UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAYER CROPSCIENCE LP, MONSANTO COMPANY, AND INARI AGRICULTURE, INC.[1]

Petitioners,

v.

CORTEVA AGRISCIENCE LLC,

Patent Owner.

Case No. IPR2023-01036
U.S. Patent No. 10,947,555

PETITIONERS' OBJECTIONS TO EVIDENCE OF PATENT OWNER CORTEVA AGRISCIENCE LLC FILED AND SERVED WITH PATENT OWNER'S RESPONSE

[1] The Board joined Inari Agriculture, Inc. as a party (Petitioner) to this proceeding via a Motion for Joinder in IPR2024-00179.

Pursuant to 37 C.F.R. § 42.64(b)(1), Petitioners Bayer CropScience LP and Monsanto Company (collectively, "Petitioners"), submit the following objections to the admissibility of evidence filed and served by Patent Owner Corteva Agriscience LLC accompanying its Patent Owner's Response. Petitioners reserve the right to rely on Patent Owner's exhibits for any purpose for which they are admissible.

Exhibit	Objections
EX2015 – Declaration of Dr. Bollinger	**FRE 106, 401, 402, and 403:** The testimony offered in paragraphs 14-163 is misleading, incomplete, and irrelevant, including because the testimony offered lacks support, mischaracterizes legal principles, mischaracterizes the '555 patent, mischaracterizes the prior art. Therefore, the proffered testimony's probative value with respect to any ground upon which trial was instituted is substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, wasting time, or needlessly presenting cumulative evidence. **FRE 401 and 402:** For each paragraph not cited in Patent Owner's Response, the exhibit is not relevant to any ground upon which trial was instituted. **FRE 702 and 703:** The testimony offered in paragraphs 14-163 is not based on sufficient facts or data, the product of reliable principles and methods, and/or a reliable application of the principles and methods to the facts.

	Right to Cross-Examine: Petitioner reserves the right to cross-examine the declarant or else seek to exclude the exhibit as hearsay.
EX2016 – Transcript from Deposition of Dr. Hausinger (Apr. 4, 2024)	**FRE 106**: The exhibit is an incomplete and/or inaccurate transcript of the April 4, 2024 Deposition of Dr. Robert P. Hausinger because the transcript does not include any forthcoming errata sheet. To the extent the witness submits an errata sheet, it must in fairness be considered at the same time as the exhibit.
EX2018 – Robinson, *Enzymes: principles and biotechnological applications*, 59 ESSAYS BIOCHEM. 1–41 (2015) ("Robinson")	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2019 – Tian and Skolnick, *How Well is Enzyme Function Conserved as a Function of Pairwise Sequence*	**FRE 802:** To the extent it is being offered to prove the truth of the matter

Identity?, 333 J. MOL. BIOL. 863–882 (2003) ("Tian")	asserted, the exhibit constitutes inadmissible hearsay.
EX2020 – Tipton and Boyce, *History of the enzyme nomenclature system*, 16(1) BIOINFORMATICS 34–40 (2000) ("Tipton")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2021 – Rost, *Twilight zone of protein sequence alignments*, 12(2) PROTEIN ENGINEERING 85–94 (1999) ("Rost 1999")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2023 – Chung and Subbiah, *A structural explanation for the twilight zone of protein sequence homology*, 4(10) STRUCTURE 1123–27 (1996) ("Chung")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2024 – Wilson et al., *Assessing Annotation Transfer for Genomics: Quantifying the Relations between Protein Sequence, Structure and Function through Traditional and Probabilistic Scores*, 297 J. MOL. BIOL. 233–249 (2000) ("Wilson")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2025 – Minshull et al., *Predicting enzyme function from protein sequence*, 9(2) CURR. OPIN. CHEM. BIOL. 202-09 (2005) ("Minshull")	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing

	the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2026 – Devos and Valencia, *Practical Limits of Function Prediction*, 41 PROTEINS 98–107 (2000) ("Devos")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2027 – Todd et al., *Evolution of Function in Protein Superfamilies, from a Structural Perspective*, 307 J. MOL. BIOL. 1113-43 (2001) ("Todd")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2028 – Rost, Enzyme Function Less Conserved than Anticipated, 318 J. MOL. BIOL. 595–608 (2002) ("Rost 2002").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2029 – desJardins et al., *Prediction of Enzyme Classification from Protein Sequence without the use of Sequence Similarity*, 5 PROC. INT. CONF. INTELL. SYST. MOL. BIOL. 92–99 (1997) ("desJardins")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2030 – Price and Arkin, *PaperBLAST: Text Mining Papers for Information about Homologs*, 2(4) MSYSTEMS e00039 1–10 (2017) ("Price").	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including because the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including because the exhibit is a non-prior-art document. Therefore,

	any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2032 – Galperin et al., *Analogous Enzymes: Independent Inventions in Enzyme Evolution*, 8 GENOME RESEARCH 779–90 (1998) ("Galperin")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2033 – Dym and Eisenberg, *Sequence-structure analysis of FAD-containing proteins*, 10 PROTEIN SCIENCE 1712–28 (2001) ("Dym")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2034 – Minarik et al., *Malate Dehydrogenases – Structure and Function*, 21 GEN. PHYSIOL. BIOPHYS. 257–65 (2002) ("Minarik")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2035 – Chaparro-Riggers et al., *Better library design: data-driven protein engineering*, 2 BIOTECHNOL. J. 180–91 (2007) ("Chaparro-Riggers")	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing

	the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2037 – Wedege and Frøholm, *Human Antibody Response to a Group B Serotype 2a Meningococcal Vaccine Determined by Immunoblotting*, 51(2) INFECTION AND IMMUNITY 571–78 (1986) ("Wedege")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2038 – Chica et al., *Semi-rational approaches to engineering enzyme activity: combining the benefits of directed evolution and rational design*, 16(4) CURR. OPIN. BIOTECHNOL. 378–84 (2005) ("Chica")	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2040 – Altschul et al., *Gapped BLAST and PSI-BLAST: a new generation of protein database search programs*, 25(17) NUCLEIC ACIDS	**FRE 802:** To the extent it is being offered to prove the truth of the matter

