

Petition for *Inter Partes* Review
of U.S. Patent No. 9,987,308

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MILTENYI BIOMEDICINE GmbH and MILTENYI BIOTEC INC.
Petitioner

v.

FRED HUTCHINSON CANCER CENTER
Patent Owner

IPR Trial No. IPR2023-
U.S. Patent No. 9,987,308
Issue Date: June 5, 2018

Title: Method and Compositions for Cellular Immunotherapy

DECLARATION OF YITE JOHN LU

Petition for *Inter Partes* Review
of U.S. Patent No. 9,987,308

I, Yite John Lu, make the following Declaration pursuant to 28 U.S.C.

§ 1746:

1. I am a partner at the law firm of Orrick, Herrington & Sutcliffe LLP, attorneys for Petitioner Miltenyi Biomedicine GmbH and Miltenyi Biotec Inc. I am a member of the bar of the State of California and registered to practice in front of the United States Patent and Trademark Office.

2. I submit this Declaration in connection with the above-identified Petition for *Inter Partes* Review proceeding of U.S. Patent No. 9,987,308 that is being requested at the U.S. Patent and Trademark Office under 35 U.S.C. §§ 311-319, 37 C.F.R. § 42.

3. Exhibit 1001 is a true and correct certified copy of U.S. Patent No. 9,987,308 to Stanley R. Riddell and Michael Hudecek, issued June 5, 2018 (the “308 patent”), which was retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

4. Exhibit 1002 is a true and correct copy of the Expert Declaration of Jonathan Bramson, Ph.D. (Dated March 22, 2023). An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

5. Exhibit 1003 is a true and correct copy of Harjeet Singh et al., *Redirecting Specificity of T-cell Populations for CD19 Using the Sleeping Beauty System*, 68 CANCER RES. 2961-71 (2008) (“Singh”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

6. Exhibit 1004 is a true and correct copy of Ronald T. Mitsuyasu et al., *Prolonged Survival and Tissue Trafficking Following Adoptive Transfer of CD4 ζ Gene-modified Autologous CD4⁺ and CD8⁺ T Cells in Human Immunodeficiency Virus-infected Subjects*, 96 BLOOD 785-93 (2000) (“Mitsuyasu”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

7. Exhibit 1005 is a true and correct certified copy of International Application No. PCT/US2012/030388, filed Mar. 23, 2012 (the “388 application”), which was retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

8. Exhibit 1006 is a true and correct certified copy of U.S. Provisional Patent Application No. 61/466,552, filed Mar. 23, 2011 (the “552 application”),

which was retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

9. Exhibit 1007 is a true and correct copy of Carolina Berger et al., *Adoptive Transfer of Virus-Specific and Tumor-Specific T Cell Immunity*, 21 CURR. OPIN. IN IMMUNOL. 224-32 (2009) (“Berger”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

10. Exhibit 1008 is a true and correct certified copy of excerpts from the certified File History of the ’308 patent, which was retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

11. Exhibit 1009 is a true and correct copy of Claudia M. Kowolik et al., *CD28 Costimulation Provided Through a CD19-Specific Chimeric Antigen Receptor Enhances In Vivo Persistence and Antitumor Efficacy of Adoptively Transferred T Cells*, 66 CANCER RES. 10995-11004 (2006) (“Kowolik”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

12. Exhibit 1010 is a true and correct copy of Laurence J.N. Cooper et al., *Chimeric Antigen Receptor on T Cells*, in *ENCYCLOPEDIA OF CANCER*, 644-48 (Manfred Schwab 2nd ed. 2008) (“Cooper”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

13. Exhibit 1011 is a true and correct copy of Michael Hudecek et al., *Adoptive T-cell Therapy for B-cell Malignancies*, 2 *EXPERT REV. HEMATOL.* 517-32 (2009) (“Hudecek I”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

14. Exhibit 1012 is a true and correct copy of Michael Hudecek et al., *CD8⁺ T Cells Engineered to Express a ROR1-Specific Chimeric Antigen Receptor Specifically Recognize ROR1 Positive B Cell Tumors*, 114 *BLOOD* 930 (2009) (“Hudecek II”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

15. Exhibit 1013 is a true and correct copy of Hinrich Abken, *Chimeric T Cell Receptors*, in *ENCYCLOPEDIA OF CANCER*, 649-52 (Manfred Schwab 2nd ed. 2008) (“Abken”), which is a scan retrieved pursuant to my instructions. An exhibit

label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

16. Exhibit 1014 is a true and correct copy of Karen Reckamp et al., *CE7 Epitope of L1CAM is a Potential Target for Tumor Specific T Cell Therapy in Lung Cancer*, 68 CANCER RES. (9 Supplement) 4620 (2008) (“Reckamp”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

17. Exhibit 1015 is a true and correct copy of Carmine Carpenito et al., *Control of Large, Established Tumor Xenografts with Genetically Retargeted Human T Cells Containing CD28 and CD137 Domains*, 106 PROC. NAT’L ACAD. SCI. 3360-65 (2009) (“Carpenito”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

18. Exhibit 1016 is a true and correct copy of Maria Moeller et al., *Adoptive Transfer of Gene-engineered CD4+ Helper T Cells Induces Potent Primary and Secondary Tumor Rejection*, 106 BLOOD 2995-3003 (2005) (“Moeller”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have

been added to the bottom right corner of this document, but no other alterations have been made.

