

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THORNE RESEARCH, INC. AND THORNE HEALTHTECH, INC.,
Petitioner,

v.

THE QUEEN'S UNIVERSITY OF BELFAST AND CHROMADEX, INC.,
Patent Owner.

Case No. IPR2026-00400
Patent No. 12,252,506 B2

**PETITIONER'S SUR-REPLY IN SUPPORT OF ITS OPPOSITION TO
PATENT OWNER'S REQUEST FOR DISCRETIONARY DENIAL**

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I. INTRODUCTION

Discretionary denial should not be exercised. ChromaDex's updated *Fintiv* analysis raises nothing new of substance for the Director to consider.

ChromaDex's argument regarding an express definition for a claim term is so demonstratively wrong it is surprising ChromaDex would even raise it. The express definition for the relevant claim term was identified repeatedly in the petition and already addressed by ChromaDex in its previous briefing.

Discretionary denial should be *denied*.

II. DISCRETIONARY DENIAL UNDER *FINTIV* IS NOT WARRANTED

There is no credible argument for discretionary denial under *Fintiv* in this case. It is undisputable that the district court case is at a very early stage: the entire case is so early the schedule remains in flux, and no definitive trial date has been established. Patent Owner has even disputed in district court what claims are at issue and has moved to strike Thorne's pleading. *See, e.g.*, EX1031, 7. Here, ChromaDex's Reply re-argues the *Fintiv* factors, but adds nothing new of substance for the Office's consideration. Paper 11, 1-4.

With regard to scheduling, ChromaDex has no reasonable basis to speculate the parallel trial will conclude prior to a Final Written Decision (e.g., Paper 6, 9). ChromaDex omitted from its briefing that the parties and Court still have not even reached an agreement as to a court schedule, and that this remains a live issue that

is far from settled. Prior to ChromaDex's filing of its Reply, the district court judge ordered additional briefing concerning conflicting proposed scheduling orders.

EX1032. It is surprising that ChromaDex did not bring this to the Office's attention.

Besides the district court case being in very early stages (e.g., EX1030, 19-22), ChromaDex omits from its briefing its own efforts to delay that litigation. ChromaDex recently sought—and received—a 3-week extension on their written discovery responses. EX1033. ChromaDex is also dragging its feet in agreeing to a protective order, which is a necessary predicate to discovery regarding confidential information. EX1034. Moreover, in its Reply, ChromaDex mischaracterizes the schedule as requiring invalidity contentions and corresponding responses be completed prior to an institution decision (Paper 11, 2) but (i) the dates ChromaDex references are for *initial* contentions (EX1030, 20), and (ii) institution decision will likely precede the responses to those initial contentions.

As to the *Sotera* stipulation, ChromaDex quibbles that the stipulation does not specifically exclude issues that have not been pled. Paper 11, 3-4.

ChromaDex's demand for a *Sotera*-plus stipulation is misplaced because grounds involving invalidity on the basis of system art, on-sale, or public-use have, to date, not been raised in parallel litigation. Additionally, ChromaDex conflates the petition challenge to right to priority with a Section 112 invalidity argument (Paper

11, 3), but this is ChromaDex's own confusion of petition arguments. Thorne's *Sotera* stipulation minimizes overlap in issues in the district court and this IPR and ChromaDex fails to show otherwise. EX1028.

The remaining *Fintiv* factors do not favor denial of institution. *See, e.g.*, Paper 8, 1-11. A holistic evaluation of the *Fintiv* factors demonstrates that there is no true argument supporting discretionary denial in this case, and ChromaDex's request for discretionary denial should be denied.

III. PETITIONER'S R₆-R₈ EXAMINER ERROR ARGUMENTS ARE TIMELY

ChromaDex frivolously suggests that identifying an express definition in the '506 patent specification was newly raised in Thorne's discretionary denial opposition brief. Paper 11, 4-5. That is demonstrably wrong. Discussion of the express definition for R₆-R₈ is littered throughout the petition materials, and ChromaDex even responded to it in its prior briefing.

