*

[7] The 654 and 997 Patents are listed on the Patent Register. They generally relate to the use of pirfenidone in the treatment of idiopathic pulmonary fibrosis [IPF].

[8] The 654 Patent, entitled "Method of Providing Pirfenidone Therapy to a Patient", claims the use of pirfenidone in a dose escalation regimen that eliminates or minimizes adverse events. It has 32 claims.

[9] The 654 Patent was issued to InterMune on December 13, 2016 from an application having a filing date of December 18, 2007. It was published on June 26, 2008 and claims priority from United States application (US 60/870,593), filed on December 18, 2006.

[10] The 997 Patent, entitled "Pirfenidone Treatment for Patients with Atypical Liver Function" claims the use of a full therapeutically effective dose of pirfenidone to a patient, after this patient has exhibited a grade 2 abnormality in one or more biomarkers of liver function, following treatment with pirfenidone. The 997 Patent has 11 claims.

[11] The 997 Patent was issued to InterMune on March 27, 2012 from an application having a filing date of November 9, 2009. The application of the 997 Patent was published on May 14, 2010 and claims priority from United States applications (US 61/113,107, US 12/428,393, US 12/488,228, US 61/228,943, US 12/553,292), the earliest of which was filed on November 10, 2008.

B. *Treatment of Idiopathic Pulmonary Fibrosis*

[12] IPF is a rare, chronic and incurable lung disease. It is characterized by progressive scarring (or fibrosis) of the lungs, but of an unknown (or idiopathic) cause. This fibrosis stiffens the inner lung walls and widens the distance between the air pockets in the lungs and the blood stream. Overtime, this reduces the oxygen supply to the IPF patient's body. IPF patients progressively lose lung function until death, typically within 3 to 5 years, or a successful lung transplant.

[13] In 2012, pirfenidone, marketed as ESBRIET, became the first drug in Canada approved for the treatment of IPF. It was made available to IPF patients in 2013. Its role is to improve progression-free survival of patients with this chronic lung disease.

C. *Initiation of the Current Actions*

[14] As referenced above, Roche markets and sells ESBRIET Capsules (267 mg) and ESBRIET Tablets (267 mg and 801 mg). Sandoz seeks approval for the Sandoz Products from Health Canada for the same indications as ESBRIET and on the basis of a comparison to

ESBRIET, as specified in the Sandoz ANDSs. The Sandoz Capsules will be available in a strength of 267 mg. The Sandoz Tablets will be available in strengths of 267 mg and 801 mg.

[15] Sandoz further will have a Patient Support Program [the "Sandoz PSP"] that offers services to patients that are taking the Sandoz Products, including reimbursement navigation, financial assistance, clinical support, educational support and co-ordination for patients. Sandoz's current intention is that any patient enrolled in the Sandoz PSP will be enrolled through their healthcare professional. Sandoz will further make the Sandoz Product Monographs [Sandoz PMs], a Healthcare Professionals Checklist [HCP Checklist] and a Patient Brochure available on a website and to physicians and pharmacists, through its PSP [the "Sandoz Materials"].

[16] Sandoz served Roche with four Notices of Allegation [NOAs] pursuant to the *Regulations*, dated April 16, 2019, which led to the commencement of these actions.

D. *Prior Art*

[17] Several prior art references have been relied upon by Sandoz in attacking the validity of the 654 and 997 Patents, including academic articles, a patent, website printouts, a drug label and industry guidance. For clarity, prior art has been labeled throughout this decision generally using keywords and the year, as consistently used by the parties. The alleged prior art, as listed in chronological order, includes: Raghu 1999, Walker&Margolin 2001, Bowen 2003, Azuma 2005, ClinicalTrials.gov 2006, Babovic-Vuksanovic 2006, FDA Guidance for Industry 2007, 646 Patent (2007), Pirespa Label 2008. The prior art is described in greater detail below, in the relevant sections related to validity. A complete list of references is included in Appendix A.

[18] Sandoz further relies on several additional studies as part of its validity attack, specific to its obvious to try argument related to the 654 Patent. These studies concern the actual course of conduct of the named inventor and of other third parties regarding pirfenidone. In light of my findings on obviousness below, these additional studies do not change the result and need not be discussed further.

III. Issues

[19] The parties have filed a Joint Statement of Issues:

i. What is the proper claim construction of the 654 Asserted Claims 1, 3, 5, 7, 8, 10, 12 and 14 to 18 and 997 Asserted Claim 11, as dependent on claim 10, which is further dependent on claims 1 to 9?

ii. Did Sandoz directly infringe and/or induce infringement by others in respect of the Sandoz Capsules (T-896-19, T-898-19) and Sandoz Tablets (T-897-19, T-899-19)?

iii. Are the 654 Asserted Claims 1, 3, 5, 7, 8, 10, 12 and 14 to 18 and the 997 Asserted Claim 11 (as dependent on claim 10) invalid on the basis of anticipation (654 Patent only), double patenting (997 Patent only), obviousness, unpatentable subject matter/method of medical treatment, lack of utility/lack of sound prediction, insufficiency of disclosure, overbreadth, and/or ambiguity (654 Patent only)?

iv. What is the appropriate remedy?

v. What costs should be awarded?

IV. Summary of Results

[20] In summary, my conclusions are as follows:

i. Sandoz will not directly infringe the 654 Asserted Claims 1 , 3, 5, 7, 8, 10, 12 and 14 to 18 or the 997 Asserted Claim 11;

ii. Sandoz will induce infringement of the 654 Asserted Claims 1, 3, 5, 8, 10, 12 and 14 to 17;

iii. Sandoz will not induce infringement of the 654 Asserted Claims 7 and 18;

iv. Sandoz will not induce infringement of the 997 Asserted Claim;

v. The 654 Asserted Claims are not invalid on the basis of anticipation;

vi. The 997 Asserted Claim is invalid on the basis of obviousness double patenting;

vii. The 654 and 997 Asserted Claims are invalid on the basis of obviousness;

viii. The 654 and 997 Asserted Claims are invalid as methods of medical treatment; and

ix. Invalidity of the 654 and 997 Asserted Claims has not been established on the basis of: (i) utility; (ii) over claiming; (iii) insufficiency; or (iv) ambiguity (654 Patent only).

V. Expert Witnesses

A. *Roche's Experts*

(1) Dr. Martin Kolb

[21] Dr. Kolb is a practicing clinical respirologist at St. Joseph's Healthcare in Hamilton, Ontario. He is also the Division Director for Respirology in the Department of Medicine and the Moran Campbell Chair in Respirology Medicine at McMaster University. Dr. Kolb is a researcher, with a focus on IPF.

[22] Dr. Kolb received his Doctor of Medicine from Julius-Maximillian University of Würzburg in 1992. He further received an Acknowledgement of Internal Medicine Specialty and an Acknowledgement of Respiratory Medicine Specialty from the Bavarian Medical Association in 2002. He also obtained a Privatdozent (equivalent to a PhD) in 2003 from Julius-Maximillian University.

[23] Dr. Kolb runs a specialty clinic, the Interstitial Lung Disease [ILD] Clinic at the Firestone Institute for Respiratory Health [Firestone Institute]. Dr. Kolb is also the Research Director at the Firestone Institute. The ILD Clinic is one of the highest volume clinics for ILD patients in Canada, including IPF patients. Dr. Kolb estimates that he has seen and treated over a thousand patients with IPF, including several hundred with pirfenidone, since 2004.

[24] In these actions, Dr. Kolb was qualified as a practicing clinical respirologist and researcher with expertise in: (i) the diagnosis, management and treatment of respiratory conditions including IPF, including the management of adverse effects of drug therapies; and (ii) the development of treatments, including involvement in clinical trials of therapies for IPF.

[25] Dr. Kolb authored four expert reports which, in broad terms, addressed his claim construction, infringement and responding validity mandates.

[26] Dr. Kolb was a credible witness. Dr. Kolb's previous and ongoing work with InterMune and Hoffmann-La Roche Limited has not impacted his ability to assist this Court impartially. On cross-examination, Dr. Kolb reconciled discrepancies between his current opinion on the described climate surrounding IPF treatment in 2006 and 2008 and his own publications, which were more contemporaneous to the relevant dates in this action. His reconciliation of these differences did not impact his overall credibility. However, any inconsistency has been assessed and weighted accordingly below.

(2) W. Neil Palmer

[27] Mr. Palmer is the Founder, Senior Strategic Adviser and President Emeritus of PDCI Market Access Inc. [PDCI], an Ottawa-based pricing and reimbursement consultancy for pharmaceutical companies, established in 1996. Mr. Palmer has worked in the field of health care utilization and costs for more than 30 years (1988 to 2020).

[28] Mr. Palmer was qualified as a pharmaceutical industry consultant with expertise in the Canadian pharmaceutical marketplace, in particular, pharmaceutical product pricing and market access, such as price regulation, reimbursement policies (including in relation to products with restricted listings, for example, exceptional access products), interchangeability, and the listing of drug products on public and private drug plan formularies.

[29] Mr. Palmer provided a general description of the pharmaceutical marketplace in Canada and of the reimbursement regimes relevant to pirfenidone. He opined that the Sandoz Products would be funded based on the same criteria as ESBRIET, at a lower cost, and would be designated as interchangeable with ESBRIET.

[30] On cross-examination, Mr. Palmer admitted that he has no experience in the preparation of PMs. He further acknowledged that a generic drug price could be the same, lower or higher than the net price for a brand name drug, after rebates.

(3) Slava Zlydennyy

[31] Mr. Zlydennyy has been a practicing pharmacist for over 12 years. He graduated with a Bachelor of Science in Pharmacy from the University of Toronto in 2007. Mr. Zlydennyy has worked at the Markland Wood Pharmacy, his main practice site, since 2008. He is further involved in the teaching and training of pharmacy students.

[32] Mr. Zlydennyy was qualified in these actions as a registered pharmacist with the Ontario College of Pharmacists, with expertise in the community pharmacy practice in Ontario, including the dispensing of medications and counselling patients regarding the same.

[33] Mr. Zlydennyy provided an overview of the steps a community pharmacist would take upon receiving a prescription to dispense a drug to a patient. He further described the interchangeability and substitution policies that apply to dispensing generic drugs in Ontario. Mr. Zlydennyy opined that a pharmacist would typically dispense the lower cost generic drug product, notably the Sandoz Products, assuming that: (1) ESBRIET Capsules and Tablets are interchangeable with the Sandoz Capsules and Tablets; (2) the Sandoz Products will be reimbursed by public and private drug plans for the same criteria as ESBRIET; and (3) the Sandoz Products will be the lower cost product. Mr. Zlydennyy's opinion does not change if the assumptions further include the presence of patient support programs for the Sandoz Products and ESBRIET.

[34] It is Mr. Zlydennyy's opinion that most community pharmacists would have no prior experience with dispensing pirfenidone when the Sandoz Products are launched. He believes that many pharmacists (especially those that are not familiar with pirfenidone) would review the Sandoz PMs, Sandoz HCP Checklist and Sandoz Patient Brochure prior to dispensing the Sandoz Products.

[35] While Mr. Zlydennyy was a credible witness, I have considered several limitations with his evidence: Mr. Zlydennyy has no particular experience with dispensing pirfenidone and his scope of expertise was limited to the community pharmacy setting in Ontario.

B. *Sandoz's Experts*

(1) Susanne Picard

[36] Ms. Picard is an occasional replacement pharmacist and the President of SPharm Inc., which she founded in 2000. SPharm Inc. provides regulatory consulting services, including to the pharmaceutical industry. Ms. Picard was awarded a Bachelor Degree of Pharmacy (1990) and a Masters in Hospital Pharmacy (1991) from the University of Montreal.

[37] Ms. Picard was qualified as a regulatory consultant in the pharmaceutical industry with expertise in Canadian pharmaceutical regulatory affairs, including: (i) the preparation and filing of various regulatory submission types, including New Drug Submissions and Abbreviated New Drug Submissions with Health Canada, including the preparation of PMs for brand name and generic drugs; (ii) the relevant regulations and guidelines for preparing PMs; and (iii) Health

Canada's regulatory approval process for brand name and generic products. The parties agreed that Ms. Picard's expert report would be taken as evidence in these proceedings, without oral testimony.

[38] Ms. Picard opined that Health Canada would not have allowed Sandoz to omit or remove from the Sandoz PMs the following information, provided in the ESBRIET PM: (i) "Indications and Clinical Use"; (ii) "Skin" under "Warnings and Precautions"; (iii) "Recommended Dose and Dosage Adjustment" and "Recommendations in Case of ALT, AST, Bilirubin Elevations" under "Dosage and Administration"; and (iv) "Usual adult dose" under "Part III: Consumer Information". In Ms. Picard's opinion, it would have been necessary for Sandoz to include the same clinical information in the Sandoz PMs as provided in the ESBRIET PM in order for Sandoz to receive a Notice of Compliance from Health Canada for pirfenidone.

(2) Dr. R. Andrew McIvor

[39] Dr. McIvor is a staff respirologist at the Firestone Institute, St. Joseph's Healthcare and a Professor of Medicine at McMaster University since 2005. Dr. McIvor obtained a Bachelor of Medicine, of Surgery, and of Obstetrics from Queen's University [Queen's] in Belfast, Northern Ireland in 1984. He further received a Doctor of Medicine degree from Queen's in 1994.

[40] Dr. McIvor is an author, contributor and editor and is involved in teaching. He has previously held medical practices in Toronto and Halifax from 1994 to 2005, and has prior teaching experience from the University of Toronto and Dalhousie University. Dr. McIvor estimates that he has treated approximately 300 patients with IPF.

