

Global & USA Cancer Immunotherapy Market Analysis to 2020: Antibody Drug Conjugates (ADCs), Bispecific Monoclonal Antibodies, Cancer Vaccines, Cytokines, Interferons, Chimeric Antigen Receptor (CAR) T-Cell Therapy, PD-1/PD-L1 inhibitors, Dendritic Cells, Checkpoint Inhibitors, Adopted Cell Therapy (ACT) & IDO Inhibitors

<https://marketpublishers.com/r/GEC991CCD9DEN.html>

Date: July 2015

Pages: 317

Price: US\$ 3,800.00 (Single User License)

ID: GEC991CCD9DEN

Abstracts

This report provides a comprehensive overview of the size of cancer immunotherapy market, the segmentation of the market, key players and the vast potential of therapies that are in clinical trials. Oncologic therapeutics cannot cure cancer and yet in 2014, the overall market for cancer therapeutics stood at about \$84.3 billion. Any drug that can provide a reasonable survival of more than five years for cancer patients can achieve a blockbuster status. Within cancer therapeutics, immunotherapeutic drugs have gained worldwide acceptance, because they are targeted drugs targeting only cancer cells. Today, cancer immunotherapy drugs have captured nearly 50% of the overall oncology drugs market, generating about \$41.0 billion in 2014 alone. This report describes the evolution of such a huge market in 20 chapters supported by over 180 tables and figures in 317 pages.

An overview of cancer immunotherapy that includes: monoclonal antibodies, cancer vaccines and non-specific cancer immunotherapies and CAR T therapies.

Focus on current trends in cancer immunotherapies that include: anti-PD-1 drugs, Dendritic cell vaccines, T-cell therapies and cancer vaccines.

Insight into the challenges faced by drug developers, particularly about the success vs. failure ratios in developing cancer immunotherapy drugs.

Descriptions of more than 23 cancer immunotherapeutics approved and used as targeted drugs

Insight into the various immunotherapeutics available for specific cancer types.

Description and data for the prevalence of cancer types that are addressed by cancer immunotherapeutics.

Overall global cancer therapeutics market, leading market players and the best selling cancer drugs.

Detailed account of the market for cancer immunotherapeutics by geography, indication, company and individual drugs.

Profiles, marketed products and products in the pipeline of 79 companies that are mostly located in the U.S. and Europe.

Summary table to identify the category of immunotherapy drug offered by the 79 companies.

Key Questions Answered in this Report

What is the global market for cancer immunotherapeutics by product class such as MAbs, vaccines and non-specific immunotherapies, through 2020?

What is the global market for cancer immunotherapeutics by geography, through 2020?

What is the global market for cancer immunotherapeutics by indication, through 2020?

What is the global market for MAbs by type such as naked MAbs and ADCs, through 2020?

What are the market values for Herceptin, Avastin, Erbitux, Yervoy, Mabthera,

Adectris, and Keytruda?

What is the global market for cancer vaccines?

What is the global market for cytokines in cancer immunotherapy?

The projected market values for Nivolumab, RG7446, DCVax-L, MEDI4736 etc.?

What immunotherapies were approved between 1986 and 2016?

What monoclonal antibodies (MAbs) were approved by the FDA to treat different types of cancers?

What are naked MAbs and how many of them have been approved by the FDA?

What are antibody-drug conjugates (ADCs) and how many of them are available in the market?

What are the common cytotoxic “wareheads” used in ADCs?

What are the important clinical assets in ADCs?

How many bispecific MAbs are in late-stage development?

What are the common side effects of MAbs in cancer immunotherapy?

What are cancer vaccines and how many of them have been licensed to be marketed?

How many cytokines have been approved for being used in cancer immunotherapy?

What are the major checkpoint inhibitors in clinical development?

What is the current status of anti-PD-1 drugs, dendritic cell therapies, T-cell therapies and cancer vaccines?

What are the most valuable R&D projects in cancer immunotherapy and what

would be their approximate sales revenues in 2020 Number of melanoma drugs approved between 1998 and 2016?

Number of lung cancer drugs approved between 1998 and 2016?

Number of brain cancer drugs approved between 1998 and 2016?

What is CAR T Therapy?

What are the main challenges associated with CAR T therapy?