The Petition repeatedly identified an express definition for R₆-R₈ in the '506 patent. *E.g.*, Pet. at 6-7 ("The '506 patent defines that R₆-R₈ are hydroxyl-protecting groups.") (citing EX1001, 8:17-28, 7:1-16); *see also id.*, 3, 13-18, 21, 23. ChromaDex cannot credibly assert otherwise. Indeed, ChromaDex even responded to Thorne's identification of an express definition in both its Discretionary Denial brief (Paper 6 at 13-17; *see also, e.g., id.* at 5-8, 18-20) as well as its POPR (Paper 7 at 21-22; *see also, e.g., id.* at 2-3, 12-20, 23-30, and 39-

41). The Petition also identified that there was no right of priority for the '506 patent claims to earlier filed applications because of the express definition, and that there was no indication the examiner ever considered this issue. Pet., 8-9.

With regard to timeliness of examiner error arguments, ChromaDex argues that issues concerning *Fintiv* Factor 6 and 325(d) should have been raised in the Petition (Paper 11, 5)—contrary to explicit Office instruction that: “The petition ***should not address*** discretionary issues.” Interim Director Discretionary Process, § III.A (emphasis added). Thorne’s argument was therefore timely, and ChromaDex’s argument to the contrary has no basis.

Accordingly, ChromaDex’s assertion that Thorne’s identification of an express definition was newly raised is simply false. Both the petition and subsequent briefing address the uncontroversial fact that a patentee’s definitions are given deference, and that the best guide for claim term definitions is within the specification. ChromaDex cannot credibly argue otherwise.

IV. CONCLUSION

For at least the above reasons, Petitioner respectfully requests that Patent Owner’s request for discretionary denial be ***denied***.

Respectfully submitted,

Date: October 13, 2026

/ Michael T. Rosato /
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V. APPENDIX – EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 12,252,506
1002	Prosecution history for U.S. Patent App. No. 18/307,733
1003	United Kingdom Patent Application No. 1313465.5
1004	International Patent Application No. PCT/EP2014/065971
1005	U.S. Patent No. 10,000,519
1006	U.S. Patent No. 10,815,262
1007	U.S. Patent No. 11,584,770
1008	U.S. Patent No. 11,981,698
1009	G. Schabert et al., <i>New Crystalline Salts of Nicotinamide Riboside as Food Additives</i> , MOLECULES 26, 2729 (2021).
1010	<i>Intentionally left blank</i>
1011	<i>Intentionally left blank</i>
1012	JONATHAN CLAYDEN ET AL., ORGANIC CHEMISTRY (2009).
1013	Declaration of Dr. Glenn Prestwich
1014	Dr. Glenn Prestwich CV
1015	S. Tanimori et al., <i>An Efficient Chemical Synthesis of Nicotinamide Riboside (NAR) and Analogs</i> , BIOORGANIC & MEDICINAL CHEMISTRY LETTERS 12, 1135 (2002).
1016	P. Franchetti et al., <i>Stereoselective synthesis of nicotinamide β-ribose and nucleoside analogs</i> , BIOORGANIC & MEDICINAL CHEMISTRY LETTERS 14, 4655 (2004).
1017	SPHERIX CHROMADDEX CONSULTING, Generally Recognized as Safe (GRAS) Determination for Niagen™ (Nicotinamide Riboside

Exhibit No.	Description
	Chloride), No. 635 (Mar. 3, 2016), <i>available at</i> https://www.hfpappexternal.fda.gov/scripts/fdcc/index.cfm?set=GRASNotices&id=635
1018	<i>GRN No. 635: Nicotinamide riboside chloride</i> , FDA, https://www.hfpappexternal.fda.gov/scripts/fdcc/index.cfm?set=GRASNotices&id=635 (last visited Apr. 24, 2026)
1019	<i>GRAS Notices</i> , FDA, https://www.hfpappexternal.fda.gov/scripts/fdcc/index.cfm?set=GRASNotices (last visited Apr. 24, 2026)
1020	Archived <i>GRAS Notices</i> , FDA, https://web.archive.org/web/20201222145917/https://www.cfsanappsexternal.fda.gov/scripts/fdcc/index.cfm?set=GRASNotices&sort=GRN_No&order=DESC&showAll=true&type=basic&search= (archived Dec. 22, 2020)
1021	Archived <i>GRN No. 635: Nicotinamide riboside chloride</i> , FDA, https://web.archive.org/web/20210124164020/https://www.cfsanappsexternal.fda.gov/scripts/fdcc/index.cfm?set=GRASNotices&id=635 (archived Jan. 24, 2021)
1022	U.S. Patent Application Publication No. US 2016/0168184
1023	USPTO Assignment Center, <i>Patent Assignment Abstract of Title for Patent No. 12,252,506</i> , https://assignmentcenter.uspto.gov/search/patent/abstract%3FpatentNumber%3D12252506 (last visited June 22, 2026).
1024	<i>Niagen Bioscience Acquires Existing Core Nicotinamide Riboside (NR) Patent Portfolio from Queen's University Belfast</i> , NIAGEN BIOSCIENCE, INC. (Dec. 22, 2025), https://investors.niagenbioscience.com/news/news-details/2025/Niagen-Bioscience-Acquires-Existing-Core-Nicotinamide-Riboside-NR-Patent-Portfolio-from-Queens-University-Belfast/default.aspx (last visited June 17, 2026).
1025	Niagen Bioscience, Inc., Annual Report (Form 10-K) (Mar. 4, 2026),