[41] Dr. McIvor was qualified as a practicing clinical respirologist and researcher with expertise in: (i) the diagnosis, management and treatment of respiratory conditions, including IPF, including the management of adverse effects of drug therapies; and (ii) the development of treatments including involvement in clinical trials of therapies for IPF.

[42] Dr. McIvor's mandates include, in broad terms, his opinions on construing the 654 and 997 Asserted Claims, validity and non-infringement.

[43] Overall, Dr. McIvor was a credible witness, although his testimony was weighted having regard to raised inconsistencies and overstatements. For example, he acknowledged during cross-examination that he had no personal knowledge of the number of IPF patients being treated at the IDL Clinic, despite offering an assumption to this effect. Considering the relative rarity of IPF as a chronic lung disease, I do not find that Dr. McIvor's current practice and research, which focus on areas other than IPF, adversely affect the weight of his opinion other than as specifically indicated below.

VI. Fact Witnesses

A. *Roche's Witnesses*

(1) Robert James Aleksandr Baker

[44] Mr. Baker is an articling student with counsel for Roche. He was asked to undertake two tasks involving the tallying of the number of patients who were recorded to have experienced

photosensitivity reactions or rashes in InterMune's CAPACITY clinical trials. To complete these tasks, he wrote a Python application. For the reasons stated below, this evidence can be given no weight.

(2) Dr. Williamson Bradford

[45] Dr. Bradford is the named inventor of the 654 Patent and a co-inventor of the 997 Patent. Dr. Bradford has an MD from the University of North Carolina and a PhD in epidemiology from Berkeley School of Public Health. He joined InterMune around 2001 to lead the IPF program and has previous drug development industry experience. Dr. Bradford and his team were responsible for the design of the CAPACITY studies, two phase III studies of pirfendidone in IPF. Dr. Bradford testified about InterMune's IPF program, including his work on pirfenidone and the course of conduct leading to the inventions of the 654 and 997 Patents.

[46] Dr. Bradford was a challenging witness. While his recollection of documents led in chief remained relatively intact, Dr. Bradford claimed an imperfect memory in relation to those documents led in cross-examination. He was obstructionist at times and attempted to anticipate counsel's direction in asking questions during cross-examination, which resulted in evasiveness and a failure to answer straight-forward questions. He had to be reminded by the Court that his role was to answer those questions posed by counsel to the best of his abilities. Dr. Bradford failed to recognize the 654 and 997 Patents in issue, in respect of which he is a named inventor. Overall, his evidence can be given limited weight.

B. *Sandoz's Witness*

(1) Kim Ly

[47] Ms. Ly is a law clerk with counsel for Sandoz. Her affidavit introduced various webpages from clinicaltrials.gov and www.internetarchive.com (Internet Archive / Wayback Machine), in an effort to demonstrate how certain information was obtained on these websites regarding the listing of a phase III study of pirfenidone in IPF patients, sponsored by InterMune. Ms. Ly's evidence is inadmissible in these proceedings for the reasons stated below.

VII. Evidentiary Issues

[48] The parties seek to introduce evidence from their respective counsel's firms. They each submit that such evidence is admissible in the case of non-controversial or objective matters. However, the evidence the parties seek to introduce in this case, through their respective law firms, relates to the probative value of the prior art. The evidence of both Ms. Ly and Mr. Baker fail to meet the requirements of the best evidence rule, and on the basis of the reasons below, are respectively inadmissible or should be given no weight in this case.

A. *Ms. Ly's Evidence*

[49] During the proceeding, Roche objected to the admissibility of Ms. Ly's affidavit and testimony. Ms. Ly's evidence was put forward in order to establish the authenticity of a printout, ClinicalTrials.gov 2006. ClinicalTrials.gov 2006 purports to be a website listing for a phase III

study of pirfenidone in IPF patients, sponsored by InterMune. It is entitled “Safety and Efficacy of Pirfenidone in Patients With Idiopathic Pulmonary Fibrosis”.

[50] Dr. McIvor relies on the printout of www.ClinicalTrials.gov 2006 as he understands it would have appeared on October 9, 2006, as prior art, which he claims would have formed part of the state of the art. Ms. Ly’s evidence was intended to support the admissibility of this printout, by providing evidence regarding how the information was obtained via www.clinicaltrials.gov and www.internetarchive.com, using Wayback Machine.

[51] Sandoz submits that Ms. Ly’s affidavit and testimony is objective evidence, which can be appropriately submitted by counsel. Sandoz asks this Court to also take notice of the asserted general reliability of using Wayback Machine and corroborative evidence offered by Ms. Ly. Further, Roche’s expert, Dr. Kolb, has responded to www.ClinicalTrials.gov 2006, rendering any admissibility concerns irrelevant.

[52] While I note the case law suggesting that Wayback Machine is generally reliable for retrieving information indicating the state of a website in the past, Sandoz has failed to establish the authenticity of the printout in this case, pursuant to section 31.1 of the *Canada Evidence Act*, RSC, 1985, c C-5 [*Canada Evidence Act*]. Ms. Ly had never worked for Internet Archive, nor has any experience in web-based archiving. She retrieved the printout as instructed by counsel for Sandoz. On cross-examination, the evidence demonstrated that the information contained in the printout was captured at different points in time. As such, the October 9, 2006 date could not

be established. Further, it could not be established that the prior art, as contained in the printout, was publicly available at the relevant time.

[53] Further, Sandoz has failed to meet the requirements of the best evidence rule in section 31.2 of the *Canada Evidence Act* and Rule 81 of the *Federal Courts Rules,* SOR/98-106. The affidavits of law clerks do not meet the requirements of Rule 81. No reasoning was provided as to why a witness from InterMune was not called to testify to this fact in issue, at the time the evidence was entered and submissions were heard. Sandoz attempted to submit reasoning after the fact, which is not accepted by this Court (*ME2 Productions, Inc v Doe*, 2019 FC 214 at paras 120-122).

[54] I do not accept Sandoz's argument that this evidence is objective and therefore appropriately submitted through counsel. Ms. Ly's affidavit and testimony is being proffered to establish the authenticity of prior art. For the reasons above, this evidence is inadmissible.

[55] Lastly, while I find it problematic that Dr. Kolb has addressed www.ClinicalTrials.gov 2006 in his responding expert report for the 654 Patent, I accept Roche's position that this was done under the assumption the Court may find that www.ClinicalTrials.gov 2006 was available on October 9, 2006 as shown on the printout.

B. *Mr. Baker's Evidence*

[56] Sandoz has objected in turn to the evidence of Mr. Baker, an articling student with counsel for Roche. Mr. Baker testified to a counting exercise he undertook in relation to documents in evidence. Specifically, the counting exercise related to the number of patients in InterMune's CAPACITY trials which experienced a photosensitivity reaction or rash. Instructions for this tallying exercise were initially devised by Dr. Kolb, who was asked by counsel for Roche whether it would be possible to assess the incidence of photosensitivity reaction adverse events in the treatment arms of both CAPACITY studies, prior to December 18, 2007. Dr. Kolb used the generated results of this exercise to conclude that, "[a]s compared to Raghu 1999 and Azuma 2005, which reported 24% and 43.8% photosensitivity rash, respectively, the incidence of photosensitivity reaction (including photosensitivity rash) in the CAPACITY studies was significantly reduced".

[57] Roche argues that Mr. Baker's affidavit is restricted to non-controversial matters. Mr. Baker did not interpret the documents in question, rely on hearsay or make any judgment call. Mr. Baker's counting exercise was further carried out on documents the parties had agreed were authentic and admissible and Sandoz was fully able to explore Mr. Baker's methods on cross-examination.

[58] I find that Mr. Baker's evidence should be given no weight owing to inaccuracies inherent in the tallying method used. On cross-examination, it became evident that differences in how photosensitivity reactions are recorded, possible spelling mistakes in the recorded

information and whether or not the reactions are attributed to pirfenidone could create inconsistencies in the tallies, as performed. Roche argues that the tallies are consistent with the final results reported after the completion of the CAPACITY trials, as noted by Dr. Kolb. I am not satisfied this establishes the reliability of this evidence in this case.

[59] Moreover, this evidence is inconsistent with the requirements of the best available evidence rule. I do not find that this evidence is "non-controversial". It is not properly submitted through counsel for Roche.

VIII. Claims Construction

[60] This Court must purposively construe the claims of the 654 and 997 Patents, defining the scope of the patent holder's monopoly (*Whirlpool Corp v Camco Inc*, 2000 SCC 67 at paras 43, 49 [*Whirlpool*]). This is a question of law, which precedes consideration of the issues of infringement and validity (*Whirlpool*, above at para 49(b)). The following principles further underlie the claim construction exercise (*Tearlab Corporation v I-MED Pharma Inc*, 2019 FCA 179 at paras 30-34; *Whirlpool* at paras 31, 49-55; *Free World Trust v Électro Santé Inc*, 2000 SCC 66 at paras 44-54 [*Free World Trust*]; *Consolboard Inc v MacMillan Bloedel (Sask) Ltd*, [1981] 1 SCR 504 at 520 [*Consolboard*]):

i. Claims are to be read in an informed and purposive way with a mind willing to understand, viewed through the eyes of the person of skill in the art [POSITA] as of the relevant date, having regard to the common general knowledge;

ii. Adherence to the language of the claims allows them to be read in the manner the inventor is presumed to have intended, and in a way that is sympathetic to accomplishing the inventor's purpose, promoting fairness and predictability;

iii. The whole of the specification should be considered to ascertain the nature of the invention, and the construction of the claims must be neither benevolent nor harsh, but should instead be reasonable and fair to both the patentee and the public; and

iv. On a purposive construction, the claim language may show that some elements are essential while others are non-essential. The identification of claim elements as essential or non-essential is made on the basis of the common general knowledge of the POSITA to whom the patent relates as of the relevant date.

[61] The parties disagree on two aspects of the claims construction: (i) whether the claims are purposively construed as "use" claims or are properly categorized as Swiss-style, German-style and product for use claims; and (ii) the construction of the term "incidence" in claims 7 and 18 of the 654 Patent.

[62] The relevant date for the purpose of claims construction is the respective publication dates, or June 26, 2008 for the 654 Patent and May 14, 2010 for the 997 Patent (*Whirlpool* at paras 53-54).

A. *Person of Skill in the Art*

[63] Each patent in issue is construed through the eyes of the POSITA, the notional person to whom the 654 and 997 Patents respectively relate. This person, while unimaginative and uninventive, has an ordinary level of competence and knowledge incidental to the field to which the patent relates and a mind willing to understand the specification addressed to them (*Free World Trust*, above at para 44).

[64] The parties and their experts disagree on how specialized the POSITA is in this person's understanding and involvement with IPF. Sandoz argues that the POSITA "could have been involved in a clinical trial as site investigators. *i.e.* executing a clinical trial designed by leading IPF experts". Roche, however, asks this Court to favour Dr. Kolb's evidence to the effect that in the 2006 to 2008 timeframe, IPF treatment was not as specialized as it is today, when the majority of patients at the time would have been seen by community respirologists or internists in remote areas.

[65] The parties and their experts unnecessarily emphasize the specialized nature of the POSITA. Based on the evidence, the experts have agreed to the qualifications of the POSITA, as follows:

i. The POSITA, in relation to the 654 and 997 Patents, is a physician, with specialized training in the treatment of respiratory disorders. This would include respirologists or internists in remote areas. The POSITA would further possess several years of practical experience treating IPF patients in a clinical setting.

However, considering the rarity of IPF, specific experience could be a relatively small portion of the POSITA's practice.

ii. As part of their experience with IPF, the POSITA would further be able to manage the possible side effects of available IPF therapies. This would include the management of drug-induced liver toxicity.

iii. While the skilled person would not be capable of designing IPF clinical trials, they would have generally been aware of such studies, as described in the common general knowledge section below.

[66] The parties agree that the characteristics of the POSITA are the same for both the 654 and 997 Patents.

B. *Common General Knowledge*

[67] The common general knowledge is derived from a common sense approach to the question of what would be known to an appropriately skilled person that could be found in real life, who is good at his or her job (*Eli Lilly and Company v Apotex Inc*, 2009 FC 991 at para 97, aff'd in 2010 FCA 240, citing *General Tire & Rubber Co v Firestone Tyre & Rubber Co*, [1972] RPC 457 (UKHL) at 482-483). Dr. Kolb did not dispute Dr. McIvor's description of the common general knowledge of the POSITA on the following aspects, in relation to the 654 and 997 Patents, which I accept as follows.

[68] The experts have opined on the POSITA's common general knowledge in 2006, 2008 and 2010. There were no changes to the POSITA's common general knowledge as it relates to this time period.

(1) IPF Treatment: 654 and 997 Patents

[69] As of 2006 and up to 2008, the common general knowledge included that IPF was an incurable disease, causing patients to progressively lose lung function. This usually occurred over the course of a few years, until death or a successful lung transplant. No drug had been proven to reverse or slow down the progression of IPF. However, during this time, prednisone-based combination therapy and supportive treatments remained the standard of care for IPF patients, although associated with considerable side effects.

[70] Pirfenidone was one of many IPF therapies under investigation. At the relevant time, pirfenidone was only available through a clinical trial and the results of its effectiveness were promising, but inconclusive. The POSITA would have been generally aware of any planned or ongoing phase III clinical trials of investigational drugs for IPF and curious about the main findings of published IPF study results.