When will the first CAR T therapeutics be approved?

What are the current regulations for immunotherapies in USA, Europe & Japan?

What are the main manufacturing steps in CAR T therapy?

What challenges lie ahead for CAR T production?

Contents

1.0 EXECUTIVE SUMMARY

- 1.1 Objectives of Report
- 1.2 Key Questions Answered in this Report
- 1.3 Data Sources and Methodology

2.0 CANCER IMMUNOTHERAPY: AN OVERVIEW

- 2.1 Human Immune System
 - 2.1.1 Components of Human Immune System
- 2.2 Types of Cancer Immunotherapy
- 2.3 Monoclonal Antibodies (Mabs) to Treat Cancer
 - 2.3.1 Most Frequently Targeted Antigens by MAbs
- 2.4 Types of Monoclonal Antibodies (MAbs)
 - 2.4.1 Naked MABs
 - 2.4.2 Conjugated Monoclonal Antibodies
 - 2.4.2.1 Components of an Antibody Drug Conjugate (ADC)
 - 2.4.2.2 Mechanism of Action of Antibody Drug Conjugate (ADC)
 - 2.4.2.3 The Cytotoxic Wareheads used in ADCs
 - 2.4.2.4 Successful Cytotoxin Wareheads
 - 2.4.2.5 Developmental Timeline of ADCs
 - 2.4.2.6 Target Antigens for ADCs in Preclinical and Clinical Development
 - 2.4.2.7 Important Clinical Assets in ADCs
 - 2.4.3 Bispecific Monoclonal Antibodies
 - 2.4.3.1 Technology Platforms for the Production of Bispecific MABs
 - 2.4.4 Safety and Side Effects of MABs in Cancer Immunotherapy
- 2.5 Cancer Vaccines
 - 2.5.1 Cancer Vaccines in Development
- 2.6 Non-Specific Cancer Immunotherapies and Adjuvants
 - 2.6.1 Cytokines
 - 2.6.2 Interferon (IFN)
- 2.7 New Frontiers in Cancer Immunotherapy Research
 - 2.7.1 Drugs for Targeting Immune Checkpoints
 - 2.7.1.1 Cytotoxic T-Lymphocyte-Associated Protein-4 (CTLA-4)
 - 2.7.1.2 Programmed Death 1 (PD-1) and Programmed Death Ligand 1 (PD-L1)
 - 2.7.1.3 Major Checkpoint Inhibitors in Clinical Development
 - 2.7.2 Chimeric Antigen Receptor (CAR) T Cell Therapy

- 2.7.3 Tumor-Infiltrating Lymphocytes (TILs) and Interleukin-2 (IL-2)
- 2.8 Cancer Immunotherapy: Timeline of Progress

3.0 CURRENT STATUS OF CANCER IMMUNOTHERAPY: AN OVERVIEW

3.1 Programmed Death (PD-1) Inhibitors

- 3.1.1 Important Events and Advantages for Nivolumab in Melanoma Indication
- 3.1.2 Important Events and Advantages for Nivolumab in Non-Small Cell Lung Cancer
- 3.1.3 Important Events and Advantages for Nivolumab in Renal Cell Cancer
- 3.1.4 Nivolumab Studies for Melanoma
- 3.1.5 Nivolumab Studies for Non-Small Cell Lung Cancer (NSCLC)
- 3.1.6 Nivolumab Studies for Renal Cell Cancer (RCC)

3.2 MK-3475 (Pembrolizumab)

- 3.2.1 Important Events and Advantages for MK-3475 in Melanoma
- 3.2.2 Important Events and Advantages for MK-3475 in NSCLC
- 3.2.3 Important Events for MK-3475 in RCC

3.3 RG7446 from Roche

- 3.3.1 Important Events for RG7446 in Melanoma
- 3.3.2 Important Events and Advantages for RG7446 in NSCLC
- 3.3.3 Important Event for RG7446 in RCC
- 3.3.4 RG7446 Studies in NSCLC
- 3.3.5 RG7446 Studies in RCC
- 3.3.6 RG7446 Study in RCC