19. Exhibit 1017 is a true and correct copy of Xiuli Wang et al., *The CD19 Chimeric Antigen Receptor Re-directs CMV Specific T Cells Derived from Central Memory T Cells (Bi-specific T Cells) Against Human Acute Lymphoid Leukemia (ALL)*, 31 J. IMMUNOTHER. 926-27 (2008) (“Wang”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

20. Exhibit 1018 is a true and correct certified copy of U.S. Patent Application Publication No. 2004/0126363 A1 to Michael C. Jensen, Stephen Forman, and Andrew Raubitschek, published July 1, 2004 (“Jensen”), which was retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

21. Exhibit 1019 is a true and correct copy of Hiroto Shioyama et al., *A Fully Human Chimeric Immune Receptor for Retargeting T-Cells to CEA-Expressing Tumor Cells*, 26 ANTICANCER RES. 4067-72 (2006) (“Shioyama”), which is a scan retrieved pursuant to my instructions. An exhibit label and page

number have been added to the bottom right corner of this document, but no other alterations have been made.

22. Exhibit 1020 is a true and correct copy of Mhairi Cavers et al., *Differential Expression of $\beta 1$ and $\beta 2$ Integrins and L-Selectin on CD4⁺ and CD8⁺ T Lymphocytes in Human Blood: Comparative Analysis Between Isolated Cells, Whole Blood Samples and Cryopreserved Preparations*, 127 CLIN. EXP. IMMUNOL. 60-65 (2002) (“Cavers”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

23. Exhibit 1021 is a true and correct copy of Ryan P. McGuinness et al., *Anti-tumor activity of human T cells expressing the CC49-zeta chimeric immune receptor*, 10 HUMAN GENE THERAPY 165-73 (1999) (“McGuinness”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

24. Exhibit 1022 is a true and correct copy of the list of the claims challenged in the above-identified Petition for *Inter Partes* Review proceeding of U.S. Patent No. 9,987,308 that is being requested at the U.S. Patent and Trademark Office.

25. Exhibit 1024 is a true and correct copy of *CD19-specific T Cell Infusion in Patients with B-Lineage Lymphoid Malignancies After Autologous Hematopoietic Stem Cell Transplantation*, ClinicalTrials.gov, https://clinicaltrials.gov/ct2/history/NCT00968760?V_1=View#StudyPageTop (last visited Mar. 6, 2023) (“ClinicalTrials.gov”), that was retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

26. Exhibit 1025 is a true and correct copy of James N. Kochenderfer et al., *Eradication of B-lineage Cells and Regression of Lymphoma in a Patient Treated with Autologous T Cells Genetically Engineered to Recognize CD19*, 116 BLOOD 4099-102 (2010) (“Kochenderfer”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

27. Exhibit 1026 is a true and correct copy of Partow Kebriaei et al., *Infusing CD19-Directed T Cells to Augment Disease Control in Patients Undergoing Autologous Hematopoietic Stem-Cell Transplantation for Advanced B-Lymphoid Malignancies*, 23 HUMAN GENE THERAPY 444-50 (2012) (“Kebriaei”), which is a scan retrieved pursuant to my instructions. An exhibit label and page

number have been added to the bottom right corner of this document, but no other alterations have been made.

28. Exhibit 1027 is a true and correct copy of Shicheng Yang et al., *In Vitro Generated Anti-tumor T Lymphocytes Exhibit Distinct Subsets Mimicking In Vivo Antigen-Experienced Cells*, 60 CANCER IMMUNOL. IMMUNOTHER. 739-49 (2011) (“Yang I”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

29. Exhibit 1028 is a true and correct copy of Shicheng Yang et al., *TCR Engineered and In Vitro Expanded T Lymphocytes Recapitulate the Properties of Central Memory T Cells*, 18 (Suppl. 1) MOLECULAR THER. S184 (2010) (“Yang II”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

30. Exhibit 1029 is a true and correct copy of Federica Sallusto et al., *Two Subsets of Memory T Lymphocytes with Distinct Homing Potentials and Effector Functions*, 401 NATURE 708-12 (1999) (“Sallusto”), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

31. Exhibit 1030 is a true and correct copy of Warren N. D'Souza et al., *IL-2 Is Not Required for the Initiation of CD8 T Cell Cycling but Sustains Expansion*, 171 J. IMMUNOL. 5727-35 (2003) ("D'Souza"), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

32. Exhibit 1031 is a true and correct copy of Simone C. Zimmerli et al., *HIV-1-specific IFN- γ /IL-2-secreting CD8 T cells support CD4-independent proliferation of HIV-1-specific CD8 T cells*, 102 PNAS 7239-44 (2005) ("Zimmerli"), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

33. Exhibit 1032 is a true and correct copy of Yue Sun et al., *Dysfunction of Simian Immunodeficiency Virus/Simian Human Immunodeficiency Virus-Induced IL-2 Expression by Central Memory CD4⁺ T Lymphocytes*, 174 J. IMMUNOL. 4753-60 (2005) ("Sun"), which is a scan retrieved pursuant to my instructions. An exhibit label and page number have been added to the bottom right corner of this document, but no other alterations have been made.

I declare under penalty of perjury under the law of the United States of America that the foregoing is true and correct.

Petition for *Inter Partes* Review
of U.S. Patent No. 9,987,308

DATED: March 22, 2023

/Yite John Lu /

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