Exhibit No.	Description
	https://www.sec.gov/Archives/edgar/data/1386570/000138657026000024/nageform10-k.pdf .
1026	<i>Niagen Bioscience Secures U.S. Patent for the Composition of Matter for Nicotinamide Riboside (NR) Salt Forms</i> , NIAGEN BIOSCIENCE, INC. (Mar. 20, 2025), https://investors.niagenbioscience.com/news/news-details/2025/Niagen-Bioscience-Secures-U-S--Patent-for-the-Composition-of-Matter-for-Nicotinamide-Riboside-NR-Salt-Forms/ (last visited June 17, 2026).
1027	Pls.’ Answer & Affirmative Defenses to Def. ChromaDex, Inc.’s Countercl. & Counter-Countercls. Against Defs. Niagen Bioscience, Inc., ChromaDex, Inc. & the Queen's Univ. of Belfast, <i>Thorne Rsch., Inc. v. Niagen Biosciences, Inc.</i> , No. 2:26-cv-01758-RMG (D.S.C. Sept. 2, 2026), ECF No. 30.
1028	Pls.’ Stipulation Concerning Invalidity Grounds, <i>Thorne Rsch., Inc. v. Niagen Biosciences, Inc.</i> , No. 2:26-cv-01758-RMG (D.S.C. Sept. 2, 2026), ECF No. 31.
1029	<i>Admin. Office of the U.S. Cts.</i> , U.S. District Court — Judicial Caseload Profile (June 30, 2026), <i>available at</i> https://www.uscourts.gov/sites/default/files/document/fcms_na_distprofile0630.2026.pdf
1030	Joint Rule 26(f) Report, <i>Thorne Rsch., Inc. v. Niagen Biosciences, Inc.</i> , No. 2:26-cv-01758-RMG (D.S.C. Sept. 2, 2026), ECF No. 40.
1031	Pls.’ Opp’n to Defs. Niagen Bioscience, Inc. & Queen’s Univ. of Belfast’s Mot. to Strike or, in the Alternative, Dismiss Pls.’ Counter-Counterclaims, or, in the Alternative, Leave to Amend Compl., <i>Thorne Rsch., Inc. v. Niagen Bioscience, Inc.</i> , No. 2:26-cv-01758-RMG (D.S.C. Oct. 7, 2026), ECF No. 44.
1032	Text Order, <i>Thorne Rsch., Inc. v. Niagen Bioscience, Inc.</i> , No. 2:26-cv-01758-RMG (D.S.C. Oct. 5, 2026), ECF No. 43.

Exhibit No.	Description
1033	Email from Tina Hanson, Att’y, Wilson Sonsini Goodrich & Rosati, to Nicholas Sieger, Att’y, King & Spalding LLP, et al. (Oct. 2, 2026, 3:52 PM).
1034	Email from Tina Hanson, Att’y, Wilson Sonsini Goodrich & Rosati, to Mark Zambarda, Att’y, King & Spalding LLP, et al. (Oct. 8, 2026, 10:51 AM).

CERTIFICATE OF SERVICE

I certify that the foregoing Petitioner's Sur-Reply and accompanying Exhibits 1031-1034 were served on this 13th day of October, 2026, on Patent Owner at the following electronic service addresses:

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