

IPR2020-00770
U.S. Patent No. 9,604,901

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LIQUIDIA TECHNOLOGIES, INC.,
Petitioner

v.

UNITED THERAPEUTICS CORPORATION,
Patent Owner

IPR2020-00770
U.S. Patent No. 9,604,901

PETITIONER'S UPDATED EXHIBIT LIST

| Exhibit No. | Description of Document |
|--------------------|--|
| 1001 | U.S. Patent No. 9,604,901 to Batra, et al. (the “’901 patent”) |
| 1002 | Declaration of Jeffrey D. Winkler, Ph.D. (“Winkler Decl.”) |
| 1003 | <i>Curriculum Vitae</i> of Dr. Jeffrey D. Winkler |
| 1004 | U.S. Patent No. 8,497,393 to Batra, et al. (the “’393 patent”) |
| 1005 | <i>SteadyMed Ltd. v. United Therapeutics Corp.</i> , IPR2016-00006, Paper 82 (PTAB March 31, 2017) (“IPR2016-00006”) |
| 1006 | Prosecution History of the ’901 patent |
| 1007 | U.S. Patent No. 6,765,117 to Moriarty, et al. (the “’117 patent”) |
| 1008 | PCT Application No. WO 2005/007081 (“Phares”) |
| 1009 | Moriarty, R.M., et al., “The Intramolecular Asymmetric Pauson-Khand Cyclization as a Novel and General Stereoselective Route to Benzindene Prostacyclins: Synthesis of UT-15 (Treprostinil),” <i>J. Org. Chem.</i> Vol. 69, No. 6, 1890-1902 (2004) (“Moriarty”) |
| 1010 | Wiberg, K., <i>Laboratory Technique in Organic Chemistry</i> (1960), p.112 (“Wiberg”) |
| 1011 | Schoffstall, A.M. et al., <i>Microscale and Miniscale Organic Chemistry Laboratory Experiments</i> , 2d ed. (2004) pp. 200-202 (“Schoffstall”) |
| 1012 | Certified English translation of Japanese Patent App. No. 56- 122328A to Kawakami, et al. (“Kawakami”) |
| 1013 | Ege, S., <i>Organic Chemistry Second Edition</i> , Ch. 14 Carboxylic Acids and Their Derivates I. Nucleophilic Substitution Reactions at the Carbonyl Group (1989) pp. 543-547 (“Ege”) |
| 1014 | U.S. Patent No. 4,306,075 to Aristoff (the “’075 patent”) |
| 1015 | Declaration of Sylvia Hall-Ellis, Ph.D. |
| 1016 | Prosecution History of the ’393 patent |

| Exhibit No. | Description of Document |
|-------------|---|
| 1017 | Reply Declaration of Jeffrey D. Winkler, Ph.D. |
| 1018 | Deposition transcript of Rodolfo Pinal, dated February 10, 2021 |
| 1019 | Gao, K., "Synthesis of A-Galceramides, (-)-Treprostinil, and Design and Synthesis of Anti-Viral Agents," Thesis submitted as partial fulfillment of the requirements for the degree of Doctor Of Philosophy in Chemistry in the Graduate College of the University of Illinois at Chicago, 2006 |
| 1020 | Parks, B.W., et al., "Convenient Synthesis of 6,6-Bicyclic Malonamides: A New Class of Conformationally Preorganized Ligands for f-Block Ion Binding," J. Org. Chem., 71:9622-27 (2006) |
| 1021 | Hanessian, S., et al., "Structure-Based Organic Synthesis of a Tricyclic <i>N</i> -Malayamycin Analogue," J. Org. Chem., 71:9807-17 (2006) |
| 1022 | Frost, J.M., et al., "Synthesis and Structure – Activity Relationships of 3,8-Diazabicyclo[4.2.0]octane Ligands, Potent Nicotinic Acetylcholine Receptor Agonists," J. Med. Chem., 49:7843-53 (2006) |
| 1023 | Regan, J., et al., "Quinol-4-ones as Steroid A-Ring Mimetics in Nonsteroidal Dissociated Glucocorticoid Agonists," J. Med. Chem., 49:7887-96 (2006) |
| 1024 | Paulekuhn, G.S., et al., "Trends in Active Pharmaceutical Ingredient Salt Selection based on Analysis of the Orange Book Database," J. Med. Chem., 50:6665-72 (2007) |
| 1025 | Mak, K.K.W., et al., "Mannich Reactions in Room Temperature Ionic Liquids (RTILs): An Advanced Undergraduate Project of Green Chemistry and Structural Elucidation," J. Chem. Ed., 83(6):943-46 (2006) |
| 1026 | Supplemental Materials to Mak, K.K.W., et al., "Mannich Reactions in Room Temperature Ionic Liquids (RTILs): An Advanced |