(2) Managing Adverse Effects: 654 and 997 Patents

[71] As of 2006 and up to 2008, the POSITA would have been aware that patients were monitored for adverse effects (also called "side effects" or "adverse events") during clinical trials of investigational drugs used in the treatment of lung disease, including IPF. These adverse

effects were typically identified before a drug came to market and would be included in published clinical studies and drug labelling.

[72] Adverse effects could determine the standard dosing of a drug, creating an upper dosing limit in a drug's effective therapeutic range or "therapeutic window". To maximize efficacy, doses were often selected at or near the maximum-tolerated dose from clinical trials.

[73] Adverse effects were managed with varying strategies, depending on their type, for example, gastrointestinal [GI] upset, nausea, fatigue, drowsiness, dizziness, headache and photosensitivity rash. With the exception of photosensitivity rash, these adverse effects were relatively common.

[74] Administration strategies were known to reduce common adverse effects. However, they would be balanced with patient compliance considerations. These included: (i) administering smaller doses more frequently (although, 4 or more doses per day would be inconvenient for the patient); (ii) starting at a low dose and gradually increasing to the target dose (i.e. "dose escalation" to develop tolerance and reduce the likelihood of GI upset and nausea); (iii) reducing the dose; and (iv) administering the dose with food (although, this was not a uniformly applicable strategy). Photosensitivity was a less common drug adverse effect, which would have been managed by educating patients to avoid and protect themselves from prolonged sun exposure.

(3) Drug Induced Liver Toxicity: 997 Patent

[75] The common general knowledge in 2006 and up to 2008 also applies in 2010, in relation to the 997 Patent. In addition to the above, and specifically in relation to the 997 Patent, in 2008 and up to 2010, the POSITA would have been aware of the potential for pirfenidone to cause drug-induced liver toxicity. Elevations in liver biomarkers may be indicative of liver injury. These biomarkers include alanine transaminase [ALT] and/or aspartate transaminase [AST] and bilirubin, for example.

[76] Patients in clinical trials would have been monitored for symptoms of liver injury and regularly tested for elevations in liver biomarkers. If a patient presented with symptoms of liver dysfunction, such as jaundice or hepatitis, the patient would also be tested for elevations in liver biomarkers. The POSITA would have experience monitoring patients and treating drug-induced liver toxicity, using classification systems for elevations in liver biomarkers.

[77] Such classification systems would often grade elevations in liver biomarkers on a five-point scale, including grades: (0) normal, (1) mild, (2) moderate, (3) severe, (4) life-threatening, and (5) fatal. Grading designations were made by determining whether a patient's levels of liver biomarkers were within the "upper limit of normal" [ULN] or within certain multiples of the ULN.

[78] If a patient experienced an elevation in ALT and/or AST, the POSITA would have generally chosen from among the following strategies: (i) continue treatment at the same dose

(and monitor); (ii) reduce the dose (and monitor); (iii) temporarily stop the drug, and restart it when the biomarker returned to normal (i.e. re-challenging following a drug holiday); and/or (iv) permanently discontinue the drug. Determining which choice to make involved balancing the potential toxicity of the therapy (for which biomarkers would provide an estimate of the degree of risk) against the benefit of the drug.

(4) Prior Art

[79] The experts agree that two of the key referenced prior art formed part of the common general knowledge at the relevant time in relation to both the 654 and 997 Patents; Raghu 1999 and Azuma 2005, which are discussed below.

C. *Construction of the Asserted Claims*

(1) 654 Patent

[80] As it relates to the 654 Patent, Roche initially alleged infringement or induced infringement of claims 1, 3, 5, 7 to 8, 10, 12 and 14-32 (with some discrepancies in asserted claims between the T-896-19 and T-897-19 actions). However, at closing, the 654 Asserted Claims were reduced to independent claims 1, 3, 5, 8, 10 and 12 and dependent claims 7 and 14 to 18.

[81] Dr. Kolb and Dr. McIvor agree that the 654 Asserted Claims relate to a method of providing pirfenidone, a known compound, for the treatment of IPF in a patient. The independent

654 Asserted Claims 1, 3, 5, 8, 10 and 12 broadly relate to a dose escalation regimen of pirfenidone. The 654 Asserted Claims can be divided into two subsets, including those that specify certain limitations (claims 1, 3 and 5) and those that do not (claims 8, 10 and 12). They are reproduced for reference:

> 1. Use of pirfenidone in conjunction with food for treatment of idiopathic pulmonary fibrosis in a patient in need thereof, at a first oral daily dosage of 801 mg as one capsule comprising 267 mg of pirfenidone three times a day for seven days followed by a second oral daily dosage of 1602 mg as two capsules each comprising 267 mg of pirfenidone three times a day for a further seven days followed by a third oral daily dosage of 2403 mg as three capsules each comprising 267 mg of pirfenidone three times a day.
>
> …
>
> 3. Use of pirfenidone in the manufacture of a medicament for use for treatment of idiopathic pulmonary fibrosis in a patient in need thereof, in conjunction with food, wherein the medicament is for administration at a first oral daily dosage of 801 mg as one capsule comprising 267 mg of pirfenidone three times a day for seven days followed by a second oral daily dosage of 1602 mg as two capsules each comprising 267 mg of pirfenidone three times a day for a further seven days followed by a third oral daily dosage of 2403 mg as three capsules each comprising 267 mg of pirfenidone three times a day.
>
> …
>
> 5. Pirfenidone for use for treatment of idiopathic pulmonary fibrosis in a patient in need thereof, in conjunction with food, at a first oral daily dosage of 801 mg as one capsule comprising 267 mg of pirfenidone three times a day for seven days followed by a second oral daily dosage of 1602 mg as two capsules each comprising 267 mg of pirfenidone three times a day for a further seven days followed by a third oral daily dosage of 2403 mg as three capsules each comprising 267 mg of pirfenidone three times a day.
>
> …
>
> 8. Use of pirfenidone for treatment of idiopathic pulmonary fibrosis in a patient in need thereof, at a first oral daily dosage of 801 mg pirfenidone for seven days followed by a second oral daily

> dosage of 1602 mg pirfenidone for a further seven days followed by a third oral daily dosage of 2403 mg pirfenidone.
>
> …
>
> 10. Use of pirfenidone in the manufacture of a medicament for treatment of idiopathic pulmonary fibrosis in a patient in need thereof, wherein the medicament is for administration at a first oral daily dosage of 801 mg pirfenidone for seven days followed by a second oral daily dosage of 1602 mg pirfenidone for a further seven days followed by a third oral daily dosage of 2403 mg pirfenidone.
>
> …
>
> 12. Pirfenidone for use for treatment of idiopathic pulmonary fibrosis in a patient in need thereof, at a first oral daily dosage of 801 mg pirfenidone for seven days followed by a second oral daily dosage of 1602 mg pirfenidone for a further seven days followed by a third oral daily dosage of 2403 mg pirfenidone.

[82] The dependent 654 Asserted Claims add additional limitations related to the pirfenidone dose escalation regimen. Claims 7 and 18 relate to "photosensitivity reaction adverse events". Claim 7 is reproduced for reference:

> 7. The use of any one of claims 1-4 or the pirfenidone for use of any one of claims 5-6, which reduces the incidence of photosensitivity reaction adverse events.

[83] Dr. Kolb and Dr. McIvor agree that as of the publication date of June 26, 2008, all of the 654 Asserted Claims include the following dose escalation regimen:

i. A first oral daily dosage of 801 mg pirfenidone for seven days;

ii. Followed by a second oral daily dosage of 1602 mg pirfenidone for a further seven days; and

iii. Followed by a third oral daily dosage of 2403 mg pirfendione.

[84] Independent claims 1, 3 and 5 specify the additional limitations of use of pirfenidone with food and capsules comprising 267 mg pirfenidone, three times a day. Independent claims 8, 10 and 12 relate to oral dosages generally and do not specify a strength of capsule or administration in conjunction with food.

[85] Dependent claim 14 specifies that pirfenidone is to be administered with food; dependent claim 15 adds the limitation that the total daily dose is taken by the patient as multiple doses; dependent claim 16 adds that the total daily dose is taken as three divided doses; and dependent claim 17 adds the limitation that pirfenidone is taken as a capsule.

[86] Claims 7 and 18 further specify a reduction in "the incidence of photosensitivity reaction adverse events". Dr. Kolb and Dr. McIvor disagree on the appropriate comparator as it relates to a reduction in the "incidence" of this adverse effect. Dr. McIvor proposes that the reduction is in comparison to the *same patient*. Dr. Kolb opines that the skilled person would understand the word "incidence" to mean a comparison on a *population-wide* basis.

[87] I find that on the evidence, the term incidence is understood to refer to the number of new cases in a population. As such, the POSITA would understand the reduction in the "incidence" to refer to a reduction of photosensitivity reaction adverse events on a population-wide basis.

(2) 997 Patent

[88] The Asserted Claim for the 997 Patent is claim 11. Asserted Claim 11 is dependent on claim 10, which is further dependent on claims 1 to 9. The 997 Patent relates generally to pirfenidone therapy and abnormal liver function. Claims 11 and 10 provide:

> 11. The pirfenidone or use of claim 10, wherein the grade 2 abnormality is an abnormal level of alanine transaminase and/or aspartate transaminase that is elevated to greater than 2.5-fold and less than or equal to 5-fold increase compared to the upper limit of normal, after the pirfenidone administration.
>
> 10. The pirfenidone or use of any one of claims 1 to 9, wherein the one or more biomarkers of liver function is alanine transaminase and/or aspartate transaminase.

[89] Claims 1 to 6 are independent claims, which have been reproduced below:

> 1. Pirfenidone for use at a dose of 2403 mg/day for treatment of idiopathic pulmonary fibrosis (IPF) in a patient who has exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day.
>
> 2. Pirfenidone for use at a dose of 2400 mg/day for treatment of idiopathic pulmonary fibrosis (IPF) in a patient who has exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day.
>
> 3. Use of pirfenidone at a dose of 2403 mg/day in the manufacture of a medicament for treatment of idiopathic pulmonary fibrosis (IPF) in a patient who has exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day.
>
> 4. Use of pirfenidone at a dose of 2400 mg/day in the manufacture of a medicament for treatment of idiopathic pulmonary fibrosis (IPF) in a patient who has exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day.

> 5. Use of pirfenidone at a dose of 2403 mg/day for treatment of idiopathic pulmonary fibrosis (IPF) in a patient who has exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day.
>
> 6. Use of pirfenidone at a dose of 2400 mg/day for treatment of idiopathic pulmonary fibrosis (IPF) in a patient who has exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day.

[90] Claims 1, 3 and 5 address a dose of 2403 mg/day, while claims 2, 4 and 6 address a dose of 2400 mg/day. Dependent claims 7 to 9 further specify the following:

> 7. The pirfenidone or use of any one of claims 1 to 6, following discontinuance of the pirfenidone administration until the one or more biomarkers of liver function are within normal limits.
>
> 8. The pirfenidone or use of claim 7, wherein the discontinuance is about one week.
>
> 9. The pirfenidone or use of any one of claims 1 to 8, wherein the dose is divided for administration three times per day with food.

[91] Roche argues that Asserted Claim 11 is ultimately dependent from claims 1, 3 and 5. Dr. Kolb and Dr. McIvor generally agree that the POSITA would understand the 997 Asserted Claim 11, as of May 14, 2010, and as dependent on claims 10, 1, 3 or 5 to relate to pirfenidone and its use for the treatment of IPF at a total daily dose of 2403 mg/day in a patient who has exhibited ALT and/or AST that is elevated to greater than 2.5-fold and less than or equal to a 5-fold increase compared to the ULN (i.e. grade 2), following pirfenidone administration at a total daily dose of 2400 mg or 2403 mg/day. Claims 2, 4 and 6 address the use of pirfenidone at 2400 mg/day, with these same limitations. The difference is insignificant and the claims can be read in the same light.

[92] When dependent on claim 7, the POSITA would also understand that the patient has discontinued the pirfenidone treatment until ALT and/or AST are within normal limits. Claim 8 specifies that the discontinuance in claim 7 is about 1 week. Further, when dependent on claim 9, the POSITA would also understand the total daily dose is divided in three doses and taken with food.

[93] The 997 Patent specification further refers to 6 examples. Examples 2 to 5 describe possible administrations of pirfenidone to patients experiencing a grade 2 liver function test elevation. The subject of the examples include:

i. Example 1 provides the pirfenidone dosing regimen;

ii. Example 2 instructs to reduce the dose of pirfenidone to one capsule of 267 mg pirfenidone, three times per day;

iii. Example 3 instructs to temporarily discontinue pirfenidone;

iv. Example 4 instructs to reduce the dose of pirfenidone to two capsules of 267 mg pirfendione, three times per day;

v. Example 5 states that the dose was not reduced from 2403 mg/day (i.e. the full target dose); and

vi. Example 6 provides that pirfenidone could be continued, re-escalated or re-challenged to the target dose.

(3) Essential Claim Elements

[94] A claim element is non-essential when a POSITA would understand that its omission or substitution has no effect on the workings of the invention (*Free World Trust* at para 55; *Corlac Inc v Weatherford Canada Inc*, 2011 FCA 228 at paras 26-27 [*Corlac*], leave to appeal to SCC refused 34459 (29 March 2012)). All claim elements of the 654 and 997 Asserted Claims are essential. There is a presumption as to the essential nature of the claim elements, which has not been rebutted in this case.