RESEARCH 3389–3402 (1997) ("Altschul")	asserted, the exhibit constitutes inadmissible hearsay.
EX2041 – Müller and Vingron, *Modeling Amino Acid Replacement*, 7(6) JOURNAL OF COMPUTATIONAL BIOLOGY 761–76 (2000) ("Müller")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2042 – Excerpt of Ex. 1042 ("Schleinitz excerpt")	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 406:** The exhibit is an incomplete and/or inaccurate excerpt of EX1042. To the extent the Board considers the exhibit, EX1042 must in fairness be considered at the same time as the exhibit. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2043 – Hausinger and Howard, *Thiol Reactivity of the Nitrogenase Fe-Protein from Azotobacter vinelandii*, 258(22) THE JOURNAL OF BIOLOGICAL	**FRE 802:** To the extent it is being offered to prove the truth of the matter

CHEMISTRY 13486–92 ("Hausinger 1983")	asserted, the exhibit constitutes inadmissible hearsay.
EX2044 – Ng and Henikoff, *SIFT: predicting amino acid changes that affect protein function*, 31(13) NUCLEIC ACIDS RESEARCH 3812–14 (2003) ("Ng")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2045 – US 8,343,747 to Silverstone et al. (issued Jan. 1, 2013)	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2046 – Paine et al., *Improving the nutritional value of Golden Rice through increased pro-vitamin A content*, 23(4) NATURE BIOTECHNOLOGY 482–87 (2005) ("Paine")	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the

	exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2047 – Llewelyn et al., *Monoclonal Antibodies in Medicine*, 305 BMJ 1269–72 (1992) ("Llewelyn")	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2048 – GenBank Accession No. MH043108.	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.

EX2049 – GenBank Accession No. MH043109.	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2050 – GenBank Accession No. MH043110	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including to the extent the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter

	asserted, the exhibit constitutes inadmissible hearsay.
EX2052 – Last and Llewellyn, *A detoxification gene in transgenic Nicotiana tabacum confers 2,4-D tolerance*, 47 WEED SCIENCE 401–04 (1999) ("Last and Llewellyn").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2053 – Nakajima et al., *Crystal structures of two tropinone reductases: Different reaction stereospecificities in the same protein fold*, 95 PROC. NATL. ACAD. SCI. USA 4876–81 (1998) ("Nakajima").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2055 – Llewellyn and Last, *Genetic Engineering of Crops for Tolerance to 2,4-D*, HERBICIDE-RESISTANT CROPS 159–74 (1996) ("Duke").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2056 – Vencill et al., *Herbicide Handbook 8th Edition*, Weed Science Society of America 111–115, 133–135, 281–283, 453–454 (2002) ("Herbicide Handbook").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2057 – Dayhoff et al., *A Model of Evolutionary Change in Proteins*, 5(3) ATLAS OF PROTEIN SEQUENCE AND STRUCTURE 345–52 (1978) ("Dayhoff").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2058 – MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 994–995 (10th ed. 2001).	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2059 – Larue, *Oxygenase Enzymes for Agricultural Biotechnology Applications*, 9 AGRICULTURAL	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was

BIOCATALYSIS: ENZYMES IN AGRICULTURE AND INDUSTRY 245, 253–65 (2023) ("Larue 2023").	instituted, including because the exhibit is a non-prior-art document. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including because the exhibit is a non-prior-art document. Therefore, any probative value would be substantially outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2060 – Cox, *Mecoprop (MCPP)*, 24(1) JOURNAL OF PESTICIDE REFORM 10–14 (2004) ("Cox").	**FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.
EX2061 – Sequence alignment of sequences from Exs. 2012-2014 and 2048-2050	**FRE 401 and 402:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including because the exhibit is a non-prior-art document and was created for this proceeding, and is an improper demonstrative being submitted as evidence. **FRE 401 and 403:** The exhibit is not relevant to support patentability as to any ground upon which trial was instituted, including because the exhibit is a non-prior-art document and was created for this proceeding, and is an improper demonstrative being submitted as evidence. Therefore, any probative value would be substantially

	outweighed by the danger of unfair prejudice, confusing the issues, undue delay, and wasting time. **FRE 802:** To the extent it is being offered to prove the truth of the matter asserted, the exhibit constitutes inadmissible hearsay.

Dated: April 23, 2024

Respectfully submitted,

/Ben Picozzi/
Ben Picozzi
Reg. No. 76,862
Backup Counsel for Petitioners

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

The undersigned hereby certifies that on April 23, 2024, I caused a true and correct copy of the foregoing Petitioners' Objections to Evidence of Patent Owner Corteva Agriscience LLC to be served on the following via email at:

Pier D. DeRoo	pier.deroo@ finnegan.com
Michael J. Flibbert	michael.flibbert@finnegan.com
Yieyie Yang	yieyie.yang@finnegan.com
Scott A. McKeown	SMcKeown-PTAB@WolfGreenfield.com
Jonathan B. Roses	JRoses-PTAB@WolfGreenfield.com
Charles T. Steenburg	Charles.Steenburg@WolfGreenfield.com
Eric J. Rutt	Eric.Rutt@WolfGreenfield.com

/Ben Picozzi/
Ben Picozzi
Reg. No. 76,862
Backup Counsel for Petitioners

Date: April 23, 2024