3.4 Pidilizumab from CureTech

3.5 An Overview of Anti-PD-1 Clinical Development

- 3.5.1 Other Checkpoint Inhibitors in Development

3.6 Studies with Yervoy (Ipilimumab)

3.7 Studies with Tremelimumab

3.8 KAHR-102

3.9 TIM3 Antibody

3.10 BMS-989016

3.11 ImmuTune IMP701 and ImmuFact IMP321

3.12 Dendritic Cell Therapies

- 3.12.1 Provenge (Sipuleucel-T)
- 3.12.2 AGS-003 from Argos Therapeutics
- 3.12.3 DCP-001 from DCPrime
- 3.12.4 DC-Vax from Northwest Biotherapeutics

3.13 Chimeric Antigen Receptor T-Cells (CAR-T) Therapies

- 3.13.1 CLT109

- 3.13.2 Chimeric Antigen Receptors (CAR) Program by Juno
- 3.13.3 Chimeric Antigen Receptor (CAR) T-Cell Program by Bluebird Bio
- 3.13.4 UCART19 from Cellectis
- 3.13.5 Chimeric Immune Receptor (CIR) T-Cells from Abramson Cancer Center
- 3.13.6 CD19 eACT CAR-T Therapy from Kite Pharma
- 3.13.7 Autologous CAR-T Program for Breast Cancer from Adaptimmune
- 3.14 Cancer Vaccines
 - 3.14.1 HyperAcute
 - 3.14.2 MAGE-A3 Antigen-Specific Cancer Immunotherapeutic
 - 3.14.3 ADXS-HPV
 - 3.14.4 IDO Inhibitors
 - 3.14.5 Indoximod and NLG-919 (INCY)
 - 3.14.6 INCB24360 (INCY)
 - 3.14.7 deCellVax (BMSN)
- 3.15 Miscellaneous Immunotherapies
 - 3.15.1 Contego (Lion Biotechnologies)
 - 3.15.2 TG4010 (Transgene)
- 3.16 Most Valuable R&D Projects in Cancer Immunotherapy
 - 3.16.1 Nivolumab (Opdivo)
 - 3.16.2 MK-3475
 - 3.16.3 RG7446
 - 3.16.4 Palbociclib
 - 3.16.5 DCVax-L
 - 3.16.6 MEDI4736

4.0 CHALLENGES IN CANCER MEDICINE RESEARCH: AN OVERVIEW

- 4.1 Years of Failures and Emerging Successes in Melanoma Medicine Research
 - 4.1.1 Future Outlook for Melanoma Drugs
- 4.2 A New Era for Lung Cancer Medicines
 - 4.2.1 Progresses Made in Lung Cancer Medicine Research
 - 4.2.2 Successes and Failures in Lung Cancer Medicine Development
 - 4.2.3 Future Outlook for Lung Cancer Medicines
- 4.3 Ray of Hope for Brain Cancer Patients
 - 4.3.1 Progress made for Brain Cancer Treatment in Recent Years
 - 4.3.2 Successes and Failures in Brain Cancer Drug Development

5.0 CANCER IMMUNOTHERAPEUTIC PRODUCTS: AN OVERVIEW

- 5.1 I-Labelled Tositumomab (Bexxar)
- 5.2 Y-Labelled Ibritumomab (Zevalin)
- 5.3 Alemtuzumab (Campath)
- 5.4 Adotrastuzumab Emtansine (Kadcyla)
- 5.5 Bacillus Calmette-Guerin (BCG)
- 5.6 Bevacizumab (Avastin)
- 5.7 Brentuximab Vedotin (Adcetris)
- 5.8 Cetuximab (Erbix)
- 5.9 Cervarix
- 5.10 Denileukin Diftitox (Ontak)
- 5.11 Gardasil
- 5.12 Gemtuzumab (Mylotarg)
- 5.13 Hepatitis B Vaccine
- 5.14 Interferon Alfa (IFN-alfa)
- 5.15 Interleukin-2 (IL-2)
- 5.16 Ipilimumab (Yervoy)
- 5.17 Ofatumumab (Arzerra)
- 5.18 Panitumumab (Vectibix)
- 5.19 Pembrolizumab (Keytruda)
- 5.20 Rituximab (Mabthera)
- 5.21 Sargramostim (Leukine)
- 5.22 Sipuleucel-T (Provenge)
- 5.23 Trastuzumab (Herceptin)