(4) Structure of the 654 and 997 Asserted Claims

[95] Roche argues that the 654 Asserted Claims can be categorized into three distinct claim types:

i. "German-style" claims 1 and 8 (and claims 7, 14 to 18 when dependent therefrom): "Use of pirfenidone… for treatment of idiopathic pulmonary fibrosis…";

ii. "Swiss-style" claims 3 and 10 (and claims 7, 14 to 18 when dependent therefrom): "Use of pirfenidone in the manufacture of a medicament for treatment of idiopathic pulmonary fibrosis…"; and

iii. “Product for use style” claims 5 and 12 (and claims 7, 14 to 18 when dependent therefrom): “Pirfenidone for use in the treatment of idiopathic pulmonary fibrosis…”.

[96] Roche further alleges a similar distinction in claim structures as it relates to the 997 Patent, including product for use style claims 1, 7 and 9, Swiss-style claim 3 and German-style claim 5. Sandoz argues that Swiss-style claims do not apply in Canada and are properly construed as “use” claims where the alleged invention resides in the use and not in the manufacture or composition of the medicine.

[97] Roche’s approach seeks a finding of claim *form* over *substance*. In doing so, it obscures the proper approach to claims construction. As discussed above, the claims construction exercise emphasizes a purposive construction. In this case, the 654 and 997 Asserted Claims have been properly construed as use claims, as provided above. Both experts have agreed that the POSITA would understand the dose escalation regimen provided in the 654 Patent. Dr. Kolb testified that an essential element of all of the Asserted Claims of the 654 Patent is using pirfenidone at a first oral daily dosage of 801 mg for seven days, followed by a second oral daily dosage of 1602 mg for a further seven days, followed by a third oral daily dosage of 2403 mg. As further construed above, the 997 Patent is directed at a method of providing pirfenidone therapy to IPF patients having exhibited defined ALT and/or AST elevations. The alleged invention in this case resides in the use of pirfenidone, whether in the context of the 654 or 997 Patent, and not in the manufacture or composition of pirfenidone, a known compound.

[98] Further, if any aspect of the invention had resided in the manufacture of a medicament, it would have been previously disclosed and claimed in the earlier Canadian Patent No. 2,631,646 [the "646 Patent"]. The 646 Patent has a filing date of November 29, 2006 and a publication date of June 7, 2007. The 646 Patent discloses and claims the administration of pirfenidone with food, at a dose of 800 or 801 mg/day, three times a day, to reduce dizziness. It also claims the use of pirfenidone (or salts thereof) in the manufacture of a medicament to treat IPF generally, and specifically to reduce dizziness.

[99] For example, claim 5 of the 646 Patent specifies:

> 5. Use of pirfenidone, or salts thereof, in the manufacture of a medicament for use with food for treatment of idiopathic pulmonary fibrosis and to reduce incidence of dizziness in a patient, at a dose of 800 mg pirfenidone wherein the medicament is for administration to the patient three times per day.

[100] Nevertheless, I will consider the parties' arguments and authorities in greater detail below, considering the variability in judicial treatment of Swiss-style claims.

[101] Swiss-style claims are a recognized claim structure. There are several claim "structures" recognized in Canadian law that could be directed to the new use of a known medicine, including Swiss-style claims, in the form of: "The use of [an old compound] in the manufacture of a medicament for the treatment of [a new disorder]" (*Eli Lilly Canada Inc v Apotex Inc*, 2008 FC 142 at paras 18, 20, 22-23 [*Eli Lilly*], aff'd 2009 FCA 97). Swiss-style claims provide "a new use for an old medicine by characterizing the manufacture of a pill for a new use…" (*Eli Lilly*, above at para 20). In this case, this is not a new use in the sense of treating IPF, but rather a dose escalation regimen to treat IPF.

[102] This does not mean that a Swiss-style claim automatically benefits from a literal construction. Patent claims may be directed at a novel *product*, *method* and/or *use*. A Swiss-style claim cannot claim a novel product for use in a medicament when in fact that product used in a medicament is no longer novel.

[103] The 654 and 997 Patents do not disclose a composition or other product for use in a medicament that enables the *new* use of pirfenidone in question – the dose escalation regimen. The circumstances of this case are therefore distinguishable from *Janssen Inc v Teva Canada Limited*, 2020 FC 593 [*Janssen*], where the "medicament" referenced in the Swiss-style claims referred to a medicine suitable for the depot formulation of paliperidone palmitate (*Janssen*, above at paras 161-163). The medicament was therefore adapted for administration according to the claimed dosage regimen. In *Hospira Healthcare Corporation v Kennedy Trust for Rheumatology Research*, 2018 FC 259 [*Hospira FC*], the patent in question claimed a combination of elements, leading to efficacy in duration and response (*Hospira FC*, above at paras 150, 155 rev'd on other grounds 2020 FCA 30 [*Hospira FCA*]). The Federal Court distinguished the invention in *Hospira FC* from a dosage regimen leading to increased efficacy on this basis when considering whether the patent in question claimed a method of medical treatment. For the reasons already discussed, there is nothing novel about the manufacture or composition of pirfenidone to treat IPF in this case, but only a new dosing regimen of pirfenidone for use in the treatment of IPF.

[104] Owing to the context-specific claims construction exercise, I am not particularly guided by the case law authorities relied on by Sandoz, except to the extent they suggest that Swiss-style

claims may be construed as use claims where the circumstances warrant. I note specifically that these decisions arose prior to the September 2017 amendments to the *Regulations*, which converted summary prohibition proceedings under the *Regulations* to full actions to determine validity and infringement. The Federal Court's consideration below arose in varying contexts under the former *Regulations*.

[105] For example, in *Merck & Co, Inc v Pharmascience Inc*, 2010 FC 510 at para 99 [*Pharmascience*], the Federal Court determined that the Respondent Pharmascience was bound by the construction of claim 5 (a Swiss-style claim) that it made in its Notice of Allegation, whereby Pharmascience "characterized the '457 Patent, including claim 5, not as being directed at the manufacture of a tablet; rather, it took the position that it was directed to a particular dosage" (*Pharmascience,* above at paras 95, 97, 99). Claim 5 in that case was therefore construed to be directed to the *use of finasteride at a particular dosage in oral form to treat male baldness* (*Pharmascience* at para 99).

[106] In the context of this Court's determination that the claims in question disclosed a method of medical treatment in *Novartis Pharmaceuticals Canada Inc v Cobalt Pharmaceuticals Co*, 2013 FC 985 [*Novartis*], the Federal Court stated (*Novartis,* above at para 101, aff'd 2014 FCA 17):

> [101] … [T]his Court should disregard the artificial nature of a Swiss claim and look at what is the real subject matter of the claim. Here the invention is, as previously discussed, the recognition that zoledronate can be administered infrequently, such as once yearly injections 5 mg, and provide effective treatment for osteoporosis.

[107] This prior case law, while factually distinct from the current case, supports an approach to claims construction which values substance over form. The issue of the infringement of the Asserted Claims of the 654 and 997 Patents, construed here as use claims, will be discussed below.

IX. Infringement

A. *Direct Infringement*

[108] Roche is claiming direct infringement of the Swiss-style and product for use Asserted Claims of the 654 and 997 Patents. Sandoz's position is that it will not directly infringe the 654 and 997 Asserted Claims as it does not and will not use the Sandoz Products in the treatment of IPF.

[109] Having purposively construed the Swiss-style and product for use claims as *use* claims and having identified the essential claim elements, Sandoz will not directly infringe the 654 and 997 Asserted Claims in that it does not use pirfenidone in the treatment of IPF, as identified by the 654 and 997 Asserted Claims.

[110] Roche relies on several cases for the proposition that Courts have found direct infringement of product for use and Swiss-style claims (*Hospira FC*, *Janssen* and *AB Hassle v Canada (Minister of National Health and Welfare)*, 2001 FCT 1264 [*AB Hassle FC*], aff'd 2002 FCA 421 [*AB Hassle FCA*]). *Hospira FC* and *Janssen* are distinguishable from the current case for the reasons discussed above, where the medicament or pharmaceutical composition in those

cases in fact supported the novel use of the drug in question. I do not consider the approach of the Court in *AB Hassle FC* to be applicable to the current case. As use claims, the Asserted Claims of the 654 and 997 Patents do not support a finding of direct infringement.

B. *Induced Infringement*

[111] Roche further claims that Sandoz will induce infringement of the 654 and 997 Asserted Claims by physicians, pharmacists and patients through the Sandoz PMs, packaging (including the package insert) and labelling. It is Roche's position that there exists several mechanisms through which Sandoz will knowingly induce infringement of the 654 and 997 Asserted Claims, including:

i. The Sandoz Materials (including the Sandoz PMs) will be available to physicians, pharmacists and patients. They will be accessible on a dedicated webpage and distributed through the Sandoz PSP;

ii. Patients will be enrolled in the Sandoz PSP through their healthcare professional;

iii. The Sandoz Products will receive funding under the Exceptional Access Program, as Sandoz anticipates it will receive formulary listings similar to, and interchangeable with ESBRIET, and the Sandoz Products will be the lower cost product; and

iv. Sandoz expects that its medical information department will respond to questions by referring to the Sandoz PMs. The Sandoz Materials also direct healthcare professionals and patients to Sandoz's MedInfo line.

[112] Sandoz argues that the three-part test for induced infringement has not been made out in this case. Pharmacists and physicians will not personally use pirfenidone in the treatment of IPF patients. There is also no evidence that there will be direct infringement by patients, given the individualized nature of dosing. Lastly, Sandoz asserts that it did not possess the required influence and knowledge to procure physicians, pharmacists and patients to infringe the 654 and 997 Patents.

[113] The three-part test for induced infringement is set out in *Corlac* (*Corlac*, above at para 162):

i. The acts of infringement must have been completed by the direct infringer;

ii. The completion of the acts of infringement must be influenced by the acts of the alleged inducer to the point that, without the influence, direct infringement would not take place; and

iii. The influence must knowingly be exercised by the inducer, that is, the inducer knows that this influence will result in the completion of the acts of infringement.

[114] For the reasons stated below, I find that induced infringement has been established for some of the 654 Asserted Claims, but not for the 997 Asserted Claim on the basis of the three-part test in *Corlac* and the evidence.

[115] As a preliminary matter, Sandoz raised concerns regarding alleged inconsistencies in and the adequacy of the evidence proffered by Roche. Specifically, Sandoz argues that Dr. Kolb and Dr. Zlydennyy's evidence conflicts in their opinions on whether pirfenidone is or will be dispensed through specialty or community pharmacies. Further, Sandoz states that Courts should refuse to give weight to generalized statements about the practice of physicians and pharmacists, where no independent studies or properly conducted surveys were tendered.

[116] Roche's experts have addressed a variety of avenues through which the Sandoz Products may be prescribed by physicians, dispensed by pharmacists and used by patients in accordance with the 654 and 997 Asserted Claims. I do not find this evidence to be internally inconsistent, but rather reflective of the complexity inherent in pirfenidone prescribing and dispensing in this case.

[117] The evidence revealed that physicians and pharmacists exercise varying degrees of control over the actual dispensing of the Sandoz Products to a patient, based on a physician's individual prescribing practices, formulary and interchangeability designations, provincial substitution/interchangeability policies and programs, the existence of a Sandoz PSP, and patient-specific factors. As it relates specifically to the concern regarding specialty and community pharmacies, I accept Roche's position that both avenues for dispensing pirfenidone

may be available, although currently, specialty pharmacies are more likely to dispense pirfenidone.

[118] Moreover, I do not find that the expert opinions amounted to generalized statements about the practice of physicians and pharmacists, which lack a factual basis in this case (*AB Hassle FCA*, above at para 45). Nonetheless, I will address specific concerns with the evidence as it arises in my reasons below.

(1) The Act of Infringement by the Direct Infringer

[119] Sandoz argues that a physician does not control what pirfenidone product will be used when writing a prescription (apart from writing "no substitution" on a prescription). Further, a pharmacist will dispense the drug in accordance with a physician's prescription and there is no way of knowing if a patient will take the Sandoz Products in accordance with the 654 and 997 Asserted Claims.

[120] Despite the broad scope of the evidence, it has nonetheless established, on the balance of probabilities, that acts of direct infringement will occur, where the Sandoz Products will be prescribed by physicians, dispensed by pharmacists, and used by patients in accordance with the 654 and 997 Asserted Claims (*Bayer Inc v Pharmaceutical Partners of Canada Inc*, 2015 FC 797 at para 47 [*Bayer FC*], aff'd 2016 FCA 13; *Hospira FCA*, above at para 40).

[121] As it relates to physicians, the default initiation dose and dose schedule of pirfenidone prescribed by physicians is that set out in the Sandoz PMs and reflected in the 654 Patent. Dr.

Kolb opined that the claimed dose titration schedule in the 654 Patent is the "default" for initiating treatment with ESBRIET. Dr. McIvor further opined that if a generic pirfenidone product or multiple generic pirfenidone products became available, physicians will continue to prescribe the same dose escalation scheme as used for ESBRIET.

[122] Similarly, as it relates to the 997 Patent, Dr. Kolb opined that physicians will monitor patients for liver function abnormalities and will prescribe the use of the Sandoz Products in accordance with the 997 Asserted Claim. Physicians currently prescribe ESBRIET at a dose of 2403 mg/day, including three times a day, with food, where the patient has experienced a grade 2 elevation in liver biomarkers, including ALT or AST.

