

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INARI AGRICULTURE, INC.,
Petitioner,

v.

CORTEVA AGRISCIENCE LLC,
Patent Owner.

Case No. PGR2023-00022
Patent No. 11,371,055

NOTICE OF FILING PETITIONER' DEMONSTRATIVE EXHIBITS

LISTING OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 11,371,055 (“055”)
1002	File History of U.S. Patent No. 11,371,055
1003	Declaration of Dr. Aron Silverstone (“Silverstone Decl.”)
1004	Corteva Agriscience – Technology Use Agreement (8/2022) (https://www.corteva.us/content/dam/dpagco/corteva/na/us/en/files/trait-stewardship/DOC-Corteva-Technology-Use-Agreement-WATERMARK-NONEXECUTABLE-COPY.pdf)
1005	Wright, T.R. et al., Robust crop resistance to broadleaf and grass herbicides provided by aryloxyalkanoate dioxygenase transgenes, PNAS 107 (47) 20240-20245 (11/23/2010) (https://doi.org/10.1073/pnas.1013154107)
1006	<i>Enlist™ Herbicide Tolerance and Soybean Symptomology - Get the Facts</i> (https://www.enlist.com/en/News/enlist-tolerance-soybean-symptomology.html) (7/13/2021)
1007	<i>Director's Blog: the latest from USPTO leadership: Increasing transparency, boosting competition, and supporting innovation can deliver better choices for farmers in the seed marketplace</i> (https://www.uspto.gov/blog/director/entry/increasing-transparency-boosting-competition-and) (3/7/2023)
1008	<i>Executive Order on Promoting Competition in the American Economy</i> (https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/) (7/9/2021)
1009	U.S. Department of Agriculture: <i>More and Better Choices for Farmers: Promoting Fair Competition and Innovation in Seeds and Other Agricultural Inputs, A report directed by President Biden’s Executive Order Number 14036: “Promoting Competition in America’s Economy”</i> (https://www.ams.usda.gov/sites/default/files/media/SeedsReport.p df) (3/2023)
1010	Declaration Under 37 C.F.R. §1.132 of Dr. Terry R. Wright (7/29/2021)
1011	Corteva Agriscience: Enlist 1 Herbicide Label (https://www.corteva.ca/content/dam/dpagco/corteva/na/ca/en/files/products/label/DF-Enlist-1-Herbicide-Label-English.pdf)

Exhibit	Description
1012	Corteva Agriscience: Enlist Duo Herbicide Label (https://www.corteva.ca/content/dam/dpagco/corteva/na/ca/en/files/products/label/DF-Enlist-Duo-Herbicide-Label-English.pdf)
1013	Anjanappa, R.B. and Gruissem, W., 2021. Current progress and challenges in crop genetic transformation. <i>Journal of Plant Physiology</i> , 261, 153411.
1014	Herman, P.L., Behrens, M., Chakraborty, S., Chrastil, B.M., Barycki, J. and Weeks, D.P., 2005. A three-component dicamba O- demethylase from <i>Pseudomonas maltophilia</i> , strain DI-6: gene isolation, characterization, and heterologous expression. <i>Journal of Biological Chemistry</i> , 280(26), pp.24759-24767
1015	Chekan, Jonathan R, et al. "Molecular basis for enantioselective herbicide degradation imparted by aryloxyalkanoate dioxygenases in transgenic plants." <i>Proceedings of the National Academy of Sciences</i> 116.27 (2019): 13299-13304.
1016	Englander, S.W. and Mayne, L., 2014. The nature of protein folding pathways. <i>Proceedings of the National Academy of Sciences</i> , 111(45), pp.15873-15880.
1017	Gao SS, Naowarojna N, Cheng R, Liu X, Liu P. Recent Examples of α -Ketoglutarate-Dependent Mononuclear Non-Haem Iron Enzymes in Natural Product Biosyntheses. <i>Nat Prod Rep</i> . 2018 Aug. 15; 35(8): 792–837.
1018	Peach C, Velten J. Transgene expression variability (position effect) of CAT and GUS reporter genes driven by linked divergent T-DNA promoters. <i>Plant Mol Biol</i> . 1991;17(1):49-60.
1019	Hogan, D.A., Smith, S.R., Saari, E.A., McCracken, J. and Hausinger, R.P., 2000. Site-directed Mutagenesis of 2, 4- Dichlorophenoxyacetic Acid/ α -Ketoglutarate Dioxygenase: IDENTIFICATION OF RESIDUES INVOLVED IN METALLOCENTER FORMATION AND SUBSTRATE BINDING. <i>Journal of Biological Chemistry</i> , 275(17), pp.12400- 12409.
1020	Müller, T.A., Zavodszky, M.I., Feig, M., Kuhn, L.A. and Hausinger, R.P., 2006. Structural basis for the enantiospecificities of R- and S-specific phenoxypropionate/ α -ketoglutarate dioxygenases. <i>Protein Science</i> , 15(6), pp.1356-1368.

Exhibit	Description
1021	Jumper J, Evans R, Pritzel A, Green T, Figurnov M, Ronneberger O, Tunyasuvunakool K, Bates R, Žídek A, Potapenko A, Bridgland A, Meyer C, Kohl SAA, Ballard AJ, Cowie A, Romera-Paredes B, Nikolov S, Jain R, Adler J, Back T, Petersen S, Reiman D, Clancy E, Zielinski M, Steinegger M, Pacholska M, Berghammer T, Bodenstein S, Silver D, Vinyals O, Senior AW, Kavukcuoglu K, Kohli P, Hassabis D. Highly accurate protein structure prediction with AlphaFold. <i>Nature</i> . 2021 Aug.;596(7873):583-589.
1022	Bagdonas, H., Fogarty, C.A., Fadda, E. and Agirre, J., 2021. The case for post-predictional modifications in the AlphaFold Protein Structure Database. <i>Nature Structural & Molecular Biology</i> , 28(11), pp.869-870.
1023	Müller, TA, Fleischmann, T, van der Meer, JR and Kohler, HPE, Purification and characterization of two enantioselective α -ketoglutarate-dependent dioxygenases, RdpA and SdpA, from <i>Sphingomonas herbicidovorans</i> MH. <i>Applied and environmental microbiology</i> , 2006. 72(7), pp.4853-4861.
1024	Prabakaran, S., Lippens, G., Steen, H. and Gunawardena, J., 2012. Post-translational modification: nature's escape from genetic imprisonment and the basis for dynamic information encoding. <i>Wiley Interdisciplinary Reviews: Systems Biology and Medicine</i> , 4(6), pp.565-583.
1025	Streber, W.R., Timmis, K.N. and Zenk, M.H., 1987. Analysis, cloning, and high-level expression of 2, 4-dichlorophenoxyacetate monooxygenase gene <i>tfdA</i> of <i>Alcaligenes eutrophus</i> JMP134. <i>Journal of Bacteriology</i> , 169(7), pp.2950-2955.
1026	Brannigan, J.A. and Wilkinson, A.J., 2002. Protein engineering 20 years on. <i>Nature Reviews Molecular Cell Biology</i> , 3(12), pp.964- 970.
1027	Westendorf, A, Müller, RH, Babel, W, Purification and characterisation of the enantiospecific dioxygenases from <i>Delftia acidovorans</i> MC1 initiating the degradation of phenoxypropionate and phenoxyacetate herbicides. <i>Acta biotechnologica</i> , 2003. 23(1), pp.3-17.
1028	Levels of Protein Organization (https://comis.med.uvm.edu/VIC/coursefiles/MD540/MD540-Protein_Organization_10400_574581210/Protein-org/index.html)
1029	Corteva Agriscience Enlist Weed Control System 2020 Product Use Guide (https://www.enlist.com/content/dam/hdas/enlist/pdfs/Enlist_Product_Use_Guide_2020.pdf)

Exhibit	Description
1030	NASA JPL, Genesis – Search for Origins, A Public Outreach Module: Atoms, Elements, and Isotopes (https://solarsystem.nasa.gov/genesismission/science/mod2_aei/index.html)
1031	Oxford University Press, Oxford Education Blog, Number of Atoms in the Universe (https://educationblog.oup.com/secondary/maths/numbers-of-atoms-in-the-universe)
1032	Declaration of Jonathan Bradford
1033	Nelson, D.L, and Cox, M.M., 2005. Lehninger Principles of Biochemistry, 4th edition, pp.116-156.
1034	Mall, T., Gupta, M., Dhadialla, T.S. and Rodrigo, S., 2019. Overview of biotechnology-derived herbicide tolerance and insect resistance traits in plant agriculture. Transgenic plants: methods and protocols, pp.313-342.
1035	Scan of Physical Copy of Exhibit 1034 [SUPPLEMENTAL EVIDENCE – NOT FILED]
1036	Scan of Physical Copy of Exhibit 1033 [SUPPLEMENTAL EVIDENCE – NOT FILED]
1037	[Reserved]
1038	Declaration of Eric J. Rutt in support of motion for <i>pro hac vice</i>
1039	[Reserved]
1040	[Reserved]
1041	[Reserved]
1042	Todd et al., <i>Evolution of Function in Protein Superfamilies, from a Structural Perspective</i> , 307 J. MOL. BIOL. 1113-43 (2001) (“Todd”).
1043	Transcript from Deposition of Dr. Bollinger (Feb. 29, 2024)
1044	Transcript from Deposition of Dr. Christou (Mar. 5, 2024)
1045	Reply Declaration of Dr. Aron Silverstone (“Reply-Silverstone”) [CONFIDENTIAL]
1046	Petitioner’s Demonstrative Exhibits [CONFIDENTIAL]

Pursuant to 37 CFR § 42.6(e)(4)(ii), and the Board's Order Setting Oral Argument (Paper 38), Petitioner herewith submits the following Exhibit:

<u>Exhibit</u>	<u>Description</u>
1046	Petitioner's Demonstrative Exhibits [CONFIDENTIAL]

Respectfully submitted
Inari Agriculture, Inc.

Date: July 22, 2024

/Eric J. Rutt/

Scott A. McKeown, Reg. No. 42,866
Eric J. Rutt, admitted *pro hac vice*
WOLF, GREENFIELD & SACKS, P.C.
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CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6 (E)(4)

I certify that on July 22, 2024, I will cause a copy of the foregoing document, including any exhibits filed therewith, to be served via electronic mail, as previously consented to by Patent Owner, upon the following:

Pier D. DeRoo
Michael J. Flibbert
Constance P. Lee
Yieyie Yang

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Date: July 22, 2024

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