6.0 AVAILABLE IMMUNOTHERAPIES FOR CANCER BY DISEASE TYPE: AN OVERVIEW

- 6.1 Melanoma Skin Cancer and Immunotherapy
 - 6.1.1 Ipilimumab (Yervoy) for Advanced Melanoma
 - 6.1.2 PD-1 Inhibitors (Keytruda and Opdivo) for Advanced Melanoma
 - 6.1.3 Cytokines for Advanced Melanoma
 - 6.1.4 Interferon Alfa as Adjuvant Therapy for Melanoma
 - 6.1.5 Bacille Calmette-Guerin (BCG) Vaccine for Melanoma
 - 6.1.6 Imiquimod (zyclara) Cream for Melanoma
- 6.2 Breast Cancer and Immunotherapy
 - 6.2.1 Promising Therapeutic Vaccine Product Candidates for Breast Cancer
 - 6.2.2 Promising Checkpoint Inhibiting Product Candidates for Breast Cancer
 - 6.2.3 Promising Adoptive T Cell Therapy Product Candidates for Breast Cancer
 - 6.2.4 Promising Antibody Product Candidates for Breast Cancer

- 6.3 Immunotherapy for Prostate Cancer
 - 6.3.1 Therapeutic Vaccines for Prostate Cancer
 - 6.3.2 Checkpoint Inhibitors for Prostate Cancer
 - 6.3.3 Adoptive Cell Therapy for Prostate Cancer
- 6.4 Immunotherapy for Lung Cancer
 - 6.4.1 Monoclonal Antibodies for Lung Cancer
 - 6.4.1.1 Promising MAb Product Candidates for Lung Cancer
 - 6.4.1.2 Checkpoint Inhibitors for Lung Cancer
 - 6.4.1.3 Therapeutic Vaccines for Lung Cancer
 - 6.4.1.4 Promising Adoptive T Cell Transfer Product Candidates for Lung Cancer
- 6.5 Immunotherapy for Colorectal Cancer
 - 6.5.1 Promising Monoclonal Antibody Product Candidates for Colorectal Cancer
 - 6.5.2 Trials Using Checkpoint Inhibitors and Immune Modulators for Colorectal Cancer
 - 6.5.3 Clinical Trials for Vaccines Indicated for Colorectal Cancer
 - 6.5.4 Adoptive Cell Therapy for Colorectal Cancer
 - 6.5.5 Oncolytic Virus Therapy for Colorectal Cancer
 - 6.5.6 Adjuvant Immunotherapy for Colorectal Cancer
 - 6.5.7 Cytokines for Colorectal Cancer
- 6.6 Immunotherapies in Development for Lymphoma
 - 6.6.1 Therapeutic Vaccines in Development for Lymphoma
 - 6.6.2 Checkpoint Inhibitors for Lymphoma
 - 6.6.3 Adoptive T Cell Transfer for Lymphoma
 - 6.6.4 Monoclonal Antibodies for Lymphoma
- 6.7 Immunotherapy for Kidney Cancer
 - 6.7.1 Checkpoint Inhibitors for Kidney Cancer
 - 6.7.2 Vaccines for Kidney Cancer
 - 6.7.3 Adoptive Cell Therapy for Kidney Cancer
- 6.8 Dominance of MAbs and Vaccines in Cancer Clinical Research
- 6.9 Oncology Biologics Losing Patent Protection

7.0 CANCER INCIDENCE AND MORTALITY: AN OVERVIEW

- 7.1 Global Economic Burden of Cancer
- 7.2 Global Burden of Cancer
- 7.3 Top Five Most Frequent Cancers, Globally
 - 7.3.1 Global Prevalence of Colorectal, Breast and Lung Cancers
 - 7.3.2 Percentage of Top Three Cancers Diagnosed Globally
 - 7.3.2.1 Mortality due to Lung, Liver and Stomach Cancers
 - 7.3.2.2 Percentage of Death due to Lung, Liver and Stomach Cancers