[123] I accept Sandoz's submission that this will not be the course of treatment in all cases. However, at least in some cases, Dr. Kolb's evidence supports the position that on a balance of probabilities, physicians will prescribe the use of the Sandoz Products in accordance with the 997 Asserted Claim and patients will use the Sandoz Products in accordance with their prescription.

(2) Influence

[124] It is Sandoz's position that physicians will not consult the Sandoz PMs and even if they do, no one specific direction for a physician to follow is provided. This is allegedly a case where both infringing and non-infringing outcomes can result from following directions in the Sandoz PMs, and such partial responsibility for infringement is not sufficient.

[125] To establish influence under the second prong of the induced infringement test, Sandoz must actively "do something" that leads to infringement (*Bayer FC*, above at para 31):

> [31] On the second prong of the test for inducing infringement, the inducer must exercise sufficient influence over the direct infringer such that, but for the inducing activities, the direct infringement would not have taken place, and being partially responsible is not sufficient (*Apotex Inc v Nycomed Canada Inc*, 2011 FC 1441, aff'd 2012 FCA 195 at para 20; *MacLennan v Products Gilbert Inc*, 2008 FCA 35 at para 38 [MacLennan]; *Slater Steel* at para 41). The inducer must actively do something that leads the direct infringer to infringe. In the context of NOC proceedings, the generic company must do something more than merely selling a product which is used by a third party to complete an act of direct infringement. Additionally, even knowledge that the product will likely be used in direct infringement of a patent is not sufficient to meet the test (*AB Hassle v Canada*, 2002 FCA 421 at para 56; *Aventis Pharma Inc v Apotex Inc*, 2006 FCA 357 at paras 17-18; *Aventis Pharma Inc v Apotex Inc*, 2005 FC 1461 at para 32). Nor is alleging that a generic drug company, through its product monograph, website and marketing strategies, may be partially responsible for direct infringement by physicians, pharmacists and patients (*Apotex Inc v Nycomed Canada Inc*, 2011 FC 1441, aff'd 2012 FCA 195 at paras 2, 19-20).

[126] The parties disagree on two key aspects of Sandoz's potential to exert influence over a physician's prescribing practices. First, whether the Sandoz PMs direct infringement in accordance with the 654 and 997 Asserted Claims. Second, whether physicians will consult the Sandoz PMs.

(a) *Directions in the Sandoz PMs*

[127] The Sandoz PMs collectively refer to product monographs directed to the Sandoz Capsule and the Sandoz Tablet. They are identical in all material respects and have been considered together by the parties.

[128] The Sandoz PMs recommend that the Sandoz Products, including the 267 mg pirfenidone capsule, be prescribed in an initiation dose of the total daily dose of 801 mg for the first seven days, 1602 mg for the next seven days, and 2403 mg for days 15 and onwards, in three divided doses (sub-daily dosages) with food. The Sandoz PMs state that "the dose should be titrated to the recommended daily dose of 2403 mg/day over a 14-day period to improve tolerability".

[129] These recommendations in the Sandoz PMs amount to a clear direction, whereby following the Sandoz PMs will inevitably result in an act of infringement of the dose escalation regimen in the 654 Asserted Claims 1, 3, 5, 8, 10 and 12. The key is the act that the Sandoz PMs induce (*Apotex Inc v Janssen Inc*, 2021 FCA 45 at para 55).

[130] The Sandoz PMs also direct administration of 267 mg pirfenidone capsules, 3 times a day, with food, influencing direct infringement of these further essential elements contained in claims 1, 3, 5 and in dependent claims 14, 15, 16 and 17. This is clear from the sections of the Sandoz PMs entitled, "Recommended Dose and Dosage Adjustment".

[131] Based on the evidence of Dr. Kolb, it is Roche's position that the reference to "improves tolerability" in the Sandoz PMs includes reducing the incidence of photosensitivity adverse reactions, and the PMs do not need to explicitly specify photosensitivity in this sentence. It is Sandoz's position that under the heading "Dose Adjustment", the Sandoz PMs state that the dose may be reduced, discontinued and re-escalated in relation to photosensitivity reactions. The Sandoz PMs do not state the dose escalation regimen reduces the incidence of photosensitivity. I

agree. The Sandoz PMs do not direct a reduction in photosensitivity. The Sandoz PMs do not influence the infringement of claims 7 and 18 of the 654 Patent.

[132] The Sandoz PMs also set out the "recommended procedure" if a patient experiences a Grade 2 ALT and/or AST elevation:

> If a patient exhibits a Grade 2 ALT and/or AST elevation to >3 to >5 x ULN without hyperbilirubinaemia after starting treatment with Sandoz Pirfenidone Capsules at the recommended dose of 2403 mg/day, or any time after starting therapy, confounding medicinal products should be discontinued, other causes excluded, and the patient monitored closely. As clinically appropriate, Sandoz Pirfenidone Capsules can be continued at the recommended dose of 2403 mg/day, reduced or temporarily discontinued. Once ALT and AST levels have resolved, Sandoz Pirfenidone Capsules may be re-escalated to the recommended daily dose and continued, if tolerated and the patient should be monitored closely.

[133] The above excerpt does not constitute a direction to use the Sandoz Products in accordance with the 997 Asserted Claim 11. The Sandoz PMs do not instruct use of pirfenidone at a total daily dose of 2403 mg/day in a patient who has exhibited grade 2 ALT and/or AST elevations, following pirfenidone administration. Instead, on a plain reading, it proposes various clinically appropriate options, of which reduction and discontinuance of pirfenidone may be warranted. The Sandoz PMs do not influence the infringement of claim 11.

[134] Following the Sandoz PMs as it relates to elevations in a patient's AST and/or ALT will not inevitably result in an infringing outcome. Similar to the circumstances in *Bayer FC*, the Sandoz PMs in this case present options, which I do not find amount to an instruction or direction (*Bayer FC* at paras 61, 64).

(b) *Consulting the Sandoz PMs*

[135] Sandoz argues that physicians prescribing pirfenidone will have no need to refer to the Sandoz PMs, as specialists who have experience in or knowledge of prescribing pirfenidone, with several years of practical experience treating IPF patients.

[136] On the basis of the evidence, I find that at least in some cases, physicians will consult the Sandoz PMs in relation to the dosing instructions, which reflect the dosing regimen in the 654 Asserted Claims.

[137] I accept Dr. Kolb's evidence that some physicians will prescribe the Sandoz Products through the Sandoz PSP. Dr. McIvor's opinion is of limited assistance in this regard, as he admitted in testimony that his opinion did not take into account the existence of a PSP for a generic drug.

[138] As indicated above, the Sandoz PSP will offer complimentary services to patients taking the Sandoz Products. This includes reimbursement navigation, financial assistance, clinical support, educational support and co-ordination for patients, who will be enrolled through their healthcare professional. As indicated above, the Sandoz Materials, including the Sandoz PMs, will be distributed to physicians, pharmacists and patients through the PSP.

[139] Considering the rarity of IPF, I do not find that all prescribing physicians possess this level of "specialized knowledge" proposed by Dr. McIvor. In fact, Dr. Kolb testified that

physicians with less experience in treating IPF patients will contact him for dosing advice, indicating that some prescribing physicians lack familiarity with the default dosing regimen. Dr. McIvor testified that IPF was a rare condition and that IPF patients constituted about one percent of his practice, also supporting that not all prescribing physicians will have a sufficient familiarity with the default dosing regimen.

[140] Dr. Kolb's evidence as to prescribing physicians who are less familiar with treating IPF was limited to a *belief* that they will review the Sandoz PMs. However, the entirety of the evidence nonetheless establishes that Sandoz is offering a comprehensive PSP which is directed to providing the Sandoz Materials (including the Sandoz PMs) to physicians, pharmacists and patients. In such cases, I find on the balance of probabilities that at least some of the physicians, pharmacists and patients participating in the PSP would refer directly to these materials.

[141] For the reasons stated above, I no longer need to consider whether physicians would consult the Sandoz PMs in relation to abnormalities in liver biomarkers. The Sandoz PMs do not direct physicians to infringe the 997 Patent.

(3) Knowledge

[142] Sandoz further argues that Health Canada requires Sandoz to include in its PMs the same statements regarding the approved indication, the same warning against photosensitivity reaction and rash and the same dosage escalation scheme as described in the ESBRIET PM, once bioequivalence is established with ESBRIET, as the Canadian reference product. This defence has no merit. The Defendant's intention is irrelevant to a finding of infringement. The issue is

"what the defendant does… not what he intends" (*Monsanto Canada Inc v Schmeiser*, 2004 SCC 34 at para 49). Sandoz will know that its actions, including with respect to the Sandoz PSP, will result in use of pirfenidone to treat IPF using the dosage escalation regimen and in accordance with the Asserted Claims of the 654 Patent.

X. Validity

A. *Anticipation of the 654 Patent*

[143] Sandoz claims anticipation of the 654 Asserted Claims, based on Raghu 1999. Raghu 1999 describes an open-label, single-centre, compassionate use study of 54 terminally ill patients with advanced IPF.

[144] Raghu 1999 does not disclose the subject matter of the 654 Asserted Claims and Sandoz has failed to establish anticipation on the basis of this prior art. When a single prior art both discloses and enables the claimed invention, the patent claims are said to be anticipated and invalid (*Apotex Inc v Sanofi-Synthelabo Canada Inc*, 2008 SCC 61 at paras 25-27 [*Sanofi-Synthelabo*], *Patent Act*, RSC 1985, c P-4, s 28.2 [*Patent Act*]; *Hospira FCA* at para 66).

[145] I do not find that the disclosure requirement of anticipation is met based on the gaps between Raghu 1999 and the subject matter of the 654 Asserted Claims, as identified by Dr. McIvor: (i) the pirfenidone dosage in Raghu 1999 is weight-based and varied from patient to patient; (ii) Raghu 1999 does not describe exactly how the patients' doses were increased over 15 days; (iii) Raghu 1999 does not state what dosage form of pirfenidone was taken; and (iv)

photosensitivity is described as being experienced by 24% of patients. No reduction in photosensitivity is described.

[146] Sandoz attempts to fill in these gaps. While the allegedly anticipatory art is not required to describe the claimed invention exactly, Sandoz's submissions are more appropriately considered under its obviousness attack. Raghu 1999 does not describe the dose escalation regimen, the very subject matter of the 654 Patent. This gap is not supplemented by the common general knowledge. The POSITA, in reading Raghu 1999, would not understand the dose escalation regimen that underlies all Asserted Claims of the 654 Patent (*Abbott Laboratories v Canada (Health)*, 2008 FC 1359 at para 75, aff'd 2009 FCA 94).

[147] On the facts before me, Sandoz has not established prior disclosure of the subject matter of the 654 Asserted Claims. Given my finding on this front, I do not need to consider enablement.

B. *Double Patenting of the 997 Patent*

[148] Sandoz also argues that the subject matter covered by the 997 Asserted Claim is either conterminous or not "patentably distinct" from the 646 Patent and the common general knowledge (*Patent Act*, s 36(1)). Sandoz argues that given the 646 Patent, InterMune has allegedly acquired a monopoly on the same daily pirfenidone dose as the 997 Patent for treatment of IPF patients. The only difference between the 646 and 997 Patents is that the 646 Patent is aimed at reducing dizziness, while the 997 Patent is aimed at maximising the dose of

pirfenidone following an adverse event of liver function, a difference which would have been allegedly obvious to the POSITA.

[149] It is Roche's position that the 646 Patent does not teach continuing or rechallenging pirfenidone at a dose of 2400 or 2403 mg/day in patients who have exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at that dose. As stated by Dr. Kolb in his responding validity report for the 997 Patent, "[n]one of the 646 patent claims mentions ALT or AST, or relates to an IPF patient who exhibited any elevation or abnormality in any biomarkers of liver function, or liver toxicity at all".

[150] Claims 1, 3 and 5 of the 646 Patent have been reproduced for reference:

> 1. Pirfenidone, or salts thereof, for use with food for treatment of idiopathic pulmonary fibrosis and to reduce incidence of dizziness in a patient, at a dose of 801 mg pirfenidone three times per day.
>
> …
>
> 3. Use of pirfenidone, or salts thereof, for use with food for treatment of idiopathic pulmonary fibrosis and to reduce incidence of dizziness in a patient at a dose of 801 mg pirfenidone three times per day.
>
> …
>
> 5. Use of pirfenidone, or salts thereof, in the manufacture of a medicament for use with food for treatment of idiopathic pulmonary fibrosis and to reduce incidence of dizziness in a patient, at a dose of 800 mg pirfenidone wherein the medicament is for administration to the patient three times per day.

[151] The claims of the two patents are not identical or conterminous in this case. However, the 646 and 997 Patents do not merely overlap (*Hospira FCA* at paras 96, 99). As it relates to

obviousness-type double patenting, the question for this Court is whether there is "invention" or "ingenuity" in the move from the first patent to the second patent (*Whirlpool* at paras 63-67; *Bristol-Myers Squibb Canada Co v Pharmascience Inc*, 2021 FC 1 at para 91, citing *Mylan Pharmaceuticals ULC v Eli Lilly Canada Inc*, 2016 FCA 119 at para 28 [*Mylan 2016*]). The policy justification is the "prevention of evergreening an existing patent through what would otherwise be a valid patent but is, in effect, an extension of the patent that has already been granted" (*Mylan 2016*, above at para 28).

