# United States Court of Appeals for the Federal Circuit

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(Serial No. 11/118,824)

**IN RE HUGH EDWARD MONTGOMERY, JOHN FRANCIS MARTIN, and JORGE DANIEL ERUSALIMSKY**

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2011-1376

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Appeal from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences.

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Decided: May 8, 2012

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J. MARK POHL, Pharmaceutical Patent Attorneys, LLC, of Morristown, New Jersey, argued for appellants.

SCOTT C. WEIDENFELLER, Associate Solicitor, Office of the Solicitor, United States Patent and Trademark Office, of Alexandria, Virginia, argued for appellee. With him on the brief were RAYMOND T. CHEN, Solicitor, and FRANCES M. LYNCH, Associate Solicitor.

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Before LOURIE, DYK, and PROST, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* DYK.
Dissenting opinion filed by *Circuit Judge* LOURIE.

DYK, *Circuit Judge*.

Hugh Edward Montgomery, John Francis Martin, and Jorge Daniel Erusalimsky (collectively, "Montgomery") appeal from a decision of the Board of Patent Appeals and Interferences ("Board") affirming the examiner's rejection of claims 42, 43, and 45 of U.S. Patent Application Serial No. 11/118,824 (the "'824 application") as anticipated. *See Ex parte Montgomery* ("*Rehearing Decision*"), No. 2011-000170, 2011 WL 514316 (B.P.A.I. Feb. 10, 2011); *Ex parte Montgomery* ("*Board Decision*"), No. 2011-000170, 2010 WL 4719114 (B.P.A.I. Nov. 18, 2010). We affirm.

## BACKGROUND

Montgomery filed the '824 application on April 29, 2005, claiming priority to United Kingdom applications No. 9722026.3, filed October 17, 1997, and No. 9810855.8, filed May 20, 1998. The application is directed to inhibitors of the renin-angiotensin system ("RAS"), which is "important in the maintenance and control of blood pressure as well as the regulation of salt and water metabolism." J.A. 225. As the '824 application's specification notes, RAS inhibitors have been administered to treat high blood pressure, known as hypertension, and "it is preferred . . . to use in the practice of the invention any of the known RAS inhibitors which are either on the market or under investigation for their antihypertensive effects." J.A. 231-32. These "known RAS inhibitors" include angiotensin-converting enzyme inhibitors ("ACE inhibitors") such as ramipril. J.A. 232. The specification is largely directed to treating wasting diseases such as cachexia, and to improving cardiovascular fitness and

physical endurance. Stroke treatment and prevention is only mentioned in passing as a potential object of this invention. *See* J.A. 230-31.

The claims at issue recite administering RAS inhibitors to patients diagnosed as in need of stroke treatment or prevention:

> 42. A *method for the treatment or prevention of stroke or its recurrence*, wherein said method comprises *administering, to a patient diagnosed as in need of such treatment or prevention*, an inhibitor of the rennin-angiotensin system, said inhibitor having a C*log*P of greater than about 1.
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> 43. The method as claimed in claim 42, wherein the inhibitor of the rennin-angiotensin system comprises at least one inhibitor of angiotensin-converting enzyme.
>
> 45. The method as claimed in claim 43, wherein the inhibitor of angiotensin-converting enzyme comprises ramipril.

J.A. 1 (emphases added). The examiner rejected these claims as anticipated by each of four prior art references: AIRE,[1] Frampton,[2] HOPE,[3] and Gohlke[4] (as evidenced by

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[1] The Acute Infarction Ramipril Efficacy (AIRE) Study Investigators, *Effect of Ramipril on Mortality and Morbidity of Survivors of Acute Myocardial Infarction with Clinical Evidence of Heart Failure*, 342 Lancet 821 (1993) ("AIRE"); J.A. 7-14.

[2] James E. Frampton & David H. Peters, *Ramipril: An Updated Review of Its Therapeutic Use in Essential Hypertension and Heart Failure*, 49 Drugs 440 (1995) (abstract) ("Frampton"); J.A. 45-48.