7.4 Cancer Deaths in Women

7.5 Prevalence and Mortality for Cancer Types Addressed by Immunotherapy

7.5.1 Breast Cancer

7.5.1.1 Worldwide Incidence of Breast Cancer and Mortality Rate by Geography

7.5.1.2 Female Breast Cancer Incidence in the U.S

7.5.1.3 Five Year Breast Cancer Survival Rates by Stage at Diagnosis and Age in the U.S

7.5.1.4 Breast Cancer Incidence in Canada

7.5.1.5 Breast Cancer Incidence and Mortality in Latin America

7.5.1.6 Breast Cancer Incidence and Mortality in Europe

7.5.1.7 Breast Cancer Incidence in Asia/Pacific

7.5.1.8 Breast Cancer Incidence by Country

7.5.2 Gastric Cancer (Stomach Cancer)

7.5.2.1 Incidence of Gastric Cancer in Top 15 Countries

7.5.3 Colorectal Cancer

7.5.3.1 Global Incidence of Colorectal Cancer

7.5.3.2 Worldwide Variations in the Incidence of Colorectal Cancer

7.5.3.3 Risk Factors for Colorectal Cancer

7.5.3.4 Colorectal Cancer Screening in the U.S

7.5.3.5 Colorectal Cancer Incidence Rates in the U.S. by State

7.5.3.6 Colorectal Cancer Mortality Rates (per 100,000) in the U.S. by States

7.5.4 Lung Cancer

7.5.4.1 Non-Small Cell Lung Cancer (NSCLC)

7.5.4.2 Global NSCLC Incidence

7.5.4.3 Lung Cancer in Americas by Gender

7.5.4.4 Tobacco Use and Lung Cancer

7.5.4.5 Current Therapeutic Options for Lung Cancer

7.5.5 Glioblastoma

7.5.5.1 Global Incidence of Glioblastoma

7.5.6 Kidney Cancer

7.5.6.1 Global Incidence of Kidney Cancer

7.5.7 Blood Cancer

7.5.7.1 Leukemia

7.5.7.2 Blood Cancer in the U.S

7.5.8 Cervical Cancer

7.5.8.1 Global Incidence of Cervical Cancer

7.5.9 Prostate Cancer

7.5.9.1 Global Incidence of Prostate Cancer

7.5.9.2 Prostate Cancer Incidence and Mortality by Geography

- 7.5.9.3 Prostrate Cancer in the U. S
- 7.5.10 Melanoma
 - 7.5.10.1 Skin Cancer in the U. S

8.0 MARKET ANALYSIS

- 8.1 Global Oncology Market
- 8.2 Top Ten Companies in Oncology Drug Sales
- 8.3 Top Five Oncology Drugs
- 8.4 Global Oncology Therapeutics Market by Cancer Type

9.0 MARKET FOR CANCER IMMUNOTHERAPY

- 9.1 Key Drivers
- 9.2 Global Market for Cancer Immunotherapeutics
- 9.3 Global Market for Cancer Immunotherapy by Product Class
- 9.4 Global Market for Immunotherapy Drugs by Cancer Type
- 9.5 Global Market for Monoclonal Antibodies for Cancer by Type
 - 9.5.1 Best Selling MAbs
 - 9.5.1.1 Market Forecast for Herceptin
 - 9.5.1.2 Market Value and Forecast for Avastin
 - 9.5.1.3 Global Market for Erbitux
 - 9.5.1.4 Global Market for Yervoy
 - 9.5.1.5 Global Market for Mabthera
 - 9.5.2 Global Market for Antibody Drug Conjugates (ADCs)
 - 9.5.2.1 Global Market for Adcetris
 - 9.5.2.2 Global Market for Keytruda
- 9.6 Global Market for Cancer Vaccines
 - 9.6.1 Global Market for Cancer Vaccines by Type
- 9.7 Global Market for Non-Specific Cancer Immunotherapeutics
- 9.8 Market Values for Selected Forthcoming Cancer Immunotherapeutics
 - 9.8.1 Market Value for Nivolumab (Opdivo)
 - 9.8.2 Market Value for RG7446
 - 9.8.3 Market Value for DCVax-L
 - 9.8.4 Market Value for MEDI4736
 - 9.8.5 High Cost of MAbs