[152] The 646 Patent teaches the same daily pirfenidone dose, of 2403 mg/day as the 997 Patent for the treatment of IPF patients. It further teaches the same administration of pirfenidone given in divided doses, three times a day with food. In light of the common general knowledge, the POSITA would be aware that pirfenidone is metabolized by the liver, the classification systems for liver biomarkers, including ALT and AST, and strategies for managing the adverse events associated with elevations in these biomarkers. The POSITA would select within the 4 management strategies for managing elevations in ALT and/or AST.

[153] Therefore, in light of the common general knowledge, as of the priority date of November 10, 2008, there is no invention in continuing or rechallenging an IPF patient with 2403 mg/day of pirfenidone following a grade 2 ALT or AST abnormality. The Asserted Claim of the 997 Patent is not patentably distinct from the 646 Patent, and is invalid for obviousness-type double patenting.

C. *Obviousness of the 654 and 997 Patents*

[154] The test for obviousness is set out in section 28.3 of the *Patent Act*. This attack on inventiveness requires careful attention, particularly considering that hindsight is 20-20 (*Bridgeview Manufacturing Inc v 931409 Alberta Ltd (Central Alberta Hay Centre)*, 2010 FCA 188 at paras 50-51, leave to appeal to SCC refused 33885 (14 April 2011)). The obviousness framework has been adopted from *Windsurfing/Pozzoli*, as restated in *Sanofi-Synthelabo*, above at paragraph 67:

> [67] It will be useful in an obviousness inquiry to follow the four-step approach first outlined by Oliver L.J. in *Windsurfing International Inc. v. Tabur Marine (Great Britain) Ltd.*, [1985] R.P.C. 59 (C.A.). This approach should bring better structure to the obviousness inquiry and more objectivity and clarity to the analysis. The *Windsurfing* approach was recently updated by Jacob L.J. in *Pozzoli SPA v. BDMO SA*, [2007] F.S.R. 37 (p. 872), [2007] EWCA Civ 588, at para. 23:
>
> In the result I would restate the *Windsurfing* questions thus:
>
> (1) (a)Identify the notional "person skilled in the art";
>
> (b)Identify the relevant common general knowledge of that person;
>
> (2)Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
>
> (3)Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;
>
> (4)Viewed without any knowledge of the alleged invention as claimed, do those differences constitute items which would have been obvious to the person skilled in the art or do they require any degree of invention?

[155] Under the fourth prong, whether it would have been “obvious to try” may be considered in circumstances where advances often occur through experimentation, the assessment of which engages consideration of the following non-exhaustive list of factors (*Sanofi-Synthelabo* at paras 67-69):

> (1)Is it more or less self-evident that what is being tried ought to work? Are there a finite number of identified predictable solutions known to persons skilled in the art?
>
> (2)What is the extent, nature and amount of effort required to achieve the invention? Are routine trials carried out or is the experimentation prolonged and arduous, such that the trials would not be considered routine?
>
> (3)Is there a motive provided in the prior art to find the solution the patent addresses?

[156] The relevant date in relation to the 654 Patent for obviousness is December 18, 2006. The relevant date in respect of the 997 Patent is November 10, 2008. The 654 and 997 Patents are presumed to be valid and Sandoz bears the burden of establishing obviousness on the balance of probabilities (*Patent Act*, s 43(2)).

[157] The POSITA and the common general knowledge are identified and described above. I will therefore begin this analysis with the second prong of the obviousness inquiry, the inventive concept of the 654 Asserted Claims.

(1) 654 Patent

(a) *The Inventive Concept*

[158] I find that the inventive concept is the subject matter of the 654 Asserted Claims (*Apotex Inc v Shire LLC*, 2021 FCA 52 [*Shire*] at para 67). Both experts have agreed that the subject matter of the 654 Patent is a dosing regimen to decrease the adverse effects and improve the tolerability of pirfenidone administration.

(b) *Difference between the State of the Art and the Inventive Concept*

[159] It is Sandoz's position that there is no difference between the state of the art (in particular Raghu 1999) and the inventive concept of the 654 Asserted Claims. However, Sandoz has been unable to point to any prior art reference that discloses the inventive concept of the dose escalation regimen, claimed in the 654 Asserted Claims. This is the only difference asserted by Roche and identified by Dr. Kolb, described as:

i. A first oral daily dosage of 801 mg for seven days;

ii. Followed by a second oral daily dosage of 1602 mg for a further seven days; and

iii. Followed by a third oral daily dosage of 2403 mg/day.

[160] It is the question of whether these differences would nevertheless be obvious to the POSITA, with the common general knowledge at the relevant date, to find that the Asserted Claims are or are not obvious.

[161] The common general knowledge is outlined above. It includes two of the prior art references, Raghu 1999 and Azuma 2005. Raghu 1999 has been previously described. Azuma 2005 is discussed in the 654 Patent specification and reports on a randomized, double-blinded, and placebo-controlled trial of 107 IPF patients in Japan. Azuma 2005 discloses a three-step dosage titration schedule as it relates to pirfenidone: patients received 600 mg/day (200 mg, three times a day) for two days, followed by 1200 mg/day (400 mg, three times a day) for two days, and further followed by the maintenance dose of 1800 mg/day (600 mg, three times a day) for three days.

[162] Sandoz also seeks to rely on several "non-IPF" prior art references related to pirfenidone. Bowen 2003 is a pilot, early phase study of pirfenidone in multiple sclerosis patients. Bowen 2003 describes a ten day dose escalation period to 2400 mg/day. Babovic-Vuksanovic 2006 is an open-label phase II trial of oral pirfenidone in 24 patients with neurofibromatosis type 1. It discloses a three week dose escalation regimen, where patients were increased to a total daily dose of 2400 mg/day, starting at a dose of 400 mg twice a day.

[163] The parties' submissions on the obviousness of the differences between the prior art and the Asserted Claims exceed the scope of the actual differences outlined above. The question is whether the dosage escalation regimen itself would be obvious to the POSITA as of the relevant

date. In this respect, there is no question as to the obviousness of the number of daily dosages, administration of pirfenidone with food, or the oral administration of pirfenidone capsules and the reduction in photosensitivity adverse reaction, based on the evidence before the Court.

[164] It is Sandoz's position that a dose escalation regimen over the course of two weeks to a flat, daily target dose of 2400 mg would have been obvious in light of the common general knowledge and the state of the art, as of December 18, 2006. Bowen 2003, Azuma 2005 and Babovic-Vuksanovic 2006 disclosed the use of a flat daily dose of pirfenidone and the determination of the appropriate dose for a patient was within the knowledge and skills of the POSITA. It was further within the common general knowledge of the POSITA that gradually increasing to a target dose would assist with the tolerability of the drug as it relates to certain adverse effects. The escalation periods in Raghu 1999 (15 days), Bowen 2003 (10 days) and Babovic-Vuksanovic 2006 (3 weeks) were all described as well tolerated. It would have been obvious to therefore administer pirfenidone with a two-week dose escalation period wherein the target dose was increased each week.

[165] It is Roche's position that Sandoz proposes an "implausible mosaic of prior art", as the target daily dose of 2400 mg pirfenidone administered in the non-IPF prior art references would have no relevance to the treatment of IPF. Azuma 2005 would have been the starting point for the consideration of a flat dose of pirfenidone and there was no indication from this study that a higher dose of pirfenidone was more desirable or even that the efficacy of pirfenidone was dose dependent. Furthermore, the combination of claimed elements would not have been obvious.

[166] The question of whether the differences constitute steps that would have been obvious to the POSITA is best answered by the application of the "obvious to try" test in cases such as this, where advances in the art were made as a result of experimentation (*Sanofi-Synthelabo* at paras 67-69). On basis of the reasons below, I find that on the balance of probabilities, the dosage escalation regimen disclosed in the 654 Asserted Claims would have been obvious to try.

(i) Implausible mosaic of prior art

[167] It is Sandoz's position that the POSITA would have reviewed non-IPF references, on the basis that the 654 and 997 Patents reference non-IPF studies, respirologists would be aware of some non-IPF diseases, InterMune's Investigator's Brochure was distributed to clinical investigators in the CAPACITY studies and contained a list of non-IPF clinical studies as relevant information for investigators, and that comparing the safety profile of a drug in different disease states is not unreasonable – "more safety data is better".

[168] While the POSITA would have been curious about published IPF study results, I do not find that it has been established that the POSITA would consult non-IPF references for dosing information. The POSITA, as identified and described above, would not be searching for non-IPF references related to what was an investigational drug at the time. These non-IPF prior art references, while forming part of the state of the art, are therefore not relevant to the remaining analysis (*Ciba Specialty Chemicals Water Treatments Limited's v SNF Inc*, 2017 FCA 225 at paras 56, 60, leave to appeal to SCC refused 37915 (14 June 2018); *Hospira FCA* at para 86, *Patent Act*, s 28.3).

(ii) Is it more or less self-evident that what is being tried ought to work? Are there a finite number of identified predictable solutions known to persons skilled in the art?

[169] Roche submits that there are a variety of dose escalation schedules discussed in the state of the art and arriving at a particular dosing regimen requires a consideration of several parameters. It is Dr. Kolb's opinion that these factors include: the initial dose and period of initial dose; intermediate dose(s), if any, and period(s) of intermediate dose(s); maximum daily dose; overall duration of the escalation; and whether the dosing is weight-based or fixed. Dr. Kolb states that the POSITA would therefore have to choose from a large number of unpredictable solutions.

[170] I find that Dr. Kolb's evidence overstates and overcomplicates the considerations at play. It was more or less self-evident that the dose escalation scheme of the 654 Patent ought to work in light of the common general knowledge.

[171] The common general knowledge included that drug administration strategies impacted the likelihood of adverse effects. Dr. Kolb and Dr. McIvor agreed that such strategies included more frequent dosing and starting at a low dose and gradually increasing to the target dose over time. The prior art, while proposing different timeframes, set out such escalation periods, including 15 days in Raghu 1999. Azuma 2005 disclosed a dose titration schedule, where dose increases occurred in thirds of the target dose (600 mg/day, 1200 mg/day and 1800 mg/day).

[172] Azuma disclosed a flat daily target dose of 1800 mg/day. I accept Dr. McIvor's evidence that flat dosing would have been considered less complicated than weight-based dosing.

[173] Based on Raghu 1999, it was further within the skill and knowledge of the POSITA to extrapolate a maximum daily dose of 2400 mg/day of pirfenidone, based on a 60kg patient. Roche argues that the extrapolation used by Dr. McIvor to arrive at a maximum flat daily dose of 2400 mg is not explained and an example of hindsight. Azuma 2005 indicates the dose range tolerated in IPF patients in the US is unclear and Azuma 2005 itself set an upper ceiling of 1800 mg/day. I disagree. These variations are not inventive when Raghu 1999 and Azuma 2005 form part of common general knowledge and the differences in question constitute a variation in dose escalation, the parameters of which have already been set out in the state of the art (*Janssen Inc v Mylan Pharmaceuticals ULC,* 2010 FC 1123 [*Mylan 2010*] at para 16).

[174] I find that it is more or less self-evident in this case that what is being tried ought to work when: (i) the POSITA is aware that pirfenidone is a promising investigational drug for the treatment of IPF patients; (ii) previous studies have contemplated different dose escalation regimens; and (iii) it is further known by the POSITA that slow titration can improve tolerability of drug administration.

(iii) What is the extent, nature and amount of effort required to achieve the invention? Are routine trials carried out or is the

> experimentation prolonged and arduous, such that the trials would not be considered routine?

[175] It is Roche's position that the POSITA would have required a registered clinical trial to use pirfenidone in IPF patients as of December 18, 2006. It is also part of the common general knowledge that the skilled person could not design any such trials. Roche argues that Dr. Kolb's evidence should be preferred, to the effect that testing the claimed dose escalation regimen by way of InterMune's CAPACITY trials required extensive efforts.

[176] I find that the POSITA would have achieved the subject matter of the 654 Asserted Claims by conducting routine work, not prolonged or arduous experiment (*Hospira FCA* at para 94):

> [94] At paragraph 227 of the Reasons, the Judge noted that the PSA [POSITA] did not have the skills necessary to design and conduct the experiments described in Examples 1-3 of the 630 Patent. There are two problems with this statement as a basis to dismiss obviousness to try. Firstly, it assumes that the results provided by those experiments were part of the claimed invention. As indicated above, the claimed invention for any given claim in issue is defined by the essential elements thereof, which do not contemplate any particular experiments or results. The second problem is that obtaining the claimed invention does not require the PSA to be capable of designing or conducting the particular experiments described in the 630 Patent. It would be enough for the PSA to co-administer an anti-TNF-α antibody and MTX as claimed and observe the results. It would not be necessary for any such experiment to pass muster with regulatory authorities.

[177] At the relevant time, I note there were uncertainties and a lack of consensus as to the effectiveness of pirfenidone in the treatment of IPF, which was a "promising" therapy. However, the differences at issue relate specifically to the dose escalation regimen and in this respect, I do

not find the testing of a particular dosage regimen to be prolonged or arduous. To this extent, the evidence of Dr. McIvor is preferred. In light of the teachings of the state of the art, I find that it would have been routine to incorporate the claimed dose escalation regimen into routine work or experiments.

(iv) Is there a motive provided in the prior art to find the solution the patent addresses?

[178] The evidence establishes that there was specific motivation to pursue the dose escalation regimen at the relevant time. Dr. Kolb opines that the POSITA would have been focused on providing the available standard of care to patients and the ordinary physician would not have been motivated to make any potentially effective therapy as tolerable as possible.

