UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INARI AGRICULTURE, INC.,
Petitioner,

v.

CORTEVA AGRISCIENCE LLC,
Patent Owner.

PGR2023-00022
Patent 11,371,055

PATENT OWNER'S UPDATED EXHIBIT LIST

Pursuant to 37 C.F.R. § 42.63(e), Patent Owner Corteva Agriscience LLC hereby submits a current listing of Patent Owner Exhibits. Exhibit 2099 is being filed today.

Exhibit	Description	Served Not Filed
2001	Fumiyasu Fukumori and Robert P. Hausinger, *Purification and Characterization of 2,4-Dichlorophenoxyacetate/α-Ketoglutarate Dioxygenase*, J. of Biol. Chem., Vol. 268, No. 32, pp. 24311-17 (1993) ("Fukumori").	
2002	Tina A. Müller et al., *Structural basis for the enantiospecifics of R- and S-specific phenoxypropionate/α-ketoglutarate dioxygenases*, Protein Sci., Vol. 15, No. 6, pp. 1356-68 ("Müller") (library stamped copy of Ex. 1020).	
2003	Julie C. Dunning Hotopp and Robert P. Hausinger, *Probing the 2,4-Dichlorophenoxyacetate/α-Ketoglutarate Dioxygenase Substrate-Binding Site by Site-Directed Mutagenesis and Mechanism-Based Inactivation*, Biochem., Vol. 41, No. 31, pp. 9787-94 (2002) ("Hotopp").	
2004	U.S. Patent No. 9,125,357 ("the '357 patent").	
2005	United States Environmental Protection Agency, Types of Pesticide Ingredients, *available at* https://www.epa.gov/ingredients-used-pesticide-products/types-pesticide-ingredients (last accessed July 12, 2023).	
2006	US 7,914,993 to Silverstone et al. (issued Mar. 29, 2011).	
2007	US 8,124,841 to Silverstone et al. (issued Feb. 28, 2012).	
2008	US 8,343,747 to Silverstone et al. (issued Jan. 1, 2013).	
2009	Transcript from Deposition of Dr. Silverstone (Jan. 11, 2024).	
2010	Paine et al., *Improving the nutritional value of Golden Rice through increased pro-vitamin A content*, 23(4) NATURE BIOTECHNOLOGY 482–87 (2005) ("Paine").	
2011	Declaration of Dr. Bollinger.	
2012	Declaration of Dr. Christou.	
2013	Provisional U.S. App. No. 60/731,044.	
2014	Certified File History for U.S. App. No. 12/091,896.	

Exhibit	Description	Served Not Filed
2015	Certified File History for U.S. App. No. 13/647,081.	
2016	Certified File History for U.S. App. No. 14/491,197.	
2017	WO 2007/053482 A2, published May 10, 2007.	
2018	Lewis and Stone, *Biochemistry, Proteins Enzymes*, StatPearls (NCBI Bookshelf) (2023).	
2019	Tian and Skolnick, *How Well is Enzyme Function Conserved as a Function of Pairwise Sequence Identity?* 333 J. MOL. BIOL. 863–882 (2003) ("Tian").	
2020	Tipton and Boyce, *History of the enzyme nomenclature system*, 16(1) BIOINFORMATICS 34–40 (2000) ("Tipton").	
2021	Rost, *Twilight zone of protein sequence alignments*, 12(2) PROTEIN ENGINEERING 85–94 (1999) ("Rost 1999").	
2022	Elkins et al., *X-ray Crystal Structure of Escherichia coli Taurine/α-Ketoglutarate Dioxygenase Complexed to Ferrous Iron and Substrates*, 41 BIOCHEMISTRY 5185–92 (2002) ("Elkins").	
2023	Chung and Subbiah, *A structural explanation for the twilight zone of protein sequence homology*, 4(10) STRUCTURE 1123–27 (1996) ("Chung").	
2024	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").	
2025	Minshull et al., *Predicting enzyme function from protein sequence*, 9(2) CURR. OPIN. CHEM. BIOL. 202-09 (2005) ("Minshull").	
2026	Devos and Valencia, *Practical Limits of Function Prediction*, 41 PROTEINS 98–107 (2000) ("Devos").	
2027	Todd et al., *Evolution of Function in Protein Superfamilies, from a Structural Perspective*, 307 J. MOL. BIOL. 1113-43 (2001) ("Todd").	
2028	Rost, *Enzyme Function Less Conserved than Anticipated*, 318 J. MOL. BIOL. 595–608 (2002) ("Rost 2002").	
2029	desJardins, *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").	