10.0 COMPANY PROFILES

- 10.1 Ablynx NV
- 10.2 Activartis Biotech GmbH
 - 10.2.1 GBM Vax Study
- 10.3 Advaxis Inc
 - 10.3.1 Advaxis' Technology
 - 10.3.2 Advaxis' Product Pipeline
 - 10.3.2.1 ADXS-HPV
 - 10.3.2.2 ADXS-PSA
 - 10.3.2.3 ADXS-cHER2
- 10.4 Aduro BioTech Inc
 - 10.4.1 Aduro's Technology
 - 10.4.1.1 CRS-207
 - 10.4.1.2 AUD-623
 - 10.4.1.3 ADU-741
 - 10.4.1.4 ADU-S100
- 10.5 Agenus Inc
 - 10.5.1 QS-21 Stimulon
- 10.6 AlphaVax Inc
 - 10.6.1 Alpha Vax's Technology
- 10.7 A. Menarini Industrie Farmaceutiche Riunite Srl
 - 10.7.1 MEN1112
- 10.8 Amgen Inc
 - 10.8.1 Vectibix (panitumumab)
 - 10.8.2 Blinatumomab (Blinicyto)
 - 10.8.3 Rilotumumab
- 10.9 Antigen Express Inc
 - 10.9.1 Li-Key Hybrid Vaccines (AE37)
- 10.10 Argos Therapeutics Inc
 - 10.10.1 AGS-003
- 10.11 Bavarian Nordic A/S
 - 10.11.1 Prostavac
 - 10.11.2 CV-301
 - 10.11.3 MVA-BN PRP
 - 10.11.4 MVA-BN HER2
 - 10.11.4.1 MVA-BN Brachyury
- 10.12 Bellicum Pharmaceuticals Inc
 - 10.12.1 BPX-501
 - 10.12.2 BPX-201
 - 10.12.3 BPX-401

- 10.12.4 BPX-601
- 10.12.5 BPX-701
- 10.13 Biogen Idec Inc
 - 10.13.1 Rituxan (Rituximab)
 - 10.13.2 Gazyva (Obinutuzumab)
- 10.14 Biovest International Inc
 - 10.14.1 BiovaxID
- 10.15 Bristol-Myers Squibb Company
 - 10.15.1 Erbitux (cetuximab)
 - 10.15.2 OPDIVO (nivolumab)
 - 10.15.3 Yervoy (ipilimumab)
- 10.16 Cellectis
- 10.17 Cellerant Therapeutics Inc
 - 10.17.1 CLT-008
 - 10.17.2 CLT-009
- 10.18 Celldex Therapeutics
 - 10.18.1 Rindopepimut
 - 10.18.2 Glembatumumab vedotin (CDX-011)
 - 10.18.3 Varlilumab (CDX-1127)
 - 10.18.4 CDX-1401
 - 10.18.5 CDX-301
- 10.19 CEL-SCI Corp.
 - 10.19.1 Multikine
- 10.20 CureTech Ltd.
 - 10.20.1 Pidilizumab (CT-011)
- 10.21 Delta-Vir GmbH
 - 10.21.1 Treatment
- 10.22 Dendreon Corp.
 - 10.22.1 Provenge (Sipuleucel-T)
- 10.23 DenDrit Biotech USA
 - 10.23.1 MelCancerVac
- 10.24 DNatrix Inc
 - 10.24.1 DNX-2401
- 10.25 Eli Lilly and Co.
 - 10.25.1 Erbitux (Cetuximab)
- 10.26 EMD Serono Inc
- 10.27 Etubics Corp.
- 10.28 Galena Biopharma Inc
- 10.29 Genentech Inc