[179] However, as set out in the common general knowledge, the POSITA was aware at the relevant time that the standard of care for IPF patients – prednisone-based combination therapy and supportive treatments – was associated with considerable side effects. The POSITA was further aware that pirfenidone was one of many IPF therapies under investigation and would have been curious about the main findings of published IPF study results. As stated by Dr. Kolb in oral testimony, pirfendione was a promising investigational drug in the treatment of IPF. The "promising" conclusions in the prior art provided a motive to find the solution the patent addresses.

[180] The asserted, claimed invention of the 654 Patent would have been obvious as of December 18, 2006.

[181] As mentioned above, I do not find that the actual course of conduct of the named inventor, Dr. Bradford, changes my determination, and do not need to elaborate upon the additional studies cited by Sandoz in this regard.

(2) 997 Patent

(a) *The Inventive Concept*

[182] I find that the inventive concept is the subject matter of the 997 Asserted Claim. The experts considered the subject matter of the 997 Asserted Claim to be that a patient who has experienced a grade 2 liver abnormality can still receive the full dose of pirfenidone (*Shire*, above at para 67).

(b) *The Common General Knowledge and the State of the Art*

[183] As mentioned above, the common general knowledge includes Raghu 1999 and Azuma 2005. Sandoz is further relying on Bowen 2003, which was previously discussed above. In addition, Sandoz is relying specifically on the following prior art references: FDA Guidance for Industry 2007, Pirespa Label 2008, and Walker&Margolin 2001.

[184] Walker&Margolin 2001 and Bowen 2003 disclose that prifenidone is metabolized by the liver, which is information already contemplated by the common general knowledge.

[185] The FDA Guidance for Industry 2007 is referred to in the "Background" section of the 997 Patent at paragraph [0009]. It is intended to assist the pharmaceutical industry and other investigators who are conducting new drug developments to assess the potential for an investigational drug to cause severe liver injury. It disclosed that treatment should be stopped if ALT or AST levels were >3 ULN (i.e., grade 2) and accompanied by symptoms or other abnormal tests (e.g., bilirubin).

[186] The Pirespa Label 2008 is a translation of the drug label for the pirfenidone product approved in Japan in 2008 (Pirespa® Tablet 200 mg, Shionogi & Co., Ltd., Prepared October 2008). It contains prescribing information regarding the "Pirfenidone tablets" product and a direction to discontinue pirfenidone administration when any abnormalities, including the explicitly identified elevations in AST and ALT, are observed. Specifically, it states "[i]f the following adverse reactions occur, appropriate therapeutic measures such as dose reduction or discontinuation of administration should be performed as necessary" and lists under "Hepatic", *inter alia*, elevated AST and elevated ALT.

(c) *Difference between the State of the Art and the 997 Asserted Claim*

[187] Sandoz argues that there were no differences between the state of the art (which disclosed dose reduction and re-challenging pirfenidone to the full dose in response to a grade 2 adverse event) and the subject matter of the 997 Asserted Claim, which formed part of the common general knowledge and the state of the art.

[188] However, Dr. McIvor opines that "…the publications in the state of the art as of that time do not specifically teach continuing or rechallenging this dose in patients who have exhibited a grade 2 abnormality in one or more biomarkers of liver function after pirfenidone administration at a dose of 2400 or 2403 mg/day". I accept that a difference between the state of the art and the 997 Asserted Claim exists to the extent that this specific teaching is not disclosed in the state of the art.

[189] Roche asserts these differences were not obvious. There was no specific motivation to find the solution to treat a specific subset of IPF patients who exhibited signs of drug-induced liver toxicity from pirfenidone treatment. There was little or no guidance in the state of the art on liver abnormalities related to pirfenidone, until the Pirespa Label 2008, which was a clear direction to discontinue treatment. Further, it is Roche's position that Dr. McIvor overstates the benefits of continued treatment with pirfenidone and ignores the risk of liver injury. Roche posits that Dr. Kolb's opinion should be preferred that there was no clear benefit to continue with pirfenidone, including at 2403 mg/day.

[190] As previously stated, the POSITA already possessed the required common general knowledge associated with the management of drug-induced liver toxicity. In light of the common general knowledge, it would have been obvious to continue treatment, or rechallenge pirfenidone following discontinuance, with the full target dose, particularly considering the management strategies disclosed in the common general knowledge.

[191] Dr. Kolb testified that the 997 Patent does not teach the skilled person anything, it provides options and "the claims gives all the options to the physician who would then use their experience with the whole context to do the – a proper step".

[192] My findings do not rest on the "isoniazid" example proposed by Dr. McIvor, which was another drug known to cause liver toxicity.

[193] The 997 Asserted Claim is obvious in light of the common general knowledge agreed to by the parties and admissions of Dr. Kolb, as of November 10, 2008.

D. *Skill and Judgment / Patentability of the 654 and 997 Patent*

[194] Sandoz further argues that the 654 and 997 Asserted Claims do not relate to patentable subject matter, as contemplated by section 2 of the *Patent Act*. The Asserted Claims are allegedly directed at *how* to treat a patient and require the exercise of a physician's skill and judgement. It is Roche's position that the 654 and 997 Asserted Claims are for fixed dosages and do not interfere with or restrict a physician's judgement – *how* and *when* the claimed dosages are employed is left to the physician's discretion.

[195] Patent claims are invalid where they prevent or restrict physicians from applying their skill and judgment. Patent claims to methods of medical treatment are prohibited in Canada and are not patentable under section 2 of the *Patent Act* (*Tennessee Eastman Co et al v Commissioner of Patents* (1972), [1974] SCR 111). As I have previously discussed in *Janssen*, there are inconsistencies in Canadian law on what constitutes a method of medical treatment,

which has been highlighted by judges of this Court and the Federal Court of Appeal (*Janssen* at para 143; see also *Hospira FC* at para 141). However, the crucial question remains of whether the 654 and 997 Asserted Claims encroach on the skill and judgment of physicians (*Hospira FC* at para 146; *AbbVie Biotechnology Ltd v Canada (Attorney General)*, 2014 FC 1251 at para 119 [*AbbVie*]). On the basis of the evidence and existing case law, the 654 and 997 Patents disclose unpatentable methods of medical treatment and are invalid on this basis.

[196] Generally, claims for fixed dosages and fixed intervals of administration support a finding that the claims in question concern a vendible product (*Hospira FCA* at para 53). For example, in *Pharmascience*, the Federal Court stated (*Pharmascience* at para 114):

> [114] … However, a distinction must be made between claims that rely upon the skill and judgment of a medial practitioner and those that deal with a vendible product, be it a scalpel, X-ray machine or 1 mg tablet that are to be used or prescribed for use by such practitioner. In the present case, we have a 1.0 mg tablet taken as a daily dose. No skill or judgment is brought to bear. It is a vendible product and not a method of medical treatment.

[197] Fixed dosages or a fixed dosage schedule does not restrict, interfere with, or engage professional skill or judgment, unless there is evidence to contradict the claimed dosage (*AbbVie*, above at para 114). Such evidence exists in this case.

[198] This case is distinguishable from *Hospira FC* and *Biogen Canada Inc v Taro Pharmaceuticals*, 2020 FC 621 [*Biogen*], in that the Swiss-style claims have been construed as use claims. The Federal Court in *Hospira FC* distinguished the invention in the case before it (a combination of known elements leading to increased efficacy) from the dosage regimen leading to increased efficacy in *Mylan 2010*, above. The patent in question in *Hospira FC* was found to

disclose a vendible product – being directed toward a medicament/pharmaceutical composition (*Hospira FC* at paras 150, 155).

[199] In *Biogen*, the Federal Court followed the Federal Court of Appeal's approach in *Hospira FCA* and found that the asserted claims were limited to fixed dosages and intervals of administration and were not invalid as methods of medical treatment (*Biogen*, above at paras 211-212). Further, the Federal Court indicated that it failed "to see how the Swiss-type claims could constrain medical professionals' exercise of skill and judgement" as the Swiss-type claims were not construed to cover anything other than the activities of a pharmaceutical manufacture (*Biogen* at para 213).

[200] While in *Hospira FCA*, the Federal Court of Appeal upheld the Federal Court's decision that none of the claims in issue were invalid as methods of medical treatment, it did so on the basis that the record was insufficient to show that the Federal Court Judge had erred in this finding (*Hospira FCA* at para 56). The Federal Court of Appeal stated at paragraph 52:

> [52] This state of the jurisprudence has a tempting simplicity. However, it is not clear to me that the decisions of the Supreme Court of Canada that form the basis of the principle that methods of medical treatment are not patentable justify a distinction between a fixed dosage (or interval of administration) and a range of dosages (or intervals). It would seem that a medical professional will be constrained in their exercise of skill in either case. Also, a drug is arguably no less a vendible product simply because its dosage or interval of administration is not fixed.

[201] Although the line between fixed dosages and a range of dosages may not provide clear guidance when determining patentability, a range of dosages has been more readily found to

constitute a method of medical treatment (*Bayer Inc v Cobalt Pharmaceuticals Company*, 2013 FC 1061 at para 162, aff'd 2015 FCA 116):

> [162] …All claims at issue are use claims, not product claims. All but claim 8 claim the use as a contraceptive of a two-component drug with each component to be selected from a choice of components, and with each component to be furnished at a dosage within a range of dosages. Claims 1, 2, 6 and 7 are not proper subject matter for a Canadian patent, as they do not claim a vendible product; they provide for a choice to be made by those prescribing or providing contraceptive drugs to choose between a variety of components and a variety of dosage ranges. Only claim 8 survives, as it is directed to a single dosage of each of two compounds.

[202] This said, the presence of fixed dosages is not the end of the inquiry. In *AbbVie*, the Federal Court considered specifically whether the fixed dosage amount of "Humira" on a fixed schedule (bi-weekly) nevertheless required the exercise of a physician's skill and judgment (*AbbVie* at para 10). In *AbbVie*, the Federal Court found that there would be no exercise of a physician's skill and judgment after determining if the claimed use is appropriate for a patient. The evidence had established that the claimed dosage at a bi-weekly interval was appropriate for all those to whom it was administered (*AbbVie* at para 121).

[203] The current case more closely approximates the facts as identified in *Mylan 2010*, where Justice Barnes set out:

> [26] What I take from the above authorities is that a patent claim over a method of medical treatment that, by its nature, covers an area for which a physician's skill or judgment is expected to be exercised is not patentable in Canada. This would include the administration of a drug whereby the physician, while relying upon the dosage advice of the patentee, would still be expected to be alert and responsive to a patient's profile and to the patient's reaction to the compound.
>
> …

> [50] What is clear from the evidence is that prudent physicians like Dr. Sadavoy who are attempting to manage the administration of drugs carrying side effects in the treatment of geriatric patients do so by considering a number of individualized factors. Contrary to the affidavit evidence put forward by Janssen's witnesses, this does not begin and end with the manufacturer's dosing advice. In this context, the titration regimen claimed by Janssen can only be seen as a recommendation to physicians. Effective patient management may require on-going individualized surveillance and concomitant dosing adjustments.

(1) 654 Patent

[204] While the 654 Asserted Claims disclose the default dose escalation regimen for pirfenidone, the evidence has established that there is a continued need for a physician's exercise of skill and judgement, as the default dose escalation regimen is not appropriate for all patients taking pirfenidone for the treatment of IPF. There are several anticipated adverse effects and individualized patient characteristics that require the attention of the prescribing physician.

[205] Both Dr. McIvor and Dr. Kolb opined that the dose escalation regimen of the 654 Patent would not be tolerable for all patients. Dr. Kolb indicated that the default dose escalation regimen will be tolerable for *most* patients. Dr. McIvor provided a more specific estimate, opining that approximately 50% of patients who receive pirfenidone will have tolerability issues with pirfenidone.

[206] Second, pirfenidone is associated with adverse effects that require individualized assessment. Dr. McIvor testified that "many people with IPF have reflux and bad GI problems to start off with". As it relates specifically to the dose escalation scheme of the 654 Asserted

Claims, Dr. McIvor opined that about half of pirfenidone patients have significant tolerability issues with pirfenidone. Physicians are required to manage the adverse effects of pirfenidone, which requires individualized assessment.

[207] Third, deviations from the dose escalation regimen may be warranted in light of a variety of factors. These include dietary habits, experienced nausea, a patient's assessment of the adverse events and frailty. While Dr. Kolb opined that most physicians would usually stick with the dose escalation regimen, owing largely to a lack of experience, some would call experts and ask for assistance with a suitable deviation. Dr. Kolb opined that "… I can give you 20 different ways of how I do it in a different patient…".

[208] This is not a situation where the dosage regimen is appropriate for all those to whom it is administered (*AbbVie* at para 121). The claimed dosage escalation regime is therefore not a vendible product, and improperly interferes with a physician's skill and judgement. A physician would be expected to be responsive to the individual patient's needs. The 654 Asserted Claims are therefore invalid as methods of medical treatment.

(2) 997 Patent

[209] Similarly, the Asserted Claim of the 997 Patent discloses a course of treatment that is not appropriate for all patients and requires an assessment of the individual patient's circumstances, including alcohol consumption and comorbidities. Dr. Kolb testified that the 997 Patent does not teach the re-escalation to the target dose of pirfenidone for all patients, further he indicated that the 997 patent does not teach the skilled person anything, it just presents options.

[210] Dr. McIvor opined that the management of a grade 2 abnormality in a biomarker of liver function is a highly individualized exercise, based on a patient's individual characteristics. This includes consideration of whether both or one of AST and ALT are elevated, the extent of the elevation from baseline, how long the patient has been treated with pirfenidone, the progress of the IPF in the patient, the presence of other adverse effects, the patient's age, comorbidities, and concomitant medication. As such, the treatment decisions will vary from patient to patient.