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| | Undergraduate Project of Green Chemistry and Structural Elucidation," J. Chem. Ed., 83(6):943-46 (2006) |
| 1027 | Baar, M.R., et al., "Enantiomeric Resolution of (\pm)-Mandelic Acid by (1 <i>R</i> ,2 <i>S</i>)-(-)-Ephedrine," J. Chem. Ed., 82(7):1040-42 (2005) |
| 1028 | Supplemental Materials for Baar, M.R., et al., "Enantiomeric Resolution of (\pm)-Mandelic Acid by (1 <i>R</i> ,2 <i>S</i>)-(-)-Ephedrine," J. Chem. Ed., 82(7):1040-42 (2005) |
| 1029 | Brigandi, L.M., et al., "Synthesis and Analysis of Copper Hydroxy Double Salts," J. Chem. Educ., 82(11):1662 (2005) |
| 1030 | Supplemental Material for Online Publication for Brigandi, L.M., et al., "Synthesis and Analysis of Copper Hydroxy Double Salts," J. Chem. Educ., 82(11):1662 (2005) |
| 1031 | Hamilton, "Experiment #5: Resolution of (<i>R,S</i>)-1-Phenylethylamine via Diastereoisomer formation with (2 <i>R</i>),(3 <i>R</i>)-Tartaric Acid," Laboratory Manual for Chemistry 202, Organic Chemistry Laboratory I at Mount Holyoke College (2006) |
| 1032 | Yadav, J.S., et al., "A concise and stereoselective synthesis of both enantiomers of altholactone and isoaltholactone," Tetrahedron Letters, 44:5831-33 (2003) |
| 1033 | Takadoi, M., et al., "Synthetic studies of himbacine, a potent antagonist of the muscarinic M ₂ subtype receptor 1. Stereoselective total synthesis and antagonistic activity of enantiomeric pairs of himbacine and (2' <i>S</i> ,6' <i>R</i>)-diepihimbacine, 4-epihimbacine, and novel himbacine congeners," Tetrahedron 58 (2002) 9903–23 |
| 1034 | Berge, S.M., et al., "Pharmaceutical Salts," J. Pharm. Scis., 66(1):1-19 (1977) |

| Exhibit No. | Description of Document |
|-------------|---|
| 1035 | Excerpts from Loewenthal, H.J.E., et al., A Guide for the Perplexed Organic Experimentalist, Chapter 4: Running Small-scale Reactions in the Research Laboratory, pp. 87-119, 2d ed. (1990) |
| 1036 | Heidelberger, M., An Advanced Laboratory Manual of Organize Chemistry (1928) |
| 1037 | Product Information for Remodulin (2006) (“Remodulin Label”) |
| 1038 | Excerpt from Hawley’s Condensed Chemical Dictionary, 15th ed. (2007) |
| 1039 | Refiled Declaration of Jeffrey D. Winkler, Ph.D. (Ex. 1002) |
| 1040 | Signature page to Ex. 1018 Deposition transcript of Rodolfo Pinal, dated February 10, 2021 |
| 1041 | Declaration of Deepa Kannappan in Support of Motion for <i>Pro Hac Vice</i> Admission |
| 1042 | Biography of Deepa Kannappan |
| 1043 | Highlighted Patent Owner’s Response to Petition |
| 1044 | Highlighted Declaration of Rodolfo Pinal, Ph.D. (Ex. 2002) |
| 1045 | Highlighted Declaration of Rodolfo Pinal, Ph.D. Supporting United Therapeutic Corporation’s Patent Owner Response (Ex. 2025) |
| 1046 | Highlighted Patent Owner’s Sur-Reply |
| 1047 | Japanese Patent App. No. 56-122328A to Kawakami, et al. (Japanese), previously submitted as Ex. 1006 in <i>Steadymed Ltd. v. United Therapeutics Corp.</i> , IPR2016-00006 |

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