[3] The HOPE Study Investigators, *The HOPE (Heart Outcomes Prevention Evaluation) Study: The Design of a Large, Simple Randomized Trial of an Angiotensin-Converting Enzyme Inhibitor (Ramipril) and Vitamin E in*

Richer[5]), all of which describe the administration of ramipril to subjects at risk of stroke.[6]

Hypertension is a known risk factor for stroke. *Board Decision*, 2010 WL 4719114, at *4. AIRE describes a study in which about 2000 "patients who had shown clinical evidence of heart failure," many of whom suffered from hypertension, were treated with ramipril or a placebo. AIRE at 821-22. In particular, 289 (29%) of the patients receiving ramipril had hypertension. *Id.* at 822. The study found "overall a 27% reduction in the risk of death" and a 19% reduction in the risk of "the first validated event in any individual patient—namely, death, reinfarction, stroke, or development of severe/resistant heart failure," and both results were "highly significant statistically." *Id.* at 824. The data on stroke were not statistically significant: "The incidence of stroke was higher in the active drug group but the numbers were small and an adverse effect of the drug can be neither supported nor refuted." *Id.* at 826. Frampton summarizes AIRE and other "large-scale noncomparative stud-

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*Patients at High Risk of Cardiovascular Events*, 12 Can. J. Cardiology 127 (1996) ("HOPE"); J.A. 58-68.

[4] Peter Gohlke et al., *Angiotensin-Converting Enzyme Inhibition Improves Cardiac Function*, 23 Hypertension 411 (1994) ("Gohlke"); J.A. 49-56.

[5] C. Richer et al., *Antihypertensive Drugs in the Stroke-Prone Spontaneously Hypertensive Rat*, 19 Clinical & Experimental Hypertension 925 (1997) (abstract), *available at* http://www.ncbi.nlm.nih.gov/pubmed/9247765 ("Richer"); J.A. 85.

[6] As the claims themselves state, ramipril is "an inhibitor of the rennin-angiotensin system" and an "inhibitor of angiotensin-converting enzyme." J.A. 1. And the Board found, and Montgomery does not contest, that "[t]he ClogP properties recited in the claim[s] [are] inherently present in ramipril." *Board Decision*, 2010 WL 4719114, at *2.

ies" and explains that "[t]he antihypertensive efficacy of ramipril has been confirmed" by these studies. J.A. 45.

HOPE describes the design of "a large, simple randomized trial of . . . ramipril . . . and vitamin E . . . in the prevention of myocardial infarction, stroke, or cardiovascular death," which recruited "[o]ver 9000 [patients] at high risk for cardiovascular events such as myocardial infarction and stroke." HOPE at 127. HOPE discloses that at the time of its publication, all 9541 patients had been randomized and had been receiving ramipril or a placebo for at least one month.[7] (The HOPE study ultimately found that patients receiving ramipril had a statistically significant reduction in the risk of stroke,[8] but these results were not published until after Montgomery's priority date and thus are irrelevant to an anticipation analysis.)

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[7] HOPE was published in Feburary 1996, and "[a]s of January 1, 1996 the study [had] completed randomizing 9541 patients." *Id.* at 134. Patients were "given seven to 10 days of 2.5 mg active ramipril" prior to randomization. *Id.* at 132. Each patient was then randomized individually "by a telephone call to a central office," after which "the patient [was] randomized to ramipril (2.5 mg for one week, then 5 mg every day for three weeks) or matching placebo," and was "given a date for a first follow-up visit (one month plus or minus one week) after which the dose of ramipril [was] increased to 10 mg daily." *Id.* This protocol demonstrates that prior to HOPE's publication, every patient randomized to ramipril received at least 2.5 mg ramipril daily for one week and 5 mg daily for three weeks.

[8] *See* The Heart Outcomes Prevention Evaluation Study Investigators, *Effects of an Angiotensin-Converting-Enzyme Inhibitor, Ramipril, on Cardiovascular Events in High-Risk Patients*, 342 New Eng. J. Med. 145, 148 tbl.3 (2000).