[211] It is Dr. McIvor's opinion that the skilled person would assess the patient clinically to take a history and find out whether there was anything else causing elevated ALT and AST, such as alcohol ingestion or another drug.

[212] There is a continued need to exercise skill and judgment on the part of the physician. The 997 Patent specification discloses multiple options (Examples 2 to 6) of how a physician would keep patients on the highest possible dose of pirfenidone. It does not teach when the different dosing strategies would be appropriate. As demonstrated in Example 6 of the patent specification, the use of pirfenidone at a dose of 2403 mg/day is not appropriate for all IPF patients.

E. *Alternative Invalidity Claims*

[213] In the alternative, Sandoz argues that the 654 and 997 Patents are invalid for lack of utility/sound prediction, over claiming, insufficiency and ambiguity.

(1) Utility/Sound Prediction

[214] As mentioned above, the 654 and 997 Patents do not include any clinical data or testing in the patent specifications to support the respective claimed inventions. While this is unusual, I am not convinced on the balance of probabilities that this alone has established the invalidity of the patents on the basis of a lack of utility. The Supreme Court of Canada has set out that although utility of the subject matter is a requirement for patent validity under section 2 of the *Patent Act*, "a patentee is not required to disclose the utility of the invention to fulfill the requirements of s. 2" (*AstraZeneca Inc v Apotex Inc*, 2017 SCC 36 at para 58 [*AstraZeneca*]; *Patent Act*, s 2).

[215] Utility is determined by the following analysis, whereby Courts must: (1) identify the subject matter of the invention as claimed in the patent; and (2) ask whether the subject matter is useful – is it capable of a practical purpose (*AstraZeneca*, above at para 54). As discussed above, and identified by Dr. Kolb and Dr. McIvor, the subject matter of the 654 Patent is a dosing regimen to decrease adverse effects and improve the tolerability of pirfenidone administration. As it relates to the 997 Patent, the subject matter is that a patient who has experienced a grade 2 liver abnormality can still receive a full dose of pirfenidone.

[216] A single use related to the nature of the subject matter must be established by either demonstration or sound prediction, as of the filing date (*AstraZeneca* at paras 55, 56; *Apotex Inc v Wellcome Foundation Ltd*, 2002 SCC 77 at para 56). Utility can be demonstrated by conducting tests, but there is no separate requirement for the disclosure of utility (*Teva Canada*

Ltd v Pfizer Canada Inc, 2012 SCC 60 at para 40 [*Teva*]). I have therefore found the testimony of Dr. Bradford and Dr. Kolb to be of assistance. Dr. McIvor's evidence was focused on the contents of the patent disclosures themselves, and is therefore of limited assistance in challenging whether utility was established by way of the CAPACITY studies. As indicated above, these were two phase III studies of pirfenidone in IPF.

[217] On the basis of the testimony of Dr. Bradford and the two global Phase III CAPACITY studies, a "scintilla" of utility has been established for the 654 and 997 Patents (*AstraZeneca* at para 55). While utility must be established by either demonstration or sound prediction, scientific perfection is not required (*Apotex Inc v Janssen Inc*, 2021 FCA 45 at para 49, citing *AstraZeneca Canada Inc v Mylan Pharmaceuticals ULC*, 2011 FC 1023 at paras 161-166, aff'd 2012 FCA 109 [*Mylan 2011*]).

[218] Dr. Bradford and his team designed two global Phase III CAPACITY studies, PIPF-004 and PIPF-006, which led to the approval of pirfenidone for the treatment of IPF in Canada. The CAPACITY studies were conducted from April 2006 to November 2008. The dose escalation regimen of the 654 Patent was tested in the CAPACITY studies. A lower dose regimen of 1197 mg/day was also tested in CAPACITY trial PIPF-004. Dr. Bradford testified that the development of a proposed management strategy for grade 2 AST or ALT abnormalities was part of the adverse management protocols of the CAPACITY studies.

[219] I accept Dr. Kolb's and Dr. Bradford's evidence that as of the filing date of the 654 Patent (December 18, 2007), the studies had been enrolling patients for one year and eight

months. Dr. Bradford and InterMune were kept abreast of ongoing study results and an independent Data Monitoring Committee had access to unblinded data. The 997 Patent has a filing date of November 9, 2009. I do not find that the evidence supports Sandoz's assertion that the data was only available after the respective filing dates of the 654 and 997 Patents.

[220] Sandoz specifically takes issue with whether the CAPACITY trials were able to demonstrate a reduction in photosensitivity adverse reaction in relation to the 654 Patent. This determination is not required considering the test for utility outlined above. I further do not find that in order to establish utility of the 997 Patent, the claimed subject matter had to be demonstrated for all IPF patients. The standard for utility is low and scientific perfection is not required. The standard required is not that engaged by regulatory standards for the safety and effectiveness of the drug (*Mylan 2011*, above 163, 165-166).

[221] Therefore, on the balance of probabilities, Sandoz has not established invalidity on the basis of a lack of utility.

(2) Over claiming

[222] Sandoz's position is that the 654 and 997 Asserted Claims are overly broad. The law of overbreadth is concerned with two fundamental limitations on the extent of an inventor's monopoly. First, the monopoly cannot exceed the invention that was made. Second, the monopoly cannot exceed the invention described in the specification (*Dow Chemical Company v NOVA Chemicals Corporation*, 2014 FC 844 at para 198, aff'd 2016 FCA 216, citing *Pfizer Canada Inc v Canada (Minister of Health)*, 2008 FC 11 at paras 45-46).

[223] I agree with Sandoz's observation that the 654 Patent does not disclose any testing for the assertion that the claimed dosage escalation regimen was "optimized". Further, the 997 Patent does not distinguish for which patients the purported invention would be appropriate.

[224] However, this is not a case where the claims exceed the invention made or disclosed in the specification. I accept the evidence of Dr. Bradford that research efforts were carried out in relation to the CAPACITY trials. There is further no "disconnect" between the disclosure and the claims in the 654 and 997 Patents, as was the case for example in *EIi Lilly*. In *Eli Lilly*, the disclosure limited osteoporosis and bone loss to that without the adverse effects of estrogen therapy. This limitation was included in only one of the claims in issue, allowing the Federal Court to conclude the remainder of the asserted claims were overbroad (*Eli Lilly* at paras 179-182). The 654 and 997 Asserted Claims are therefore not overly broad.

(3) Insufficiency

[225] The specifications of the 654 and 997 Patents meet the requirements for sufficiency, pursuant to subsection 27(3) of the *Patent Act*. The specification, which includes the claims and the disclosure, must be correct and full, so as to ensure the public, having only the specification, can make the same use of the invention as the inventor (*Teva*, above at para 70, citing *Consolboard*, above at 520). "A disclosure which is not correct and full, or states an unsubstantiated use or operation of the invention, may be found to fail to fulfill the requirements of s. 27(3) of the *Patent Act*" (*AstraZeneca* at para 46).

[226] This said, the lack of data in the patent specification does not render the invention insufficient (*Bristol-Myers Squibb Canada Co v Pharmasicence* Inc, 2021 FC 1 at para 52, citing *Pfizer Canada Inc v Canada (Minister of Health)*, 2008 FCA 108 at para 56). There is a distinction between the sufficiency of the disclosure and the sufficiency of the data underlying the invention. I therefore do not accept Sandoz's arguments that 654 Patent specification is insufficient in that it refers to an "improved" and "optimized" dose escalation scheme in the specification itself, nor in that no data is referenced to support the claimed reduction in photosensitivity adverse reaction. In neither case is the POSITA unable to practice the invention and make the same use of the invention as the inventor.

[227] I find that any concerns regarding the sufficiency of the patent specification parallel my analysis and findings in the methods of medical treatment section, above. I do not find the 654 and 997 patent specifications insufficient, but this is largely because a physician's skill and judgment would guide them in practicing the 654 and 997 Asserted Claims.

[228] In respect of the 997 Patent, the POSITA can rely on the common general knowledge to understand the patent specification (*Eli Lilly Canada Inc v Apotex Inc*, 2018 FC 736 at para 125, citing *Whirlpool* at para 53). As stated above, the POSITA is aware of the potential for pirfenidone to cause drug-induced liver toxicity, understands that elevations in ALT and AST may be indicative of liver injury and would select among several known adverse effect management strategies.

(4) Ambiguity

[229] Sandoz further argues that the 654 Asserted Claims 7 and 18 are invalid as being ambiguous, contrary to subsection 27(4) of the *Patent Act*. Ambiguity of the 654 Patent has not been established on the basis that the term "incidence" is unclear, given the construction I have decided above (*Pfizer Canada Inc v Canada (Minister of Health)*, 2005 FC 1725 at paras 52-53, aff'd 2007 FCA 1). I do not accept Sandoz's argument that an internal inconsistency is created that renders this claim element incapable of meaning.

XI. Conclusion

[230] As it relates to the question of infringement, Sandoz will not directly infringe the 654 Asserted Claims 1 , 3, 5, 7, 8, 10, 12 and 14 to 18 or the 997 Asserted Claim 11. However, Sandoz will induce infringement of the 654 Asserted Claims 1, 3, 5, 8, 10, 12 and 14 to 17.

[231] On the question of validity, the 654 and 997 Asserted Claims are invalid on the basis of obviousness and as methods of medical treatment. The 997 Asserted Claim is also invalid on the basis of obviousness double patenting.

[232] Invalidity has not been established on the basis of anticipation or ambiguity for the 654 Asserted Claims. Invalidity of the 654 and 997 Asserted Claims has further not been established on the basis of utility, over claiming or insufficiency.

XII. Costs

[233] Costs are awarded to Sandoz in this action. If the parties cannot agree on the costs award, they will have 10 days following the issuance of this decision to submit costs submissions to this Court, of no more than five (5) pages in length.

XIII. Appendix A – List of Asserted Prior Art

i. Azuma, A., et al., "Double-blind, Placebo-controlled Trial of Pirfenidone in Patients with Idiopathic Pulmonary Fibrosis", *American Journal of Respiratory and Critical Care Medicine*, 2005, 171, pp. 1040-1047 ("Azuma 2005").

ii. Babovic-Vuksanovic, D., et al., "Phase II trial of pirfenidone in adults with neurofibromatosis type 1", *Neurology*, 2006, 67, pp. 1860-1862 ("Babovic-Vuksanovic 2006").

iii. Bowen, J.D. et al., "Open-label study of pirfenidone in patients with progressive forms of multiple sclerosis", *Multiple Sclerosis*, 2003, 9, pp. 280-283 ("Bowen 2003").

iv. FDA Draft Guidance for Industry, Drug-Induced Liver Injury: Premarketing Clinical Evaluation, October 2007 ("FDA Guidance for Industry 2007").

v. Nagai, S. et al., "Open-label Compassionate Use One Year-treatment with Pirfenidone to Patients with Chronic Pulmonary Fibrosis", *Internal Medicine*, 2002, 41, pp. 1118-1123 ("Nagai 2002")

vi. Pirespa® Tablets 200 mg, Shionogi & Co., Ltd., Prepared October 2008 (1st version; translation) ("Pirespa Label 2008").

vii. Raghu, G., et al., “Treatment of Idiopathic Pulmonary Fibrosis with a New Antifibrotic Agent, Pirfenidone: Results of a Prospective, Open-label Phase II Study”, *American Journal of Respiratory and Critical Care Medicine*, 1999, 159, pp. 1061-1069 (“Raghu 1999”).

viii. Walker, J.E. and Margolin, S.B., “Pirfenidone for chronic and progressive multiple sclerosis”, *Multiple Sclerosis*, 2001, 7, pp. 305-312 (Walker&Margolin, 2001).

JUDGMENT in T-896-19, T-897-19, T-898-19 and T-899-19

THIS COURT'S JUDGMENT is that:

1. Sandoz will induce infringement of the 654 Asserted Claims 1, 3, 5, 8, 10, 12 and 14 to 17;

2. Sandoz will not infringe or induce infringement of the 654 Asserted Claims 7 and 18;

3. Sandoz will not infringe or induce infringement of the 997 Asserted Claim 11;

4. The actions are dismissed for the reasons provided in this judgment; and

5. Costs in this action are awarded to Sandoz. If the parties cannot agree on the costs award, they will have ten (10) days following the issuance of this decision to submit costs submissions to this Court, of no more than five (5) pages in length.

"Michael D. Manson"
Judge

FEDERAL COURT

SOLICITORS OF RECORD

DOCKET:	T-896-19
STYLE OF CAUSE:	HOFFMANN-LA ROCHE LIMITED ET AL v SANDOZ CANADA INC.
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APPEARANCES:

Yoon Kang Nancy Pei Lynn Ing Ryan Evans Brandon Heard Katie Lee Chen Li	FOR THE PLAINTIFFS HOFFMANN-LA ROCHE LIMITED ET AL

Warren Sprigings Carol Hitchman Mingquan Zhang Meghan Dureen	FOR THE DEFENDANT SANDOZ CANADA INC.

SOLICITORS OF RECORD:

Smart & Biggar LLP Barristers and Solicitors Toronto, Ontario	FOR THE PLAINTIFFS HOFFMANN-LA ROCHE LIMITED ET AL
Sprigings Intellectual Property Law Barristers and Solicitors Etobicoke, Ontario	FOR THE DEFENDANT SANDOZ CANADA INC.