Exhibit	Description	Served Not Filed
2030	Price and Arkin, *PaperBLAST: Text Mining Papers for Information about Homologs*, 2(4) mSYSTEMS e00039 1–10 (2017) ("Price").	
2031	Reserved.	
2032	Galperin et al., *Analogous Enzymes: Independent Inventions in Enzyme Evolution*, 8 GENOME RESEARCH 779–90 (1998) ("Galperin").	
2033	Dym and Eisenberg, *Sequence-structure analysis of FAD-containing proteins*, 10 PROTEIN SCIENCE 1712–28 (2001) ("Dym").	
2034	Minarik et al., *Malate Dehydrogenases – Structure and Function*, 21 GEN. PHYSIOL. BIOPHYS. 257–65 (2002) ("Minarik").	
2035	Chaparro-Riggers et al., *Better library design: data-driven protein engineering*, 2 BIOTECHNOL. J. 180–91 (2007) ("Chaparro-Riggers").	
2036	Reserved.	
2037	Aziz et al., *Physiology, Antibody*, StatPearls (NCBI Bookshelf) (2023).	
2038	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").	
2039	Fox et al., *Improving catalytic function by ProSAR-driven enzyme evolution*, 25(3) Nature Biotechnology 338–44 (2007) ("Fox 2007").	
2039A	Fox et al., *Improving catalytic function by ProSAR-driven enzyme evolution*, 25(3) Nature Biotechnology 338–44 (2007) ("Fox 2007").	X
2040	Altschul et al., *Gapped BLAST and PSI-BLAST: a new generation of protein database search programs*, 25(17) NUCLEIC ACIDS RESEARCH 3389–3402 (1997) ("Altschul").	
2041	Müller and Vingron, *Modeling Amino Acid Replacement*, 7(6) JOURNAL OF COMPUTATIONAL BIOLOGY 761–76 (2000) ("Müller").	
2042	Reserved.	

Exhibit	Description	Served Not Filed
2043	Reserved.	
2044	Ng and Henikoff, *SIFT: predicting amino acid changes that affect protein function*, 31(13) NUCLEIC ACIDS RESEARCH 3812–14 (2003) ("Ng").	
2045	Reserved.	
2046	Reserved.	
2047	Reserved.	
2048	Reserved.	
2049	Reserved.	
2050	Reserved.	
2051	Reserved.	
2052	Reserved.	
2053	Reserved.	
2054	Hausinger, *Fe(II)/α-Ketoglutarate-Dependent Hydroxylases and Related Enzymes*, 39(21) CRITICAL REVIEWS IN BIOCHEMISTRY AND MOLECULAR BIOLOGY 21–68 (2004) ("Hausinger").	
2055	European Patent No. 1,073,676 B1 ("the '676 patent").	
2056	Reserved.	
2057	Twyman et al., *Foreign DNA: Integration and Expression in Transgenic Plants*, 24 GENETIC ENGINEERING 107–36 (2002) ("Twyman 2002").	
2058	Vaeck et al., *Transgenic plants protected from insect attack*, 328 NATURE 33–37 (1987) ("Vaeck").	
2059	Block et al., *Engineering herbicide resistance in plants by expression of a detoxifying enzyme*, 6(9) THE EMBO JOURNAL 2513–18 (1987) ("Block").	
2060	Owen, *Current use of transgenic herbicide-resistant soybean and corn in the USA*, 19 CROP PROTECTION 765–71 (2000) ("Owen").	
2061	Twyman et al., *Molecular farming in plants: host systems and expression technology*, 21(12) TRENDS IN BIOTECHNOLOGY 570–78 ("Twyman 2003").	

Exhibit	Description	Served Not Filed
2062	Potenza et al., *Targeting Transgene Expression in Research, Agricultural, and Environmental Applications: Promoters Used in Plant Transformation*, 40(1) IN VITRO CELL. DEV. BIOL. PLANT 1–22 (2004) ("Potenza").	
2063	Kim et al., *Handbook of Plant Biotechnology*, Vol. 1 Ch. 5 WILEY 71–80 (2004).	
2064	Perlak et al., *Modification of the coding sequence enhances plant expression of insect control protein genes*, 88 PROC. NATL. ACAD. SCI. USA 3324–28 (1991) ("Perlak").	
2065	Murray et al., *Codon usage in plant genes*, 17(2) NUCLEIC ACIDS RESEARCH 477–98 (1989) ("Murray").	
2066	Verdaguer et al., *Functional organization of the cassava vein mosaic virus (CsVMV) promoter*, 37 PLANT MOLECULAR BIOLOGY 1055–67 (1998) ("Verdaguer").	
2067	De Bolle et al., *Analysis of the influence of promoter elements and a matrix attachment region on the inter-individual variation of transgene expression in populations of Arabidopsis thaliana*, 165 PLANT SCIENCE 169-179 (2003) ("De Bolle").	
2067A	De Bolle et al., *Analysis of the influence of promoter elements and a matrix attachment region on the inter-individual variation of transgene expression in populations of Arabidopsis thaliana*, 165 PLANT SCIENCE 169-179 (2003) ("De Bolle").	X
2068	Reserved.	
2069	McElroy et al., *Construction of expression vectors based on the rice actin 1 (Act1) 5' region for use in monocot transformation*, 231 MOL. GEN. GENET. 150–60 (1991) ("McElroy").	
2070	Christensen and Quail, *Ubiquitin promoter-based vectors for high-level expression of selectable and/or screenable marker genes in monocotyledonous plants*, 5 TRANSGENIC RESEARCH 213–18 (1996) ("Christensen").	
2071	Mascarenhas et al., *Intron-mediated enhancement of heterologous gene expression in maize*, 15 PLANT MOLECULAR BIOLOGY 913–20 (1990) ("Mascarenhas").	