Finally, Gohlke describes a study of "the effects of . . . ramipril on functional and biochemical cardiac parameters in stroke-prone spontaneously hypertensive rats," which found that the treatment "improves cardiac function even at low doses." Gohlke at 411. Richer further explains that "[t]he stroke-prone spontaneously hypertensive rat . . . is an experimental model that has been widely used to investigate the potential preventive effects vs stroke and mortality of numerous antihypertensive agents. Among the latter, angiotensin I-converting enzyme inhibitors, angiotensin II AT1-receptor blockers and calcium antagonists have proven to be very effective." J.A. 85.

The Board affirmed the examiner's rejection of all three claims as anticipated by each of these prior art references. *Board Decision*, 2010 WL 4719114, at *12. The Board found that claim 42 has two elements: (1) "to administer an inhibitor of the rennin-angiotensin system," and (2) "the patient population receiving the inhibitor . . . encompasses patients diagnosed as required stroke treatment or prevention." *Id.* at *4. The Board explained that each reference teaches administration of ramipril to stroke-prone patients: "AIRE identified patients with hypertension who are known to be at risk of stroke, and treated this patient population with ramipril," "Frampton teaches treatment of hypertensive patients with ramipril" (where "hypertension is a known 'risk factor for stroke'"), "the HOPE study was clearly enabled to treat patients, including patients with previous stroke, with ramipril," and Gohlke "identif[ies] the rats, here reasonably interpreted as the patients, as 'stroke-prone' and then teaches administering ramipril to the rats." *Id.* at *4, 7, 9, 10-11.

While the Board did not rule directly on whether Montgomery's claims required that the administration be effective at treating or preventing stroke, it appeared to

assume that they did include such a requirement. The Board rejected Montgomery's argument that none of the references demonstrated that ramipril actually treats or prevents stroke, noting that ramipril inherently treats or prevents stroke, and "[i]t matters not that those of ordinary skill heretofore may not have recognized these inherent characteristics." *Id.* at *4 (quoting *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1350 (Fed. Cir. 2002)) (internal quotation marks omitted).

Montgomery filed a request for rehearing, arguing that AIRE and Frampton did not teach administration to patients diagnosed as at risk of stroke because stroke is only one of the afflictions caused by hypertension; that HOPE was merely a proposal for future research that was not enabled; and that Gohlke could not anticipate because the claim term "patient" should be limited to human beings. *See* Request for Rehearing, *In re Montgomery*, No. 2011-000170 (B.P.A.I. Jan. 24, 2011). The Board declined to modify its original decision. *Rehearing Decision*, 2011 WL 514316, at *4. The Board noted that "[i]t does not matter whether [AIRE] appreciated that . . . treatment [with ramipril], which was undisputedly actually performed on 289 patients with hypertension and 230 patients with previous myocardial infarct, would treat or prevent stroke," and that HOPE "was clearly enabled to treat patients, including patients with previous stroke, with ramipril." *Id.* at *2.

Montgomery timely appealed, and we have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

## DISCUSSION

Under the Administrative Procedure Act, we review the Board's legal conclusions without deference and set aside conclusions that are "not in accordance with law," and we review its findings of fact to determine if they are

"unsupported by substantial evidence." 5 U.S.C. § 706(2); *see Dickinson v. Zurko*, 527 U.S. 150, 162-65 (1999).

"Determining whether claims are anticipated involves a two-step analysis. The first step involves construction of the claims of the patent at issue. Claim construction is a question of law reviewed *de novo*." *In re Aoyama*, 656 F.3d 1293, 1296 (Fed. Cir. 2011). "During examination, 'claims . . . are to be given their broadest reasonable interpretation consistent with the specification, and . . . claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.'" *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (alteration in original) (quoting *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990)). The broadest reasonable interpretation, like claim construction in the infringement context, is a question of law that we review de novo. *In re NTP, Inc.*, 654 F.3d 1268, 1274 (Fed. Cir. 2011). "The second step [of an anticipation analysis] involves comparing the claims to the prior art. Anticipation is a question of fact reviewed for substantial evidence." *In re Aoyama*, 656 F.3d at 1296. A prior art reference anticipates a patent claim under 35 U.S.C. § 102(b) if it discloses every claim limitation. *Verizon Servs. Corp. v. Cox Fibernet Va., Inc.*, 602 F.3d 1325, 1336-37 (Fed. Cir. 2010). A reference may anticipate inherently if a claim limitation that is not expressly disclosed "is necessarily present, or inherent, in the single anticipating reference." *Id.* at 1337 (quoting *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003)) (internal quotation mark omitted). The inherent result must inevitably result from the disclosed steps; "[i]nherency . . . may not be established by probabilities or possibilities." *Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629, 639 (Fed. Cir. 2011) (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)).

The contested elements of claim 45 are the administration of ramipril (1) "to a patient diagnosed as in need of [stroke] treatment or prevention," (2) where such administration is "for the treatment or prevention of stroke or its recurrence."[9] We thus determine de novo the broadest reasonable interpretation of each of these requirements. Because we conclude that HOPE discloses both requirements, we need not address Montgomery's arguments concerning AIRE, Frampton, and Gohlke.

We first examine the requirement that the administration be "to a patient diagnosed as in need of [stroke] treatment or prevention." Montgomery does not contest that the patients in HOPE satisfy this claim requirement. HOPE explicitly disclosed the administration of ramipril to patients "at high risk for cardiovascular events such as myocardial infarction and stroke," and the eligibility criteria included patients with previous stroke. HOPE at 127-28. We see no error in the Board's uncontested conclusion that HOPE discloses the administration of ramipril to patients diagnosed as in need of stroke treatment or prevention.

We next turn to the preamble requirement that the method be "for the treatment or prevention of stroke or its recurrence." The Board did not rule directly on whether the broadest reasonable interpretation of the claims required that the treatment or prevention be effective or whether it was sufficient that the administration be

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[9] Montgomery does not dispute that a prior art reference that anticipates claim 45 (describing the administration of ramipril) necessarily anticipates claims 43 (describing the administration of "at least one inhibitor of angiotensin-converting enzyme") and claim 42 (describing the administration of "an inhibitor of the rennin-angiotensin system, said inhibitor having a C*log*P of greater than about 1").

designed to treat or prevent stroke.[10] But in resting the decision on inherency, the Board appeared to assume that the patent included an efficacy requirement.

We are skeptical that a proper interpretation of the claims would include an efficacy requirement. In *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, we construed a similar method-of-treatment claim—involving "[a] method for reducing hematologic toxicity" by administering taxol to a cancer patient—and held that it "merely express[ed] a purpose of reducing hematologic toxicity" rather than requiring a particular result. 246 F.3d 1368, 1371, 1375 (Fed. Cir. 2001). Such a construction is even more appropriate here in the examination context, where we apply the "broadest reasonable interpretation consistent with the specification." *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d at 1364. Nothing in the '824 specification suggests that a narrower construction is appropriate: the specification does not describe any studies that show that RAS inhibitors are effective for stroke treatment or prevention, *see* J.A. 224-52, thus also suggesting that the claims do not incorporate such a requirement, *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) ("[C]laims must be read in view of the specification, of which they are a part." (internal quotation marks omitted)).

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[10] The Board at first seemed to assume that efficacy was not a requirement by not including efficacy in its description of the "two elements" of the claims and by stating that "[a]ll that is required by claims 42, 43 and 45 is identifying a patient in need of the treatment, and administering ramipril to that patient," with no mention of efficacy. *Board Decision*, 2010 WL 4719114, at *4, *9. But the Board then referred to the "preamble requirement of the claim to treat or prevent stroke," *id.* at *9, suggesting that efficacy is a requirement.

We need not resolve this question, however, for we agree with the Board that even if the claim includes an efficacy requirement, efficacy is inherent in carrying out the claim steps. *See Rehearing Decision*, 2011 WL 514316, at *2. We agree with the dissent that a result is only inherent if it inevitably flows from the prior art disclosure, but there is no question here that treating stroke-prone patients with ramipril does in fact inevitably treat or prevent stroke. And Montgomery does not dispute that ramipril is in fact effective at preventing or treating stroke, which is the entire premise of his patent.[11]

We have repeatedly held that "[n]ewly discovered results of known processes directed to the same purpose are not patentable because such results are inherent." *Bristol-Myers Squibb*, 246 F.3d at 1376. As we stated in *Cruciferous Sprout*, 301 F.3d at 1350, "[i]t matters not that those of ordinary skill heretofore may not have recognized the[] inherent characteristics of the [prior art]."

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[11] Montgomery contends that AIRE teaches that ramipril increases the risk of stroke because 2.5% of patients receiving ramipril suffered a stroke compared with 1.7% of patients receiving the placebo. As discussed previously, however, these results were not statistically significant, so AIRE does not teach anything about the correlation between ramipril and stroke risk; indeed, AIRE explicitly states that "an adverse effect of the drug can be neither supported nor refuted." AIRE at 826. In any case, "the question whether a reference 'teaches away' from the invention is inapplicable to an anticipation analysis." *Bristol-Myers Squibb*, 246 F.3d at 1378 (quoting *Celeritas Techs., Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998)) (internal quotation mark omitted).

In *King Pharmaceuticals, Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1270 (Fed. Cir. 2010), one of the claims covered "a method of increasing the oral bioavailability of metaxalone" by "administering to the patient a therapeutically effective amount of metaxalone in a pharmaceutical composition with food." We noted that according to the patent itself, "the natural result of taking metaxalone with food is an increase in the bioavailability of the drug," and that "[t]he prior art discloses taking metaxalone with food," so the preamble was "inherently anticipated." *Id.* at 1275-76. Similarly, in *Cruciferous Sprout*, the claims at issue included "[a] method of preparing a food product rich in glucosinolates, comprising germinated cruciferous seeds . . . and harvesting sprouts prior to the 2-leaf stage, to form a food product comprising a plurality of sprouts." 301 F.3d at 1345. We agreed that "rich in glucosinolates" is a claim limitation, but found the claims inherently anticipated because the patentee merely recognized properties that "necessarily have existed as long as sprouts themselves." *Id.* at 1347, 1350.

HOPE discloses a protocol for the administration of ramipril to stroke-prone patients, and administering ramipril to stroke-prone patients inevitably treats or prevents stroke. *See* HOPE at 127. Thus, HOPE inherently anticipates the claims at issue.

However, Montgomery urges that inherent anticipation requires that the claimed method have been actually performed, and that HOPE does not disclose actual performance of the method. This is not correct; HOPE reveals the actual administration of ramipril for treatment or prevention of stroke.[12] In any event, even if HOPE

[12] Montgomery argues that HOPE only involved actual administration of low dosages of ramipril, and that HOPE fails to disclose actual administration in an

merely proposed the administration of ramipril for treatment or prevention of stroke (without actually doing so), it would still anticipate. Our cases have expressly rejected Montgomery's argument. For example, in *Schering*, 339 F.3d at 1381, we held that a prior art patent that disclosed administering loratadine to a patient inherently anticipated a patent for a metabolite of loratadine because the inherent result of administering loratadine to a patient is the formation of the metabolite. We stated that anticipation "requires only an enabling disclosure," not "actual creation or reduction to practice," so that "actual administration of loratadine to patients [in the prior art] is irrelevant"—the prior art patent inherently anticipated as long as it "disclose[d] in an enabling manner the administration of loratadine to patients." *Id.* at 1380; *see also SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343-44 (Fed. Cir. 2005) (holding a chemical patent inherently anticipated and stating that it was irrelevant whether the inherently disclosed chemical was ever actually produced).

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amount sufficient for treatment or prevention. We disagree. Before HOPE's publication date, all the patients in the HOPE study were given "seven to 10 days of 2.5 mg active ramipril," and the patients randomized to ramipril received "2.5 mg [ramipril] for one week, then 5 mg every day for three weeks." HOPE at 132. Moreover, Frampton discloses that "large-scale noncomparative studies" showed that "85% of patients with mild to moderate essential hypertension have responded successfully to treatment with ramipril 2.5 or 5 mg/day." J.A. 45. Thus, even if the HOPE authors did not appreciate it, their actual administration of ramipril treated or ameliorated hypertension, which as Montgomery acknowledges, is a risk factor for stroke. In effect, therefore, HOPE inherently discloses reducing the risk of stroke (i.e., teaches "stroke prevention") and thus inherently anticipates the claims at issue.

To be sure, as the dissent points out, "[a]n invitation to investigate is not an inherent disclosure." *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004).[13] But HOPE's protocol for the administration of ramipril is far from an abstract theory—it is an advanced stage of testing designed to secure regulatory approval. HOPE was designed to obtain data for submission to regulatory agencies on the effect of ramipril on cardiovascular diseases including stroke based on substantial evidence that ramipril improved cardiovascular health, including by treating stroke risk factors such as hypertension. *See* HOPE at 128. It is well established that a patent may be secured, and typically is secured, before the conclusion of clinical trials. *See Eli Lilly & Co. v. Teva Pharm. USA, Inc.*, 619 F.3d 1329, 1335, 1343 (Fed. Cir. 2010) (rejecting an enablement challenge to patents that were filed while clinical trial results were pending); *Manual of Patent Examining Procedure* § 2107.03 (8th ed., rev. 6, Sept. 2007) ("[I]f an applicant has initiated human clinical trials for a therapeutic product or process, [Patent & Trademark] Office personnel should presume that the applicant has established that the subject matter of that trial is reasonably predictive of having the asserted therapeutic utility."). In all relevant respects, HOPE is identical to the patent itself, which does not disclose actual results from the administration of ramipril for these purposes.[14] Mont-

[13] For example, a document that recited administration of all known compounds for treatment of all known diseases, with no evidence that any of these treatments would be effective, would not inherently anticipate all method-of-treatment claims involving those compounds and diseases.

[14] Montgomery's specification disclosed small randomized trials of the effect of losartan on muscle fatigue in military recruits and the effect of enalapril on cachexia

gomery conceded at oral argument that HOPE's authors could have obtained the patent claims at issue based the HOPE reference, so it cannot be that this reference fails to anticipate.[15]

We thus affirm the rejection of claims 42, 43, and 45 of the '824 application as anticipated by HOPE. Because we affirm the Board's decision on this ground, we need not reach the issue of whether the claims are anticipated by the other prior art considered by the Board.

**AFFIRMED**

COSTS

No costs.

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(wasting disease) in patients with heart failure. *See* J.A. 247-52. The specification does not disclose any clinical studies showing the effect of ACE inhibitors on stroke, nor does it disclose any plans for such studies. In this respect, Montgomery's specification teaches even less than HOPE does about the administration of ramipril for stroke treatment or prevention.

[15] Oral Argument at 10:24, *available at* http://www.cafc.uscourts.gov/oral-argument-recordings/2011-1376/all (Court: "Couldn't the HOPE people have gotten a patent based on the prior art reference that's here? Couldn't they have applied and gotten a patent just as you could have?" Counsel for Montgomery: "Yes, they could have."). We do not have before us the question whether HOPE or Montgomery sufficiently demonstrated utility to secure a patent. *See generally In re '318 Patent Infringement Litig.*, 583 F.3d 1317, 1327 (Fed. Cir. 2009) (holding that the method of treatment claims at issue were not enabled "because the . . . patent's application did not establish utility").

# United States Court of Appeals for the Federal Circuit

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(Serial No. 11/118,824)

**IN RE HUGH EDWARD MONTGOMERY, JOHN FRANCIS MARTIN, and JORGE DANIEL ERUSALIMSKY**

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2011-1376

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Appeal from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences.

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LOURIE, *Circuit Judge*, dissenting.

I respectfully dissent from the majority's decision to affirm the rejection by the United States Patent and Trademark Office ("PTO") of pending claims 42, 43, and 45 for anticipation by inherency.

Inherency is a very tricky concept in patent law. Its salutary goal is to prevent subject matter that is effectively in the public's possession from being retrieved by a patent and withdrawn from the public domain. On the other hand, its downside is withholding patent protection from that which the public knew nothing about until a later inventor found it. A case cited by the majority, *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373 (Fed. Cir. 2003), illustrates the problem. A claimed compound not known to the art was held to be anticipated by inherency when it was found to be a metabolite of a

prior art compound. Of course, many compounds administered to humans and animals do metabolize in some manner rather than being fully excreted as such. In *Schering*, however, the prior art (1) did not disclose the later-claimed metabolite; (2) did not disclose any of the prior art compound's metabolites; and (3) did not even disclose that the prior art compound could metabolize upon administration. *Id.* at 1376. On those facts, the court nonetheless concluded that the later-claimed compound was necessarily "in the public's possession," and thus was anticipated by inherency. *Id.* at 1380 (internal quotation marks omitted); *see also Schering Corp. v. Geneva Pharm., Inc.*, 348 F.3d 992, 995–96 (Fed. Cir. 2003) (Lourie, J., dissenting from denial of petition for rehearing en banc).

An unbounded concept of inherency, as *Schering* illustrates, threatens to stymie innovation by withdrawing from the realm of patentability that which has not before been known, used, or benefited from. Properly understood, anticipation by inherency is far more limited. *See Tilghman v. Proctor*, 102 U.S. 707, 711 (1880) (declining to find anticipation by inherency where a skilled artisan "certainly never derived the least hint" of the claimed process from the prior art). Nevertheless, recent cases have followed *Schering*'s expansive holding. *See, e.g.*, *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343–44 (Fed. Cir. 2005). Whether the majority's holding in the present case will have a serious adverse effect on innovation is unclear, but I believe that the majority has found inherency where it does not exist.

The keystone of the inherency doctrine is inevitability. For anticipation by inherency, a later-claimed invention must have necessarily resulted from the practice of a prior art reference. Our precedent has been steadfast in this strict requirement of inevitability. *See, e.g.*, *Bettcher*

*Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629, 639 (Fed. Cir. 2011) ("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." (internal quotation marks omitted)); *Hansgirg v. Kemmer*, 102 F.2d 212, 214 (CCPA 1939) (same). Absent inevitability, inherency does not follow even from a very high likelihood that a prior art method will result in the claimed invention. *See, e.g.*, *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995) (holding that even though the defendant's experts reproduced a prior art method "thirteen times and each time they made [the claimed] crystals," the patentee's chemists twice produced different crystals from the same method, thus precluding inherency).

Were inevitability not required for inherency, a mere proposal for further experimentation could anticipate a claimed invention. That is not the law, however. There is nothing inevitable about a proposal. On this point, our precedent is straightforward: "An invitation to investigate is not an inherent disclosure." *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004). This maxim applies *a fortiori* in arts necessitating laboratory research, clinical studies, and other trial-and-error experimentation. In the unpredictable arts, rarely if ever will an untested proposal necessitating further study and optimization meet the stringent inevitability requirement of inherent anticipation. Although a patent should not be awarded if a claimed invention is previously described in a printed publication or patent, or obvious thereover, innovation should not be impeded by mere speculation.

On the facts of this case, none of the four cited references describes the claimed invention or the practice of a method that inherently, necessarily, carries out the

claimed processes. The claims at issue recite a method for the treatment or prevention of stroke or its recurrence comprising administering ramipril to a patient diagnosed as in need of such treatment or prevention. As the majority acknowledges, the references do not expressly disclose this claimed method. Nor is the claimed method an inherent result of carrying out what the references describe.

The HOPE paper, the only reference relied on by the majority, describes a plan designed to administer a combination of ramipril and vitamin E to patients at risk of a major vascular event including myocardial infarction, stroke, or death from cardiovascular disease. But HOPE (an acronym for Heart Outcomes Prevention Evaluation) truly expresses only a hope, not achievement of that hope. The HOPE paper itself states that it discloses only the "design of a . . . trial." J.A. 58. The results of a proposed study—involving the administration of two therapeutic agents over four years to more than 9,000 patients with varied medical histories in 267 hospitals across nineteen countries—are neither predictable nor inevitable. J.A. 58, 60, 63. Indeed, the HOPE study provides specific criteria for "early termination" if the proposed treatment is ineffective. J.A. 65. Inherency follows from the carrying out of an activity that inherently produces what is claimed; inherency does not arise from a plan whose description does not indicate its realization.

The majority states that HOPE discloses a "protocol" for the administration of ramipril. Majority Op. at 12. The fact that HOPE is a planned study, therefore, is not in dispute. The majority's conclusion, however, rests on its finding that such administration, if carried out, would inherently treat or prevent stroke. That finding is unsupported by the record. As the majority correctly notes, the results of the planned HOPE study, published in the

*New England Journal of Medicine* years after Montgomery's priority date and not of record in this case, are "irrelevant to an anticipation analysis." Majority Op. at 5. Nevertheless, to the extent that the majority's reasoning was infected by its consideration of this non-record evidence, it is worth noting two things. First, the authors of the *New England Journal of Medicine* paper acknowledge having subsequently altered the prior art HOPE study design "to account for the impact of a possible lag before treatment had its full effect," thus demonstrating that the prior art HOPE study was, at best, a plan subject to modification. *See* The Heart Outcomes Prevention Evaluation Study Investigators, *Effects of an Angiotensin-Converting-Enzyme Inhibitor, Ramipril, on Cardiovascular Events in High-Risk Patients*, 342 New Eng. J. Med. 145, 146 (2000). Second, that the results of the HOPE study merited publication in the *New England Journal of Medicine*, a prestigious and selective peer-reviewed medical journal of the highest caliber, strongly imply that the study's results were anything but preordained.

The majority further states that even if HOPE merely proposed administering ramipril for treatment or prevention of stroke (without actually doing so), it would still anticipate. Majority Op. at 12–13. The majority's view is flawed. A description of a process, even if not carried out, is an anticipation of that process. But a mere description of a process that, *if* it had been carried out, *might* yield a particular *undisclosed* result is not an inherent anticipation of that result. Stated somewhat differently, inherency requires description of action that inevitably produces a result, not merely description of action that might have been carried out, but was not, and might have yielded a particular result, but did not. The HOPE reference is only a description of what has not been carried out; whether or not, if carried out, it would inherently

accomplish the claimed result is not before us, for HOPE is only a plan.

As the majority notes, HOPE does expressly disclose an actual administration of a low dose of ramipril for a short time period as part of an initial "randomization" step. But there is no evidence in the record to prove that HOPE discloses administration sufficient to inevitably treat or prevent stroke, and the PTO does not argue otherwise. HOPE, therefore, clearly fails to describe any administration of ramipril at a dose and for a period of time that would inherently lower the risk of stroke.

Because the majority rests its decision only on HOPE, I will not discuss the shortcomings of the other references cited by the PTO, but, as indicated above, in my view they also fail to anticipate the claimed invention, either expressly or by inherency.

Finally, the majority appears to criticize the disclosure of Montgomery's application. It must be noted that the only ground of rejection by the Board, and thus the only ground of rejection properly before us on appeal, is anticipation by inherency. Whether Montgomery's pending claims are patentable on other grounds, such as enablement or obviousness, must be dealt with by the PTO in the first instance.

For the foregoing reasons, I respectfully dissent.