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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HIROBUMI SENGA and YONGLING WAN¹

Appeal 2014-002020
Application 12/743,162
Technology Center 1600

Before ERIC B. GRIMES, ULRIKE W. JENKS, and TAWEN CHANG,
Administrative Patent Judges.

JENKS, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims directed to a method of reducing side effects in a patient from anticancer drug therapy by administering a thrombin-like enzyme. The Examiner rejects the claims as anticipated and obvious. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ According to Appellants, the real party in interest is Tobishi Pharmaceutical Co., Ltd. (App. Br. 2.)

STATEMENT OF THE CASE

Claims 16–28 are on appeal, and can be found in the Claims Appendix of the Appeal Brief. Claim 16 is representative of the claims on appeal, and reads as follows:

16. A method of reducing a side effect of an anticancer drug in a subject in need thereof, comprising administering an effective amount of a thrombin-like enzyme to the subject.

Appellants request review of the following rejections:

- I. claims 16–28 under 35 U.S.C. § 102(b) as being anticipated by Senga '706;² and
- II. claim 18 under 35 U.S.C. § 103(a) as unpatentable over Senga '706 in view of Senga '519.³

I. *Anticipation over Senga '706*

The Examiner finds that Senga '706 discloses applying combination therapy comprising batroxobin, a thrombin-like enzyme, and an anticancer drug to a patient population that has cancer (Ans. 3).

Appellants contend that “Senga '706 fails to disclose, *inter alia*, methods of reducing a side effect of an anticancer drug in a subject *in need thereof*” (App. Br. 5).

The issue is: Does the evidence of record support the Examiner’s finding that Senga '706 discloses administering batroxobin to patients simultaneously receiving an anticancer drug and thereby applying the treatment to patients in need?

² Senga et al., US 2007/0104706 A1, publ. May 10, 2007 (“Senga '706”).

³ Senga et al., US 2006/0088519 A1, publ. Apr. 27, 2006 (“Senga '519”).

Findings of Fact

- FF1. Senga '706 discloses that “[b]atroxobin is a thrombin-like serine protease derived from venom of *Bothrops atrox moojeni*” (Senga '706 ¶ 24). Batroxobin is “administered by diluting the batroxobin appropriately and administering it by intravenous drip or by intravenous, arterial, intramuscular or local administration” (*id.* at ¶ 46, *see* Examples 1 & 2).
- FF2. Senga '706 teaches that “[t]he preparation for inhibiting local invasion of malignant tumors and for encapsulating malignant tumor tissues . . . may comprise batroxobin either by itself or [in] combination with other active substances” (*id.* at ¶ 38).
- FF3. “Examples of other active substances include antimetabolites such as fluorouracil, antitumor antibiotics such as adriamycin, alkylating agents such as dacarbazine, plant-derived anticancer drugs such as paclitaxel and the like” (*id.* at ¶ 39).
- FF4. The Specification provides:
The term “reducing” means that a side effect, which is caused by an anticancer drug in the absence of the present agent, is alleviated by the administration of the present agent. The term “reducing” means that not only the side effect is alleviated by the present agent but also that the side effect itself does not occur by the present agent.
(Spec. 15.)
- FF5. The Specification explains that “cytotoxic anticancer drugs such as alkylating drugs, antimetabolites, anticancer antibiotics, plant alkaloids, platinum-based drugs . . . cause damage not only on cancer cells, but also on normal cells with active cytokinesis as well. Due to side effects caused by the cytotoxic anticancer drugs such as bone

marrow suppression, cardiotoxicity, hematopoietic disorders, digestive disturbances, alopecia and the like . . . the effective quantity of the drug needed for cancer therapy cannot be administered” (*id.* at 2.)

FF6. Examples 1–4 of the Specification administer batroxobin and an anticancer drug at the same time to a patient population; in these examples, the patients are mice (*id.* at 20–26).

Principle of Law

“[A] reference may anticipate even when the relevant properties of the thing disclosed were not appreciated at the time.” *Abbott Labs. v. Baxter Pharm. Products, Inc.*, 471 F.3d 1363, 1367 (Fed. Cir. 2006).

In some cases, [an] inherent property corresponds to a claimed new benefit or characteristic of an invention otherwise in the prior art. In those cases, the new realization alone does not render the old invention patentable. . . . Thus, when considering a prior art method, the anticipation doctrine examines the natural and inherent results in that method without regard to the full recognition of those benefits or characteristics within the art field at the time of the prior art disclosure.

Perricone v. Medicis Pharm. Corp., 432 F.3d 1368, 1378 (Fed. Cir. 2005).

Analysis

Appellants contend that “Senga ’706 fails to disclose, *inter alia*, methods of reducing a side effect of an anticancer drug in a subject *in need thereof*” (App. Br. 5). Specifically, the Examiner “fails to appreciate the import of *Perricone*, it ignores the fact that inherency ‘may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient’” (App. Br. 6). Appellants contend that “new uses of old products are patentable

subject matter. *See, e.g., Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1378 (Fed. Cir. 2005)” (Reply Br. 3).

