# TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM473312

| | |
|---|---|
| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | SECURITY INTEREST |

**CONVEYING PARTY DATA**

| Name | Formerly | Execution Date | Entity Type |
|---|---|---|---|
| Xoma Technology Ltd. | | 05/07/2018 | Exempted Company: BERMUDA |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Name:** | Silicon Valley Bank |
| **Street Address:** | 505 Howard Street, 3rd Floor |
| **City:** | San Francisco |
| **State/Country:** | CALIFORNIA |
| **Postal Code:** | 94105 |
| **Entity Type:** | Corporation: CALIFORNIA |

**PROPERTY NUMBERS Total: 1**

| Property Type | Number | Word Mark |
|---|---|---|
| **Registration Number:** | 2192443 | NEUPREX |

**CORRESPONDENCE DATA**

**Fax Number:** 8004947512

***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***

**Phone:** 202-370-4750
**Email:** ipteam@cogencyglobal.com
**Correspondent Name:** Joanna McCall
**Address Line 1:** 1025 Vermont Ave NW, Suite 1130
**Address Line 2:** COGENCY GLOBAL INC.
**Address Line 4:** Washington, D.C. 20005

OP $40.00 2192443

| | |
|---|---|
| **ATTORNEY DOCKET NUMBER:** | F176914 |
| **NAME OF SUBMITTER:** | Laura A. Kenerson |
| **SIGNATURE:** | /Laura A. Kenerson/ |
| **DATE SIGNED:** | 05/09/2018 |

**Total Attachments: 25**
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page2.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page3.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page4.tif

source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page5.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page6.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page7.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page8.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page9.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page10.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page11.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page12.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page13.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page14.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page15.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page16.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page17.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page18.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page19.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page20.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page21.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page22.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page23.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page24.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page25.tif
source=USPTO Submission - Xoma Technology Ltd. (Trademarks)#page26.tif

**INTELLECTUAL PROPERTY SECURITY AGREEMENT**

This Intellectual Property Security Agreement (this "Agreement") is entered into as of May 7, 2018, by and between SILICON VALLEY BANK, a California corporation, with a loan production office located at 505 Howard Street, 3rd Floor, San Francisco, California 94105 ("Bank") and XOMA TECHNOLOGY LTD., a Bermuda exempted company with its registered office located at Clarendon House, 2 Church Street, Hamilton HM11, Bermuda ("Grantor").

RECITALS

A. Bank has agreed to make certain advances of money and to extend certain financial accommodations to Grantor (the "Loans") in the amounts and manner set forth in that certain Loan and Security Agreement by and among Bank, Grantor, XOMA CORPORATION, and XOMA (US) LLC, dated as of the date hereof (as the same may be amended, restated, modified or supplemented from time to time, the "Loan Agreement"; capitalized terms used herein are used as defined in the Loan Agreement). Bank is willing to make the Loans to Grantor, but only upon the condition, among others, that Grantor shall grant to Bank a security interest in its Copyrights, Trademarks, Patents, and Mask Works (as each term is described below) to secure the obligations of Grantor to Bank.

B. Pursuant to the terms of the Loan Agreement, Grantor has granted to Bank a security interest in all of Grantor's right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of Grantor's obligations to Bank, Grantor hereby represents, warrants, covenants and agrees as follows:

AGREEMENT

1. Grant of Security Interest. To secure Grantor's obligations to Bank, Grantor grants and pledges to Bank a security interest in all of Grantor's right, title and interest in, to and under its intellectual property (all of which shall collectively be called the "Intellectual Property Collateral"), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, now or hereafter existing, created, acquired or held, including without limitation those set forth on Exhibit A attached hereto (collectively, the "Copyrights");

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products now or hereafter existing, created, acquired or held;

(c) Any and all design rights that may be available to Grantor now or hereafter existing, created, acquired or held;

(d) All patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including without limitation the patents and patent applications set forth on Exhibit B attached hereto (collectively, the "Patents");

(e) Any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto (collectively, the "Trademarks");

(f) All mask works or similar rights available for the protection of semiconductor chips, now owned or hereafter acquired, including, without limitation those set forth on Exhibit D attached hereto (collectively, the "Mask Works");

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

2. Recordation. Grantor authorizes the Commissioner for Patents, the Commissioner for Trademarks and the Register of Copyrights and any other government officials to record and register this Agreement upon request by Bank.

3. Loan Documents. This Agreement has been entered into pursuant to and in conjunction with the Loan Agreement, which is hereby incorporated by reference. The provisions of the Loan Agreement shall supersede and control over any conflicting or inconsistent provision herein. The rights and remedies of Bank with respect to the Intellectual Property Collateral are as provided by the Loan Agreement and related documents, and nothing in this Agreement shall be deemed to limit such rights and remedies.

4. Execution in Counterparts. This Agreement may be executed in counterparts (and by different parties hereto in different counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. Delivery of an executed counterpart of a signature page to this Agreement by facsimile or in electronic (i.e., "pdf" or "tif" format) shall be effective as delivery of a manually executed counterpart of this Agreement.

5. Successors and Assigns. This Agreement will be binding on and shall inure to the benefit of the parties hereto and their respective successors and assigns.

6. Governing Law. This Agreement and any claim, controversy, dispute or cause of action (whether in contract or tort or otherwise) based upon, arising out of or relating to this Agreement and the transactions contemplated hereby and thereby shall be governed by, and construed in accordance with, the laws of the United States and the State of California, without giving effect to any choice or conflict of law provision or rule (whether of the State of California or any other jurisdiction).

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

GRANTOR:

XOMA TECHNOLOGY LTD.

By:_____

Title: Chief Financial Officer

BANK:

SILICON VALLEY BANK

By:_____

Title:_____

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

GRANTOR:

XOMA TECHNOLOGY LTD.

By:_____

Title:_____

BANK:

SILICON VALLEY BANK

By: Peter S. Gruber

Title: Vice President

EXHIBIT A

Copyrights

None.

EXHIBIT B

Patents

1. Title: ANTIBODIES SPECIFIC FOR TGF-BETA
   Inventor: Bedinger, Daniel H.; Khan, Shireen S.; Mirza, Amer M.; Narasimha, Ajay J; and Takeuchi, Toshihiko
   Assignee: XOMA Technology Ltd.
   (TGF-b antibody)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/493,230 | 06/03/11 | | |
| PCT | PCT/US12/40545 | 06/01/12 | WO/2012/167143 A1 | |
| US | 13/486,983 | 06/01/12 | 8,569,462 B2 | 06/01/2032 |
| US Con | 14/038,436 | 09/26/13 | 9,145,458 B2 | 06/01/2032 |
| US Con 2 | 14/808,666 | 07/24/15 | 9,714,285 B2 | 06/01/2032 |
| US Con 3 | 15/622,955 | 06/14/17 | 2018-0057578-A1 | 06/01/2032 |

2. Title: TREATMENT OF CANCER USING INHIBITORS OF TGF-BETA AND PD-1
   Inventor: Amer M. Mirza; Rosemary Akhurst; Ou Li
   Assignee: XOMA Technology Ltd. and Regents of the University of California
   (TGF-b + PD-1)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 62/143,016 | 04/03/15 | | 04/03/16 |
| US Provisional | 62/191,797 | 07/13/15 | | 07/13/16 |
| PCT | PCT/US2016/025802 | 04/03/16 | WO 2016/161410 A2 | 04/03/36 |

3. Title: HUMAN ANTIBODIES SPECIFIC FOR GASTRIN MATERIALS AND METHODS
   Inventor: Linda Masat and Marina Roell
   Assignee: XOMA Technology Ltd.
   (Gastrin)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/784,501 | 12/13/06 | | |
| PCT | PCT/US06/047840 | 12/13/06 | WO 2007/111661 | |
| US | 12/293,890 | 12/13/06 | 8,278,421 B2 | 04/26/2028 |

4. Title: ANTIBODIES TO HIGH MOLECULAR WEIGHT MELANOMA ASSOCIATED ANTIGEN
   Inventor: Arnold Horwitz
   Assignee: XOMA Technology Ltd.
   (ABC-6 (IND))

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/226,166 | 07/16/09 | | |
| PCT | PCT/US10/42347 | 07/16/10 | WO/2011/009090 | |
| US | 13/384,197 | 01/13/12 | 8,318,162 B2 | 01/13/2032 |

5. Title: TREATMENT OF LFA-1 ASSOCIATED DISORDERS WITH INCREASING DOSES OF LFA-1 ANTAGONIST
   Inventor: Marvin R. Garovoy, Susan M. Kramer, Russell L. Dedrick, Karen Starko
   Assignee: Genentech and XOMA Technology Ltd.
   (CD11a (Raptiva))

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/125,228 | 03/19/99 | | |
| US Provisional | 60/125,351 | 03/19/99 | | |
| PCT | PCT/US00/07189 | 03/17/00 | WO2000/056363 | |
| US | 09/936,603 | 02/11/02 | 6,652,855 | 03/17/2020 |
| US | 09/819,921 | 03/28/01 | 6,582,698 | 03/17/2020 |
| US | 11/078,332 | 03/10/05 | 7,364,734 | 03/17/2020 |

6. Title: METHODS AND CELLS FOR EXPRESSION OF RECOMBINANT PROTEIN PRODUCTS
   Inventor: Marc D. Better

Assignee: XOMA Technology Ltd.
(BCE Ara DS)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US | 09/811,933 | 03/19/01 | 6,803,210 | 06/08/2021 |

7. Title: EUKARYOTIC SIGNAL SEQUENCES FOR PROKARYOTIC EXPRESSION
Inventor: Jeff Gray, Joe Buechler; Uday Kumar Veeramallu
Assignee: XOMA Technology Ltd.
(BCE Biosite (UnivSigSeq))

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| PCT | PCT/US03/04791 | 02/13/03 | WO 03/068956 | |
| US | 10/076,802 | 02/13/02 | 7,094,579 B2 | 06/15/2022 |
| US | 10/367,169 | 02/13/03 | 7,396,661 B2 | 10/09/2023 |
| US | 12/020,482 | 01/25/08 | 7,977,068 B2 | 02/13/2022 |
| US | 12/021,098 | 01/25/08 | 7,972,811 B2 | 02/13/2022 |
| US | 13/112,600 | 05/20/11 | 8,476,040 B2 | 02/13/2022 |

8. Title: NOVEL TRIPLE TAG SEQUENCE AND METHODS OF USE THEREOF
Inventor: Marina Roell, Isaac Rondon and Daniel Bedinger
Assignee: XOMA Technology Ltd.
(BCE Triple Tag Vector)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/102,672 | 10/03/08 | | |
| US Provisional | 61/102,675 | 10/03/08 | | |
| PCT | PCT/US09/59408 | 10/02/09 | WO 2010/040073 | |
| US | 12/572,877 | 10/12/09 | 8,546,307 B2 | 03/31/2032 |
| US | 13/244,871 | 09/26/11 | 8,546,308 B2 | 10/02/2029 |

9. Title: METHODS AND MATERIALS FOR INCREASING EXPRESSION OF RECOMBINANT POLYPEPTIDES
Inventor: Arnold Horwitz

Assignee: XOMA Technology Ltd.
(2 Gene Vector)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/368,530 | 03/29/02 | | |
| PCT | PCT/US03/010154 | 03/31/03 | WO 04/033693 | |
| US | 10,404,724 | 03/31/03 | 7,192,737 B2 | 12/10/2024 |
| US | 11/673,539 | 02/09/07 | 7,993,915 B2 | 03/31/2023 |
| US | 13/205,448 | 08/08/11 | 8,497,096 B2 | 03/31/2023 |

10. Title: METHODS AND MATERIALS FOR ENHANCING FUNCTIONAL PROTEIN EXPRESSION IN BACTERIA
Inventor: Raphael David Levy, Chung-Leung Chan, Kiranjit Kaur Ahiuwalia, and Toshihiko Takeuchi
Assignee: XOMA Technology Ltd.
(BCE Chaperones)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/439,232 | 02/03/11 | | |
| PCT | PCT/US12/023801 | 02/03/12 | WO 2012/106615 | |
| US | 13/982,669 | 07/30/13 | 9,732,143 B2 | 10/28/2033 |

11. Title: METHODS AND MATERIALS FOR TRANSIENT EXPRESSION OF A RECOMBINANT PROTEIN
Inventor: Masahisa Handa, Arnold H. Horwitz, Robyn Cotter, Eddie Bautista
Assignee: XOMA Technology Ltd.
(Transient Expression)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/633,056 | 12/03/04 | | |
| PCT | PCT/US05/043922 | 12/05/05 | WO 2006/060769 | |
| US | 11/831,691 | 07/31/07 | 7,794,976 B2 | 12/05/2025 |

12. Title: SCREENING METHODS

Inventor: Mark Leslie White, Marina Roell, John Corbin, Robert Bauer, Daniel Bedinger
Assignee: XOMA Technology Ltd.
(KMD)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/246,079 | 09/25/09 | | |
| US Provisional | 61/306,324 | 02/19/10 | | |
| PCT | PCT/US10/50312 | 09/24/10 | WO/2011/038301 | 09/24/2030 |
| US | 12/890,590 | 09/24/10 | 9,885,711 | 09/24/2030 |
| US Div | 15/886,188 | 01/01/18 | | 09/24/2030 |

13. Title: MATERIALS AND METHODS FOR TARGETED MUTAGENESIS
Inventor: Toshihiko Takeuchi
Assignee: XOMA Technology Ltd.
(Targeted Affinity Enhancement)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/018,101 | 12/31/07 | | |
| US Provisional | 61/018,105 | 12/31/07 | | |
| US Provisional | 61/018,113 | 12/31/07 | | |
| PCT | PCT/US08/88651 | 12/31/08 | WO 09/088933 | |
| US | 12/811,331 | 06/30/10 | 9,102,711 B2 | 12/31/2028 |

14. Title: ANTIBODY COFORMULATIONS
Inventor: Susan Joyce Babuka, Chin-Yi Huang and Mingxiang Li
Assignee: XOMA Technology Ltd.
(Coformulations)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/240,155 | 09/04/09 | | |
| PCT | PCT/US10/47753 | 09/02/10 | WO 2011/028962 A2 | |

15. Title: ANTI-BOTULISM ANTIBODY COFORMULATIONS

Inventor: Susan Joyce Babuka, Mingxiang Li
Assignee: XOMA Technology Ltd.
(Coformulations BoNT)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 61/240,149 | 04/09/09 | | |
| PCT | PCT/US10/47752 | 09/02/10 | WO 2011/028961 A2 | |
| US | 12/875,065 | 09/02/10 | 8,821,879 B2 | 09/02/2030 |

16. Title: PRLR SPECIFIC ANTIBODY AND USES THEREOF
Inventor: Daniel Bedinger, Jason Damiano, Mohammad Luqman, Linda Masat, Amer Mirza, and Genevieve Nonet
Assignee: Novartis AG and XOMA Technology Ltd.
(X213 PRLR)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP | Notes re Claims |
|---|---|---|---|---|---|
| US Provisional | 60/838648 | 08/18/06 | | | |
| US Provisional | 60/946360 | 06/26/07 | | | |
| PCT | PCT/US07/76160 | 08/17/07 | WO2008/022295 A2 | | |
| US | 11/840,267 | 08/17/07 | 7,867,493 B2 | 10/05/2027 | Lead |
| US Div | 12/951,744 | 11/22/10 | 9,005,614 B2 | 11/08/2030 | Back up |

17. Title: Antagonist Anti-CD40 Monoclonal Antibodies and Methods for Their Use
Inventor: Chen, Bao-Lu; Hurst, Deborah; Lee, Sang Hoon; Long, Li; Lu, Xiaofeng; Luqman, Mohammad; Yabannavar, Asha; Zaror, Isabel; Aukerman, Sharon Lea; Lopes de Menezes, Daniel
Assignee: Novartis AG and XOMA Technology Ltd.
(CD40 51919)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Prov | 60/517,337 | 11/04/03 | | |
| US Prov | 60/565,710 | 04/27/04 | | |
| PCT | PCT/US04/037152 | 11/04/04 | WO2005/044854 | |
| United States | 11/932,472 | 11/31/07 | 8,277,810 B2 | 08/06/2028 |
| United States | 13/612,070 | 09/12/12 | 8,637,032 B2 | 11/04/2024 |

18. Title: EphB3-Specific Antibody and Uses Thereof
Inventor: HSU, Jeff; MASAT, Linda; ABRAHAM, Judy; HANDA, Masahisa; SCHEYER, Siew
Assignee: Novartis AG and XOMA Technology Ltd.
(EphB3 52045)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/836,777 | 08/04/06 | | |
| PCT | PCT/US07/075215 | 08/03/07 | WO/08/019326 | |
| United States | 11/833,726 | 08/03/07 | 8,586,716 | 08/03/2027 |
| United States | 14/055,376 | 10/16/13 | 9,006,398 | 08/03/2027 |

19. Title: Antagonist Antibodies Against EphB3
Inventor: MASAT, Linda; HSU, Ssucheng Jeff
Assignee: Novartis AG and XOMA Technology Ltd.
(EphB3 52112)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/873,386 | 12/07/06 | | |
| PCT | PCT/US07/086649 | 12/07/07 | WO/08/070780 | |
| United States | 12/312,837 | 12/06/07 | 8377439 B2 | 12/06/2027 |
| United States | 13/724,312 | 12/21/12 | 8961969 B2 | 12/06/2027 |
| United States | 14/592,115 | 01/08/15 | 9,541,004 B2 | 12/06/2027 |

20. Title: MCSF Specific Monoclonal Antibody and Uses Thereof
Inventor: Kavanaugh, William; Zimmerman, Deborah L; Harrowe, Gregory; Koths, Kirston; Long, Li; Liu, Cheng; Calderon-Caci, Maria
Assignee: Novartis AG and XOMA Technology Ltd.

(MCSF (51839)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/535,181 | 01/07/04 | | |
| US Provisional | 60/576,417 | 06/02/04 | | |
| PCT | PCT/US2005/00546 | 01/06/05 | WO05068503 A3 | |
| United States | 14/171330 | 02/03/14 | 9,079,956 | 01/06/2025 |
| United States | 14/729548 | 06/03/15 | 9,522,186 | 01/06/2025 |
| United States | 15/347,171 | 11/09/16 | | 01/06/2025 |

21. Title: M-CSF-Specific Monoclonal Antibodies and Uses Thereof – mixed osteoclast/osteoblast disease, periprosthetic bone loss
Inventor: Kavanaugh, William; Aukerman, Sharon Lea; Sung, Victoria
Assignee: Novartis AG and XOMA Technology Ltd.
(MCSF (57403)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/703,218 | 07/28/05 | | |
| US Provisional | 60/703,314 | 07/28/05 | | |
| PCT | PCT/US2006/29279 | 07/27/06 | WO2007016285 | |
| United States | 11/996,905 | 04/15/10 | 8,652,469 B2 | 04/29/2029 |

22. Title: Uses of Antibody to M-CSF
Inventor: Kavanaugh, William
Assignee: Novartis AG and XOMA Technology Ltd.
(MCSF (51642)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/703,191 | 07/28/05 | | |
| PCT | PCT/US2006/029186 | 07/27/06 | WO 2007/016240 | |

23. Title: Soluble Human M-CSF Receptor and uses thereof
Inventor: Liu, Cheng; Kavanaugh, William; Kunich, John; Deuter-Reinhard, Maja
Assignee: Novartis AG and XOMA Technology Ltd.
(MCSF (51643)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/753,218 | 12/22/05 | | |
| US Provisional | 60/786,131 | 03/27/06 | | |
| PCT | PCT/US2006/48879 | 12/21/06 | WO 2007/120252 | |

24. Title: Method for Preventing and Treating Cancer Metastasis and Bone Loss Associated with Cancer Metastasis

Inventor: Kavanaugh, William; Zimmerman, Deborah L; Harrowe, Gregory; Koths, Kirston; Long, Li; Liu, Cheng

Assignee: Novartis AG and XOMA Technology Ltd.
(MCSF (51694)

| COUNTRY | APPLICATION | FILE DATE | PATENT/PUBLICATION | EST EXP |
|---|---|---|---|---|
| US Provisional | 60/756,944 | 12/22/05 | | |
| PCT | PCT/US2007/000405 | 01/04/07 | WO 2007081879 A2 | |

| Patent | Patent No./ Application No./ Publication No. | Patent Date / Application Date / Publication Date | Owner |
|---|---|---|---|
| THERAPEUTIC USES OF BPI PROTEIN PRODUCTS IN HUMANS WITH OTITIS MEDIA WITH EFFUSION | 6670327 | Dec 30, 2003 | Xoma Technology LTD |
| Treatment of Cancer Using Inhibitors of TGF-BETA and PD-1 | 15089579 | Apr 3, 2016 | Xoma Technology LTD |
| CELL SURFACE DISPLAY USING PDZ DOMAINS | 13995611 | Oct 9, 2013 | Xoma Technology LTD |
| METHODS AND APPARATUS FOR IMPROVING HEALTHCARE | 8738398 | May 27, 2014 | Xoma Technology LTD |
| METHODS AND APPARATUS FOR IMPROVING HEALTHCARE | 14606732 | Jan 27, 2015 | Xoma Technology LTD |
| METHODS AND APPARATUS FOR IMPROVING HEALTHCARE | 14606596 | Jan 27, 2015 | Xoma Technology LTD |
| METHODS AND APPARATUS FOR IMPROVING HEALTHCARE | 14255089 | Apr 17, 2014 | Xoma Technology LTD |
| Antibody Coformulations | 12875083 | Sep 2, 2010 | Xoma Technology LTD |
| FULLY HUMAN ANTI-VEGF ANTIBODIES AND METHODS OF USING | 12739383 | Dec 10, 2010 | Xoma Technology LTD |
| CARDIOVASCULAR RELATED USES OF IL-1BETA ANTIBODIES AND BINDING FRAGMENTS THEREOF | 12790738 | May 28, 2010 | Xoma Technology LTD |
| TREATMENT OF DISEASES OR CONDITIONS ASSOCIATED WITH NEOPLASTIC B-CELL GROWTH USING ANTI-CD40 ANTIBODIES AND CHOP | 12741161 | Sep 8, 2010 | Xoma Technology LTD |
| METHODS FOR THE TREATMENT OF RHEUMATOID ARTHRITIS | 12996516 | Mar 22, 2011 | Xoma Technology LTD |
| Uses Of Antibody To M-Csf | 11996909 | May 19, 2008 | Xoma Technology LTD |
| METHODS FOR PREVENTING AND TREATING CANCER METASTASIS AND BONE LOSS ASSOCIATED WITH CANCER METASTASIS | 12159665 | Sep 8, 2008 | Xoma Technology LTD |
| USES OF ANTI-CD40 ANTIBODIES | 12092256 | Sep 30, 2008 | Xoma Technology LTD |

| | | | |
|---|---|---|---|
| TREATMENT OF CANCER OR PRE-MALIGNANT CONDITIONS USING ANTI-CD40 ANTIBODIES | 12092247 | Sep 30, 2008 | Xoma Technology LTD |
| FULLY HUMAN ANTI-VEGF ANTIBODIES AND METHODS OF USING | 12446438 | Dec 3, 2010 | Xoma Technology LTD |
| METHODS OF MONITORING THE EFFICACY OF ANTI-CD40 ANTIBODIES IN TREATING A SUBJECT FOR A CD40-EXPESSING CANCER | 11914714 | Jul 11, 2008 | Xoma Technology LTD |
| METHODS OF MONITORING THE EFFICACY OF ANTI-CD40 ANTIBODIES IN TREATING A SUBJECT HAVING AN INFLAMMATORY OR AUTOIMMUNE DISEASE | 11914710 | Jul 11, 2008 | Xoma Technology LTD |
| M-csf specific monoclonal antibody and uses thereof | 10585459 | Jul 27, 2009 | Xoma Technology LTD |
| NUCLIEC ACID ENCODING HEPATOCYTE GROWTH FACTOR (HGF) BINDING PROTEINS | 14044278 | Oct 2, 2013 | Xoma Technology LTD |
| HEPATOCYTE GROWTH FACTOR (HGF) BINDING PROTEINS | 13589664 | Aug 20, 2012 | Xoma Technology LTD |
| HEPATOCYTE GROWTH FACTOR (HGF) BINDING PROTEINS | 13051481 | Mar 18, 2011 | Xoma Technology LTD |
| HEPATOCYTE GROWTH FACTOR (HGF) BINDING PROTEINS | 11934701 | Nov 2, 2007 | Xoma Technology LTD |
| Human engineered antibodies to Ep-CAM | 10816276 | Mar 31, 2004 | Xoma Technology LTD |
| METHODS AND MATERIALS FOR INCREASING EXPRESSION OF RECOMBINANT POLYPEPTIDES | 13205448 | Aug 8, 2011 | Xoma Technology LTD |
| Methods and Materials for Increasing Expression of Recombinant Polypeptides | 11835131 | Aug 7, 2007 | Xoma Technology LTD |
| Methods and materials for expression of a recombinant protein | 11295006 | Dec 5, 2005 | Xoma Technology LTD |
| SUBSTITUTED QUINAZOLINONES FOR TREATING NEUROLOGICAL CONDITIONS | 11547056 | Nov 13, 2007 | Xoma Technology LTD |
| Modulation of pericyte proliferation | 10006557 | Dec 3, 2001 | Xoma Technology LTD |

| | | | |
|---|---|---|---|
| METHODS FOR RECOMBINANT PEPTIDE PRODUCTION | 11762486 | Jun 13, 2007 | Xoma Technology LTD |
| IMPROVED METHODS FOR RECOMBINANT PEPTIDE PRODUCTION | 6242219 | Jun 5, 2001 | Xoma Technology LTD |
| THERAPEUTIC USES OF BPI PROTEIN PRODUCTS IN BPI-DEFICIENT HUMANS | 10128139 | Apr 23, 2002 | Xoma Technology LTD |
| THERAPEUTIC DERIVATIVE COMPOUNDS DERIVED FROM DOMAIN II OF BACTERICIDAL/PERMEABILITY-INCREASING PROTEIN | 6423825 | Jul 23, 2002 | Xoma Technology LTD |
| DERIVATIVE COMPOUNDS DERIVED FROM OR BASED ON BACTERICIDAL/PERMEABILITY-INCREASING PROTEIN | 6355616 | Mar 12, 2002 | Xoma Technology LTD |
| Antifungal compound | 09975638 | Oct 11, 2001 | Xoma Technology LTD |
| THERAPEUTIC USES OF BPI PROTEIN PRODUCTS IN BPI-DEFICIENT HUMANS | 6376465 | Apr 23, 2002 | Xoma Technology LTD |
| THERAPEUTIC USES OF BPI PROTEIN PRODUCTS IN BPI-DEFICIENT HUMANS | 6153584 | Nov 28, 2000 | Xoma Technology LTD |
| METHOD OF TREATING CHRONIC CARDIAC DISEASE | 6509317 | Jan 21, 2003 | Xoma Technology LTD |
| IDENTIFICATION OF NOVEL ANTIMICROBIAL AGENTS USING METABOLIC OXIDATION-REDUCTION INDICATOR DYES | 6436660 | Aug 20, 2002 | Xoma Technology LTD |
| AGENTS AND METHODS FOR INHIBITING F1/F0 ATPASE | 6376211 | Apr 23, 2002 | Xoma Technology LTD |
| THREE-DIMENSIONAL STRUCTURE OF BACTERIA/PERMEABILITY INCREASING PROTEIN (BPI) | 6093573 | Jul 25, 2000 | Xoma Technology LTD |
| IDENTIFICATION OF NOVEL ANTIMICROBIAL AGENTS USING MEMBRANE POTENTIAL INDICATOR DYES | 09404926 | Sep 24, 1999 | Xoma Technology LTD |

| | | | |
|---|---|---|---|
| MODIFIED ANTIBODY VARIABLE DOMAINS | 08107669 | Aug 13, 1993 | Xoma Technology LTD |
| Modular assembly of antibody genes, antibodies prepared thereby and use | 10040945 | Jan 9, 2002 | Xoma Technology LTD |
| Production of chimeric mouse-human antibodies with specificity to human tumor antigens | 10263182 | Oct 3, 2002 | Xoma Technology LTD |
| PRODUCTION OF CHIMERIC MOUSE-HUMAN ANTIBODIES WITH SPECIFICITY TO HUMAN TUMOR ANTIGENS | 5576184 | Nov 19, 1996 | Xoma Technology LTD |
| NOVEL VECTORS WITH PECTATE LYASE SIGNAL SEQUENCE | 5576195 | Nov 19, 1996 | Xoma Technology LTD |
| MODIFIED ANTIBODY VARIABLE DOMAIN | 5766886 | Jun 16, 1998 | Xoma Technology LTD |
| MODIFIED ANTIBODY VARIABLE DOMAINS | 5869619 | Feb 9, 1999 | |
| MODIFIED ANTIBODY VARIABLE DOMAINS AND THERAPEUTIC USES THEREOF | 5770196 | Jun 23, 1998 | |
| MODIFIED ANTIBODY VARIABLE DOMAINS AND THERAPEUTIC USES THEREOF | 5821123 | Oct 13, 1998 | |
| | 0643189 | | |
| PRODUCTION OF CHIMERIC MOUSE-HUMAN ANTIBODIES WITH SPECIFICITY TO HUMAN TUMOR ANTIGENS | 5843685 | Dec 1, 1998 | |
| PRODUCTION OF CHIMERIC ANTIBODIES WITH SPECIFICITY TO HUMAN TUMOR ANTIGENS | 6461824 | Oct 8, 2002 | |
| ANALOGS OF RIBOSOME – INACTIVATING PROTEINS | 5376546 | Dec 27, 1994 | |
| MATERIALS COMPRISING AND METHODS OF PREPARATION AND USE FOR RIBOSOME-INACTIVATING PROTEINS | 5416202 | May 16, 1995 | |
| IMMUNOTOXINS COMPRISING RIBOSOME-INACTIVATING PROTEINS | 5621083 | Apr 15, 1997 | |
| IMMUNOTOXINS COMPRISING RIBOSOME-INACTIVATING PROTEINS | 5756699 | May 26, 1998 | |

| | | | |
|---|---|---|---|
| IMMUNOTOXINS COMPRISING RIBOSOME-INACTIVATING PROTEINS | 5744580 | Apr 28, 1998 | |
| POLYNUCLEOTIDES ENCODING GELONIN SEQUENCES | 5837491 | Nov 17, 1998 | |
| IMMUNOTOXINS COMPRISING RIBOSOME-INACTIVATING PROTEINS | 6146631 | Nov 14, 2000 | |
| PROTEINS ENCODING GELONIN SEQUENCES | 6146850 | Nov 14, 2000 | |
| FUSION PROTEINS AND POLYNUCLEOTIDES ENCODING GELONIN SEQUENCES | 6376217 | Apr 23, 2002 | |
| IMMUNOTOXINS COMPRISING RIBOSOME-INACTIVATING PROTEINS | 6649742 | Nov 18, 2003 | |
| ARAB PROMOTERS AND METHOD OF PRODUCING POLYPEPTIDES, INCLUDING CECROPINS, BY MICROBIOLOGICAL TECHNIQUES | 5028530 | Jul 2, 1991 | |
| MODULAR ASSEMBLY OF ANTIBODY GENES, ANTIBODIES PREPARED THEREBY AND USE | 5618920 | Apr 8, 1997 | |
| MODULAR ASSEMBLY OF ANTIBODY GENES ANTIBODIES PREPARED THEREBY AND USE | 5595898 | Jan 21, 1997 | |
| MODULAR ASSEMBLY OF ANTIBODY GENES, ANTIBODIES PREPARED THEREBY AND USE | 5693493 | Dec 2, 1997 | |
| MODULAR ASSEMBLY OF ANTIBODY GENES, ANTIBODIES PREPARED THEREBY AND USE | 5698417 | Dec 16, 1997 | |
| MODULAR ASSEMBLY OF ANTIBODY GENES, ANTIBODIES PREPARED THEREBY AND USE | 5698435 | Dec 16, 1997 | |
| MODULAR ASSEMBLY OF ANTIBODY GENES, ANTIBODIES PREPARED THEREBY AND USE | 6204023 | Mar 20, 2001 | |
| PECTATE LYASE SIGNAL SEQUENCE | 5846818 | Dec 8, 1998 | |
| CHIMERIC ANTIBODY WITH SPECIFICITY TO HUMAN B CELL SURFACE ANTIGEN | 5677180 | Oct 14, 1997 | |
| CHIMERIC ANTIBODY WITH SPECIFICITY TO HUMAN B CELL SURFACE ANTIGEN | 5721108 | Feb 24, 1998 | |

| | | | |
|---|---|---|---|
| CHIMERIC ANTIBODY WITH SPECIFICITY TO HUMAN B CELL SURFACE ANTIGEN | 5500362 | Mar 19, 1996 | |
| THERAPEUTIC USES OF BPI PROTEIN PRODUCTS FOR HUMAN MENINGOCOGCEMIA | 5888977 | Jan 28, 1999 | |
| Bacterical/permability-increasing protein(BPI) deletion analogs | 10629516 | Jul 29, 2003 | |
| BACTERICIDAL/PERMEABILITY-INCREASING PROTEIN(BPI) DELETION ANALOGS | 6087126 | Jul 11, 2000 | |
| BACTERICIDAL/PERMEABILITY-INCREASING PROTEIN (BPI) DELETION ANALOGS | 6599880 | Jul 29, 2003 | |
| THERAPEUTIC USES OF BPI PROTEIN PRODUCTS IN H UMANS WITH HEMORRHAGE DUE TO TRAUMA | 5945399 | Nov 4, 1997 | |
| USES OF LIPOPOLYSACCHARIDE BINDING PROTEIN | 5990082 | Jan 12, 1998 | |
| METHOD FOR QUANTIFYING LBP IN BODY FLUIDS | 5891618 | Mar 12, 1997 | |
| METHODS FOR RECOMBINANT MICROBIAL PRODUCTION OF FUSION PROTEINS AND BPI-DERIVED PEPTIDES | 5851802 | Nov 1, 1996 | |
| ANTI-FUNGAL PEPTIDES | 5858974 | Oct 30, 1996 | |
| ANTI-CHLAMYDIAL USES OF BPI PROTEIN PRODUCTS | 5888973 | Oct 15, 1996 | |
| ANTITHROMBOTIC MATERIALS AND METHODS | 5741779 | Jun 26, 1996 | |
| M ETHOD FOR QUANTIFYING LBP IN BODY FLUIDS | 5804367 | Feb 29, 1996 | |
| METHODS OF TREATING CONDITIONS ASSOCIATED WITH CORNEAL TRANSPLANTATION | 5686414 | Nov 14, 1995 | |
| METHOD OF TREATING CONDITIONS ASSOCIATED WITH INTESTINAL ISCHEMIA/REPERFUSION | 5578568 | May 25, 1995 | |
| METHOD OF TREATING CONDITIONS ASSOCIATED WITH BURN INJURIES | 5494896 | May 10, 1995 | |

| | | | |
|---|---|---|---|
| ANTI-FUNGAL METHODS AND MATERIALS | 5627153 | Apr 11, 1995 | |
| ANTI-GRAM-POSITIVE BACTERIAL METHODS AND M ATERIALS | 5578572 | Apr 11, 1995 | |
| METHOD OF TREATING GRAM-NEGATIVE BACTERIAL INFECTION BY ADMINISTRATION OF BACTERICIDAL/PERMEABILITY-INCREASING (BPI) PROTEIN PRODUCT AND ANTIBIOTIC | 5523288 | Jan 27, 1995 | |
| BIOLOGICALLY ACTIVE PEPTIDES FROM FUNCTIONAL DOMAINS OF BACTERICIDAL/PERMEABILITYINCREASING PROTEIN AND USES THEREOF | 5652332 | Nov 2, 1994 | |
| LIPOPOLYSACCHARIDE BINDING PROTEIN DERIVATIVES | 5731415 | Oct 14, 1994 | |
| METHOD OF SCREENING FOR AN ACTIVE INFLAMMATORY STATE BY DETERMINING THE CONCENTRATION OF EXTRACELLULAR BPI | 5821064 | Oct 13, 1994 | |
| THERAPEUTIC USES OF BACTERICIDAL/PERMEABILITYINCREASING PROTEIN DIMER PRODUCTS | 5447913 | Aug 29, 1994 | |
| METHOD FOR POTENTIATING BPI PROTEIN PRODUCT BACTERICIDAL ACTIVITY BY ADMINISTRATION OF LBP PROTEIN PRODUCTS | 5770561 | Aug 5, 1994 | |
| ANTI-PROTOZOAN METHODS | 5646114 | Aug 3, 1994 | |
| BACTERICIDAL/PERMEABILITY-INCREASING PROTEIN (BPI) COMPOSITIONS | 5932544 | Jul 7, 1994 | |
| BIOLOGICALLY ACTIVE PEPTIDES FROM FUNCTIONAL DOMAINS OF BACTERICIDAL/PERMEABILITYINCREASING PROTEIN AND USES THEREOF | 5733872 | May 9, 1994 | |
| STABLE BACTERICIDAL/PERMEABILITY- | 5420019 | Apr 1, 1994 | |

| | | | |
|---|---|---|---|
| INCREASING PROTEIN MUTEINS | | | |
| METHOD FOR QUANTIFYING LIPOPOLYSACCHANDE BINDING PROTEIN | 5484705 | Mar 11, 1994 | |
| PHARMACEUTICAL COMPOSITION COMPRISING BPI PROTEINS | 5488034 | Mar 11, 1994 | |
| METHOD FOR QUANTIFYING BPI IN BODY FLUIDS | 5466581 | Jan 11, 1994 | |
| METHOD FOR QUANTIFYING BPI IN BODY FLUIDS | 5466580 | Oct 8, 1993 | |
| THERAPEUTIC USES OF BACTERICIDAL/PERMEABILITY INCREASING PROTEIN PRODUCTS | 5348942 | May 5, 1993 | |
| DNA ENCODING POLYPEPTIDES WITH ACTIVITY AGAINST GRAM –POSITIVE AND GRAM-NEGATIVE BACTERIA | 5344765 | Mar 18, 1993 | |
| HYBRIDOMA TUMOR CELL LINES AND THEIR MONOCLONAL ANTIBODIES TO THAUMATIN | 4770993 | Sep 13, 1988 | |
| METHOD FOR ISOLATION OF RECOMBINANT POLYPEPTIDES IN BIOLOGICALLY ACTIVE FORMS | 4766205 | Aug 23, 1988 | |
| OSTEOGENIC FACTORS | 4804744 | Feb 14, 1989 | |
| DNA ENCODING (ASP 113) AND (LYS 46, ASP 113) THAUMATIN I | 5464770 | Nov 7, 1995 | |
| DNA ENCODING (LYS46, ASP97, ASP113) AND (LYS46, ASP113, ASP137) THAUMATIN I POLYPEPTIDES | 5221624 | Jun 22, 1993 | |
| OSTEOGENIC FACTORS | 5106626 | Apr 21, 1992 | |
| PEPTIDE FRAGMENTS OF HUMAN APOLIPOPROTEIN, TYPE-SPECIFIC ANTIBODIES AND METHODS OF USE | 4970144 | Nov 13, 1990 | |
| CECROPIN POLYPETIDES WITH ACTIVITY AGAINST GRAM-POSITIVE AND GRAM- NEGATIVE | 5166321 | Nov 24, 1992 | |

| | | | |
|---|---|---|---|
| BACTERIA | | | |
| PROCESS AND DEVICE TO FOLD STRIPS OF SWABS | 5057069 | Oct 15, 1991 | |
| A METHOD OF PRODUCING CECROPINS, BY MICROBIOLOGICAL TECHNIQUES | 5206154 | Apr 27, 1993 | |
| CHIMERIC ANTIBODY WITH SPECIFICITY TO HUMAN TUMOR ANTIGEN | 5354847 | Oct 11, 1994 | |
| MODULAR HEARING AID SYSTEM | 5185802 | Feb 9, 1993 | |
| SHORTENED PHOSPHOGLYCERATE KINASE PROMOTER | 5104795 | May 15, 1990 | |
| HINDERED LINKING AGENTS DERIVED FROM 2-IMINOTHIOLANES AND METHODS | 5093475 | Jan 15, 1990 | |
| LINKING AGENTS AND METHODS | 4970303 | Feb 1, 1988 | |
| HEPATIC BLOCKING AGENTS | 4946675 | Jul 16, 1987 | |
| RADIOIMMUNO DETECTION OF HUMAN CANCERS USING ANTI-TUMOUR MONOCLONAL ANTIBODY | 4708862 | Nov 19, 1986 | |
| ANTIBODY HYBRID MOLECULES AND PROCESS FOR THEIR PREPARATION | 4698420 | Feb 20, 1985 | |
| UMAN MELANOMA SPECIFIC IMMUNOTOXINS | 4590071 | Sep 14, 1984 | |
| METHOD FOR TREATING PLASMA FOR TRANSFUSION | 4664913 | Mar 30, 1984 | |
| | | | |

EXHIBIT C

Trademarks

| Description | Registration/ Application Number | Registration/ Application Date |
|---|---|---|
| NEUPREX | 2192443 | September 29, 1998 |