

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MERCK SHARP & DOHME LLC,
Petitioner

v.

HALOZYME INC.,
Patent Owner

Case PGR2025-00017
U.S. Patent No. 12,110,520

**PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY TO
PATENT OWNER'S PRELIMINARY RESPONSE**

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I. MERCK CONCEDED THAT IT FAILED TO ASSESS THE '731 APPLICATION AS OF ITS 2012 FILING DATE..... 1

II. DR. PARK'S HINDSIGHT-DRIVEN ANALYSIS SHOULD BE GIVEN LITTLE TO NO WEIGHT. 3

III. MERCK ERRONEOUSLY ATTEMPTS TO IMPORT FUNCTIONAL LIMITATIONS INTO THE CLAIMS. 4

 A. Enzymatically inactive mutants have credible utility. 6

 B. Merck misreads dependent claims 27-30..... 6

 C. Merck fails to justify refusing to construe any claim term..... 7

I. MERCK CONCEDED THAT IT FAILED TO ASSESS THE '731 APPLICATION AS OF ITS 2012 FILING DATE.

As the Petitioner, Merck has the burden of showing that the '520 Patent is PGR-eligible. *US Endodontics v. Gold Standard Instruments*, PGR2015-00019, Paper 17 at 11–12 (P.T.A.B. Jan. 29, 2016). Specifically, Merck's petition needed to show that the '520 Patent or an application to which it claims priority contains or at any time contained a claim that has an effective filing date on or after March 16, 2013. AIA §3(n)(1). Here, Merck needed to prove that the '731 priority Application failed to provide §112 support *as of its December 28, 2012 filing date*. *Reiffin v. Microsoft*, 214 F.3d 1342, 1346 (Fed. Cir. 2000) (“the sufficiency [of a disclosure] under § 112, first paragraph must be judged *as of its filing date*.”); *Sandoz v. Biogen*, PGR2022-00054, Paper 16 at 25-28 (P.T.A.B. Feb. 2, 2023). Yet, Merck and its declarants never assessed the '731 Application as of its December 2012 filing date. POPR, 10-12, 32-33; Pet., 5-6, 10-16, 27-28. Nor did Merck assess *any* application in the '520 patent family as of that application's own filing date. Indeed, Merck concedes that Hecht and Park used the wrong date—a date “immediately prior to” December 30, 2011, *a year before* the '731 Application was filed. Reply, 6.

Merck cites *Ariad* for the proposition that the “written description analysis occurs ‘as of the filing date sought.’” Reply, 7 (quoting *Ariad v. Eli Lilly*, 598 F.3d 1336, 1355 (Fed. Cir. 2010)). But that principle actually supports Halozyme, not

Merck: the filing date that is sought for assessing PGR eligibility is the '731 Application's December 2012 filing date. *See also Chiron v. Genentech*, 363 F.3d 1247, 1254 (Fed. Cir. 2004) (“Whether the earlier applications enable the claims of the '561 patent is determined *as of the filing date of each application*”¹). Following these precedents, the Board correctly denied institution in *Sandoz* and *Merck v. Wyeth* because Petitioner failed to address each priority application in view of the state of the art *at each application's own filing date*. POPR, 10-11; *Sandoz*, Paper 16 at 25-28; *Merck v. Wyeth*, PGR2017-00016, Paper 9 at 14 (P.T.A.B. Oct. 20, 2017); *see also* M.P.E.P. §2164.05(a) (“...the state of the prior art must be evaluated for each application *based on its filing date*”).

Merck is incorrect when it says (at 6) that “Halozyme does not dispute the factual accuracy of the Petition's or Dr. Hecht's analysis of the common disclosure.” Merck has not provided a factually accurate analysis at least because Merck has not even conducted a legally correct analysis. And instead of meeting its burden to assess the '731 Application as of the correct date, Merck seeks to impose a burden on Halozyme to prove why Merck—the Petitioner—must comply with the law. Merck has identified no law that justifies its illogical attempt to mix-and-match applications and filing dates, and thus Merck's assessment of the sufficiency of the '731 application under § 112 fails.

¹ Emphasis added throughout except where otherwise indicated.

PGR-eligibility is a dispositive threshold jurisdictional matter: if the patent is not shown to be PGR-eligible, then the Board lacks jurisdiction to proceed. *Gillette v. Sphere USA*, PGR2022-00030, Paper 31 at 39-40, 54-55 (P.T.A.B. Sept. 19, 2023) (terminating for lack of jurisdiction after determining the patent was PGR-ineligible). Merck failed to meet its burden of analyzing the '731 Application as of its 2012 filing date; thus, the Board should deny institution.

II. DR. PARK'S HINDSIGHT-DRIVEN ANALYSIS SHOULD BE GIVEN LITTLE TO NO WEIGHT.

Merck alleges that Park's analysis was not hindsight-driven because he allegedly assessed other residues and only *reported* his opinions on position 324. Reply, 7. But that is a distinction without a difference in the context of Merck's obviousness argument. Regardless of whether counsel told Park to *assess* only position 324 or to *report* only on position 324, the effect is the same: the only testimony he put into the record focuses exclusively on position 324 because of his lawyer's hindsight-based instruction, *not* because it would have been obvious to modify position 324 instead of other residues. Park candidly admits his declaration discusses only position 324 because counsel instructed him to, and Hecht parrots Park's analysis of that same position. POPR, 63; EX1004, ¶103. Neither witness provides *any reason* to select position 324 except for counsel's instructions—the very definition of hindsight. Such “conclusory and unsupported” declaration testimony “is entitled to little weight,” particularly in light of each declarant's utter

lack of hyaluronidase experience. *Xerox v. Bytemark*, IPR2022-00624, Paper 9 at 15 (P.T.A.B. Aug. 24, 2022); 37 C.F.R. §42.65(a).

III. MERCK ERRONEOUSLY ATTEMPTS TO IMPORT FUNCTIONAL LIMITATIONS INTO THE CLAIMS.

Merck does not dispute that the claims at issue in this proceeding do not require hyaluronidase activity; the claims circumscribe inventions identified by their structure, *not by any function*. Instead, Merck focuses (at 1-3) on the fact that these claims *encompass* active modified PH20 polypeptides. Here, as in *Boehringer II*, although the claims may *encompass* a subset of functional species, they are *not directed to* functional species. Reply, 3, 5; Paper 13 at 20 (finding the claims were structurally defined and “*not directed to a subset of species with certain antigenic properties.*”). Put another way, whether a polypeptide falls within the claim depends entirely on what the polypeptide *is*, not what it *does*. Hence, Merck is wrong when it says (at 2) that the patent’s “disclosure...requires producing and testing each one” for enzymatic activity. There is no need to test any polypeptide because those with the recited structure fall within the claims’ scope *regardless of whether* they are enzymatically active. Thus, just as in *Boehringer II*, “Petitioner’s arguments as to whether functional language—appearing only in the specification—was enabled” are entirely “inapposite.” Paper 11 at 5.

The cases Merck cites (at 2) do not salvage its arguments. Unlike in *Regents v. Eli Lilly*, the specification here does provide a “precise definition” “by structure”

for the claimed modified PH20 polypeptides that is “sufficient to distinguish it from other materials.” 119 F.3d 1559, 1568 (Fed. Cir. 1997); POPR, 39-41. For example, all claimed polypeptides share “at least 91%” of the structure of the disclosed amino acid sequences (SEQ ID Nos: 3, 7 and 32-66) and contain an amino acid modification at position 324, another purely structural feature. POPR, 39-41. The common disclosure provides *precise* definitions for both “sequence identity” and “at a position corresponding to” to sufficiently distinguish the claimed polypeptides from other polypeptides. EX1001, 58:57-60; 60:49-61:7. Dr. Triggs-Raine testified that a POSA would be able to readily visualize or recognize all members of the claimed genus in view of the disclosed structural features. EX2055, ¶¶91-100. Merck’s reliance on *Fujikawa* and *Novozymes* (at 2-3) is similarly unavailing. The specification provides more than “lists of possible substitutions” or “desired attributes,” including examples of multiply modified PH20 polypeptides and working examples of more than 6,000 single-replacement PH20 polypeptides, including polypeptides containing modifications at position 324. EX1001, 228-250; POPR, 41-45. Regardless, written description does not demand “either examples or an actual reduction to practice.” *Alcon v. Barr*, 745 F.3d 1180, 1190 (Fed. Cir. 2014). Merck has not shown that the disclosed multiply modified PH20 polypeptides or working examples are insufficient to satisfy §112.

Moreover, Merck misreads *Entresto*. Halozyme never argued, as Merck

contends (at 3), that the written description need not describe the compounds themselves. Instead, Halozyme established that the specification identifies common structural features shared by the claimed polypeptides. POPR, 39-41. And, Merck, like the district court in *Entresto*, inappropriately conflates claim coverage with claim construction. But “[t]he scope of what is claimed (and must be adequately described) is [] determined through claim construction.” *In re Entresto*, 125 F.4th 1090, 1098 (Fed. Cir. 2025). Merck’s arguments cannot be squared with *Entresto*. Given the claims’ structural language, Merck’s §112 arguments fail.

A. Enzymatically inactive mutants have credible utility.

Merck argues that inactive mutants serve no purpose, but Merck is wrong. Merck flatly ignores data from the specification establishing that PH20 polypeptides were useful as contraceptives in guinea pigs. POPR, 54-60; EX1001, 188:8-10. Merck also overlooks art disclosing that human and guinea pig PH20 are highly similar and Triggs-Raine’s testimony that a POSA would have appreciated the contraceptive utility of the claimed polypeptides. POPR, 59-60.

B. Merck misreads dependent claims 27-30.

Merck makes a new, improper reply argument that claims 27-30 impose activity requirements. Reply, 5. But Merck misreads claims 27-30, because nothing in those claims requires *the PH20* to be active. Indeed, the specification states that pharmaceutical compositions can combine *inactive* PH20 polypeptides with

contraceptives. EX1001, 32:24-39; 33:44-62. And Merck ignores disclosures that the pharmaceutical composition can contain “*any* of the modified PH20 polypeptides provided herein,” including inactive mutants. EX1001, 32:24-26, 33:44-62. Therefore, these claims do *not* use functional language to define the PH20 polypeptides. Furthermore, Merck has provided no evidence or argument that any additional claim limitations cause these claims to lack §112 support.

C. Merck fails to justify refusing to construe any claim term.

In reply (at 3-4), Merck says that the Petition “quoted the patent’s definition of ‘modified PH20 polypeptides.’” But Merck merely references this definition outside of its claim-construction section, and notably failed to construe the term in view of that definition. Merck alleges (at 4) that it explained that “*other claim requirements*”—the claimed substitution—restricted the claims to “active mutants.” But Merck’s arguments are not grounded in claim construction principles or supported by any expert testimony. POPR, 17-18, 25-28. Merck’s Petition argues (at 17) that “no term requires an express construction.” In contrast, Halozyme conducted a *Phillips*-based analysis supported by Triggs-Raine’s testimony. *Id.* Trial should be denied in view of the Petition’s many defects.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX PLLC

/Eldora L. Ellison/

Eldora L. Ellison, Ph.D.
Registration No. 39,967
Lead Attorney for Patent Owner

Date: July 22, 2025

1101 K Street, NW, 10th Floor
Washington, DC 20005
(202) 371-2600

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))

I certify that the above-captioned **PATENT OWNER'S SUR-REPLY TO
PETITIONER'S REPLY TO PATENT OWNER'S PRELIMINARY
RESPONSE** was served in its entirety on July 22, 2025, upon the following parties
via electronic mail:

Jeffrey P. Kushan (Lead Counsel)
Leif Peterson (Back-up Counsel)
SIDLEY AUSTIN LLP
Mark Stewart (Back-up Counsel)
MERCK SHARP & DOHME LLC
jkushan@sidley.com
leif.peterson@sidley.com
mark.stewart@merck.com
HalozymePGRs@sidley.com

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX PLLC

/Eldora L. Ellison/

Eldora L. Ellison, Ph.D.
Registration No. 39,967
Lead Attorney for Patent Owner

Date: July 22, 2025

1101 K Street, NW, 10th Floor
Washington, DC 20005
(202) 371-2600