We are not persuaded by Appellants’ contention that administering batroxobin to cancer patients who are simultaneously receiving anticancer drugs is a new use of an old structure (*see* App. Br. 5). Claim 16 is directed to administering a thrombin-like enzyme to subjects who are also receiving anticancer drugs. The claim is reasonably interpreted to encompass subjects receiving combination therapy that includes administering both the thrombin-like enzyme and the anticancer drug simultaneously (FF6). Furthermore, according to the Specification, any subject taking anticancer drugs would reasonably be expected to be a subject in need of treatment as most anticancer drugs are known to have some side effect (FF5). Accordingly, we agree with the Examiner’s interpretation that in light of the Specification any cancer patient receiving treatment with an anticancer drug would meet the criterion of being a subject in need of reduction of side effects (*see* Ans. 4).

The Examiner finds that Senga ’706 teaches applying combination therapy comprising batroxobin and an anticancer drug to a patient population that has cancer (Ans. 2–6; FF1–FF3). Contrary to Appellants’ assertions, the facts in the present application differ from the facts in *Perricone* (*see* Reply Br. 3). In *Perricone*, our reviewing Court reversed the anticipation rejection “[b]ecause Pereira does not disclose topical application to skin sunburn.” *Perricone*, 432 F.3d at 1379. In other words, the art did not disclose the use of the lotion with the same patient population, i.e. those patients that have sunburn. Here, however, Senga ’706 teaches administering batroxobin in combination with an anticancer drug to patients

having cancer (*see* FF1–FF3; Ans. 6 (Senga ’706 “does disclose administration of an effective amount of a thrombin-like enzyme to a subject in need thereof”).)

“[S]omething which is old does not become patentable upon the discovery of a new property” (Final Act. 4; *see* Ans. 6). In other words, Senga ’706 applies the same therapy to the same patient population, i.e. those with cancer and receiving a cancer drug. Therefore, the effect of the batroxobin composition in combination with the anticancer drug is expected to be the same because it is the natural result of the administration of the composition with the anticancer drug. This rationale is explicitly recognized. *See Perricone* 432 F.3d at 1378 (“The issue is not . . . whether Pereira’s lotion *if applied* to skin sunburn would inherently treat that damage, but whether Pereira discloses the application of its composition to skin sunburn.”) Thus, applying batroxobin to a patient population in combination with an anticancer drug as disclosed in Senga ’706 would provide the natural result of reducing a side effect from the anticancer drug.

Appellants’ arguments do not persuade us that the preponderance of the evidence fails to support the Examiner’s *prima facie* case of anticipation. As Appellants do not argue the claims separately, claims 17–28 fall with claim 16. 37 C.F.R. § 41.37(c)(1)(iv).

II. Obviousness over Senga ’706 in view of Senga ’519

The Examiner rejects claim 18 as obvious over Senga ’706 in view of Senga ’519. Claim 18 recites the limitation that “the thrombin-like enzyme is selected from the group consisting of batroxobin, ancrod and crotalase” (App. Br. Claims Appendix). The Examiner recognizes that Senga ’706

does not disclose applying the thrombin-like protease ancrod and crotalase to patients and looks to Senga '519 for this disclosure.

With respect to the combination of Senga '706 and Senga '519, Appellants rely on the same arguments addressed above in the anticipation rejection (*see* App. Br. 9 (“Senga '519 is as silent as Senga '706 regarding methods of reducing a side effect of an anticancer drug in a subject *in need thereof* by administering an effective amount of a thrombin-like enzyme to the subject”). We are not persuaded for the same reasons set forth above (*I.*).

We are equally unpersuaded by Appellants' contention with respect to the hindsight argument (*see* App. Br. 9). While we are fully aware that hindsight bias often plagues determinations of obviousness, *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966), we are also mindful that the Supreme Court has clearly stated that the “combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). As explained by the Examiner, the teaching of Senga '519 is relied on solely for the teaching that “that batroxobin, ancrod and crotalase are all thrombin-like serine protease enzymes, derived from snake venom” (Ans. 6; Senga '519, col. 31 (“batroxobin . . . which is extracted and purified from the venom of *Bothrops atrox moojeni*, as well as ancrod and other thrombin-like enzymes (such as Crotalase) which are derived from snake venom.”)) We agree with the Examiner's position that the ordinary artisan of ordinary creativity familiar with administering thrombin-like serine proteases to patients would have selected art-recognized equivalents such as ancrod and crotalase in place of batroxobin because such a combination is merely a

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“predictable use of prior art elements according to their established functions.” *KSR*, 550 U.S. at 417. Accordingly, we affirm the rejection of claim 18 for the reason given by the Examiner (Ans. 5).

SUMMARY

We affirm the rejections of claims 16–28 under 35 U.S.C. § 102(b) by Senga ’706.

We affirm the rejection of claim 18 under 35 U.S.C. § 103(a) over Senga ’706 in view of Senga ’519.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED