UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Merck Sharp & Dohme LLC,
Petitioner,

v.

Halozyme Inc.,
Patent Owner.

Case No. IPR2026-00314
U.S. Patent No. 11,066,656

PETITIONER'S UPDATED EXHIBIT LIST

EXHIBIT LIST

EXHIBIT #	REFERENCE NAME
1001	U.S. Patent No. 11,066,656
1002	File History of U.S. Patent No. 11,066,656
1003	Declaration of Dr. James Naismith
1004	United States Patent Publication No. 2012/0302275
1005	U.S. Patent No. 7,767,429
1006	Chao et al., "Structure of Human Hyaluronidase-1, a Hyaluronan Hydrolyzing Enzyme Involved in Tumor Growth and Angiogenesis," Biochemistry, 46:6911-6920 (2007)
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1008	Stern et al., "Hyaluronidases: Their Genomics, Structures, and Mechanisms of Action," Chem. Rev. 106:818-839 (2006)
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1010	Zhang et al., "Hyaluronidase Activity of Human Hyal1 Requires Active Site Acidic and Tyrosine Residues," J. Biol. Chem., 284(14):9433-9442 (2009)
1011	Arming et al., "In vitro mutagenesis of PH-20 hyaluronidase from human sperm," Eur. J. Biochem., 247:810-814 (1997)
1012	Bordoli et al., "Protein structure homology modeling using SWISSMODEL workspace," Nature Protocols, 4(1):1-13 (2008)
1013	Frost, "Recombinant human hyaluronidase (rHuPH20): an enabling platform for subcutaneous drug and fluid administration," Expert Opinion on Drug Delivery, 4(4):427-440 (2007)
1014	Branden & Tooze, "Introduction to Protein Structure," Second Ed., Chapters 1-6, 11-12, 17-18 (1999)

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1015	Table Associating Citations from the ’656 Patent (EX1001) to Corresponding Citations in the ’731 Application (EX1026) and US-275 (EX1004)
1016	Steipe, “Consensus-Based Engineering of Protein Stability: From Intrabodies to Thermostable Enzymes,” Methods in Enzymology, 388:176-186 (2004)
1017	Green, “Computer Graphics, Homology Modeling, and Bioinformatics,” Protein Eng’g & Design, Ch. 10, 223-237 (2010)
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1020	Pomering et al., “Restricted Entry of IgG into Male and Female Rabbit Reproductive Ducts Following Immunization with Recombinant Rabbit PH-20,” Am. J. Reprod. Immunol., (3):174-82 (2002)
1021	Baba et al., “Mouse Sperm Lacking Cell Surface Hyaluronidase PH-20 Can Pass through the Layer of Cumulus Cells and Fertilize the Egg,” J. Biol. Chem., 277(33):30310-4 (2002)
1022	Primakoff et., “Reversible Contraceptive Effect of PH-20 Immunization In Male Guinea Pigs,” Biol Reprod., 56(5): 1142-6 (1997)
1023	Tung et al., “Mechanism of Infertility in Male Guinea Pigs Immunized with Sperm PH-20,” Biol. Reprod., 56(5): 1133-41 (1997)
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1027	2024 Chemistry Nobel Prize Background
1028	Bordier, "Phase separation of integral membrane proteins in Triton X-114 solution." J. Bio. Chem. 256 (4):1604-1607 (1981)
1029	Gmachl et al., "The human sperm protein PH-20 has hyaluronidase activity," FEBS Letters, 3:545-548 (1993)
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1042	Ruan et al., "Design and Characterization of a Protein Fold Switching Network," Nature Comm., 14 (2023)
1043-1044	[Reserved]
1045	Redline Comparison of the '731 Application and '656 Patent Specifications
1046	Beasley & Hecht, "Protein Design: The Choice of *de Novo* Sequences," J. Biological Chemistry, 272:2031-2034 (1997)
1047	Xiong et al., "Periodicity of Polar and Nonpolar Amino Acids is the Major Determinant of Secondary Structure in Self-Assembling Oligomeric Peptides," PNAS, 92: 6349-6353 (1995)
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1051	U.S. Patent Application No. 61/631,313
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1068	Declaration of Jeffrey P. Kushan
1069-1075	[Reserved]
1076 [NEW]	Declaration of Leif E. Peterson, II
1077-1078	[Reserved]
1079	Hunnicutt et al., "Sperm Surface Protein PH-20 Is Bifunctional: One Activity Is a Hyaluronidase and a Second, Distinct Activity Is Required in Secondary Sperm-Zona Binding," Biol. Reprod., 55(1):80-86 (1996)
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1081	Goldberg, "Protein degradation and protection against misfolded or damaged proteins," Nature, 426:895-899 (2003)
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1105	United States Patent Publication No. 2010/0143457
1106-1111	[Reserved]
1112	Primakoff, P., et al., "Fully effective contraception in male and female guinea pigs immunized with the sperm protein PH-20," Nature 335:543-546 (October 6, 1988)
1113 [NEW]	Declaration of Sue Wang
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1115	Declaration of Katherine A. Helm, Ph.D.

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1116 [NEW]	Declaration of Christine M. Engen
1117 [NEW]	Declaration of Amit Bhatla
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1130	Melanie Ann Simpson, Ph.D. Deposition Transcript
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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I hereby certify that on this 20th day of April, 2026, I caused to be served a true and correct copy of the foregoing and any accompanying exhibits by e-mail on the following counsel of record for Patent Owner:

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