Exhibit	Description	Served Not Filed
2072	Mitsuhara et al., *Efficient Promoter Cassettes for Enhanced Expression of Foreign Genes in Dicotyledonous and Monocotyledonous Plants*, 37(1) PLANT CELL PHYSIOL. 49–59 (1996) ("Mitsuhara").	
2073	Reserved.	
2074	Bhat and Srinivasan, *Molecular and genetic analyses of transgenic plants: Considerations and approaches*, 163 PLANT SCIENCE 673–81 (2002) ("Bhat").	
2075	Altpeter et al., *Particle bombardment and the genetic enhancement of crops: myths and realities*, 15 MOLECULAR BREEDING 305–27 (2005) ("Altpeter").	
2076	Schroeder et al., *Transformation and Regeneration of Two Cultivars of Pea (Pisum sativum L.)*, 101 PLANT PHYSIOL. 751–57 (1993) ("Schroeder").	
2077	Engvall and Perlmann, *Enzyme-linked immunosorbent assay, ELISA, III. Quantitation of Specific Antibodies by Enzyme-Labeled Anti-Immunoglobulin in Antigen-Coated Tubes*, 109(1) THE JOURNAL OF IMMUNOLOGY 129–35 (1972) ("Engvall").	
2078	Burnette, *"Western Blotting": Electrophoretic Transfer of Proteins from Sodium Dodecyl Sulfate-Polyacrylamide Gels to Unmodified Nitrocellulose and Radiographic Detection with Antibody and Radioiodinated Protein A*, 112 ANALYTICAL BIOCHEMISTRY 195–203 (1981) ("Burnette").	
2079	Zhang et al., *The use of glufosinate as a selective agent in Agrobacterium-mediated transformation of soybean*, 56 PLANT CELL, TISSUE AND ORGAN CULTURE 37–46 (1999) ("Zhang").	
2080	Brasileiro and Aragão, *Marker Genes for In Vitro Selection of Transgenic Plants*, 3(3) JOURNAL OF PLANT BIOTECHNOLOGY 113–21 (2001) ("Brasileiro").	
2081	WO 1997/013402 A1, published April 17, 1997.	
2082	Frame et al., *Genetic Transformation Using Maize Immature Zygotic Embryos*, 710 PLANT EMBRYO CULTURE METHODS AND PROTOCOLS 327–41 (2011).	

Exhibit	Description	Served Not Filed
2083	Dayhoff et al., *A Model of Evolutionary Change in Proteins*, 5(3) ATLAS OF PROTEIN SEQUENCE AND STRUCTURE 345–52 (1978) ("Dayhoff").	
2083A	Dayhoff et al., *A Model of Evolutionary Change in Proteins*, 5(3) ATLAS OF PROTEIN SEQUENCE AND STRUCTURE 345–52 (1978) ("Dayhoff").	X
2084	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2085	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2086	Protein sequences (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2087	Protein sequences (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2088	Protein assay analysis (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2089	Protein sequences (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2090	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2091	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2092	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2093	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2094	Protein presentation (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2095	Protein sequences and analysis (CONFIDENTIAL – PROTECTIVE ORDER MATERIAL).	
2096	Declaration of Lauren Gluckman	X
2097	Reserved.	
2098	CONFIDENTIAL Transcript from Deposition of Dr. Silverstone (June 5, 2024) (Confidential and Public Versions).	
2099	Corteva's Trial Demonstratives	

Respectfully submitted,

Dated: July 22, 2024

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Corteva Agriscience LLC

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **Patent Owner's Updated Exhibit List** and **Exhibit 2099** were served electronically via email on July 22, 2024, in their entirety on the following:

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Petitioner has consented to electronic service by email.

Dated: July 22, 2024

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