- 10.29.1 Avastin (bevacizumab) for Metastatic Colorectal Cancer
 - 10.29.1.1 Avastin and Interferon Alfa for Metastatic Kidney Cancer
 - 10.29.1.2 Avastin for Metastatic NLCLC
- 10.29.2 Gazyva (obinutuzumab) for Chronic Lymphocytic Leukemia
- 10.29.3 Herceptin (trastuzumab) for Breast Cancer
 - 10.29.3.1 Herceptin and Chemotherapy for Gastric Cancer
- 10.29.4 Kadcylla (ado-trastuzumab emtansine)
- 10.29.5 Perjeta (pertuzumab)
- 10.29.6 Rituxan (rituximab)
- 10.29.7 Genentech's Cancer Immunotherapy Pipeline Products
- 10.30 Genmab AS
 - 10.30.1 Ofatumumab
- 10.31 GlaxoSmithKline
 - 10.31.1 Arzerra (Ofatumumab)
 - 10.31.2 Cervarix
- 10.32 Gliknik Inc
- 10.33 GlobelImmune Inc
- 10.34 Heat Biologics Inc
- 10.35 Immatics Biotechnologies GmbH
- 10.36 ImmunoCellular Therapeutics Ltd.
- 10.37 Immunocore Ltd.
 - 10.37.1 Product Pipeline
- 10.38 ImmunoFrontier Inc
- 10.39 ImmunoGen Inc
 - 10.39.1 IMGN853
 - 10.39.2 IMGN529
 - 10.39.3 IMGN289
 - 10.39.4 IMGN779
- 10.40 Immunomedics Inc
- 10.41 Immunotope Inc
 - 10.41.1 IMT-1012 Immunotherapeutic Vaccine
- 10.42 Immunovaccine Inc
- 10.43 Inovio Pharmaceuticals Inc
- 10.44 Janssen Biotech Inc
 - 10.44.1 Doxil
 - 10.44.2 Procrit
 - 10.44.3 Zytiga
 - 10.44.4 Imbruvicia
- 10.45 Juno Therapeutics Inc

- 10.46 Kite Pharma Inc
 - 10.46.1 Kite Pharma's Technology
 - 10.46.1.1 eACT (engineered Autologous Cell Therapy)
 - 10.46.1.2 DC-Ad GM-CAIX
- 10.47 MabVax Therapeutics Holdings Inc
- 10.48 MedImmune LLC
- 10.49 Merck & Co., Inc
 - 10.49.1 Gardasil (Human Papillomavirus Quadrivalent (Types 6, 11, 16 and 18) Vaccine
 - 10.49.2 Keytruda (Pembrolizumab)
- 10.50 Merrimack Pharmaceuticals Inc
- 10.51 Morphotek Inc
 - 10.51.1 Farletuzumab (MORAb-003)
 - 10.51.2 Amatuximab (MORAb-009)
 - 10.51.3 Ontuxizumab (MORAb-004)
 - 10.51.4 MORAb-066
- 10.52 NewLink Genetics Corp.
- 10.53 Northwest Biotherapeutics Inc
- 10.54 NovaRx Corp.
- 10.55 OncoPep Inc
 - 10.55.1 PVX-410
- 10.56 Oncothyreon Inc
- 10.57 OSE Pharma SA
- 10.58 Oxford BioTherapeutics Ltd.
 - 10.58.1 Technologies
 - 10.58.1.1 OGAP – Cancer Targeting
 - 10.58.1.2 Antibody Development
 - 10.58.1.3 Antibody “arming”
 - 10.58.2 Lead Programs
 - 10.58.2.1 OX001/MEN1112
 - 10.58.2.2 OX002
 - 10.58.2.3 OX003
 - 10.58.2.4 OX004
- 10.59 Pique Therapeutics
- 10.60 Polynoma LLC
 - 10.60.1 MAVIS Trial
- 10.61 Prima BioMed Ltd.
- 10.62 Progenics Pharmaceuticals Inc
 - 10.62.1 PSMA Targeted Imaging Compound (1404)

- 10.62.2 PSMA ADC Therapeutic
- 10.62.3 Small Molecule Therapeutic (1095)
- 10.62.4 Azedra
- 10.63 Regen Biopharma Inc
 - 10.63.1 HemaXellerate
 - 10.63.2 dCellVax
 - 10.63.3 Diffron C
- 10.64 Roche Holdings Inc
 - 10.64.1 Avastin (Bevacizumab)
 - 10.64.2 Gazyva/Gazyvaro (Obinutuzumab; GA101)
 - 10.64.3 Herceptin (Trastuzumab)
 - 10.64.4 Kadcyła (Trastuzumabum emtansinum)
 - 10.64.5 Mabthera (Rituximab)
 - 10.64.6 Perjeta (Pertuzumab)
- 10.65 Seattle Genetics Inc
 - 10.65.1 Adcetris (Brentuximab vedotin)
 - 10.65.2 Seattle Genetics' Collaborator Pipeline
- 10.66 Sorrento Therapeutics Inc
 - 10.66.1 Sorrento's Antibody Technologies
 - 10.66.1.1 G-MAB
 - 10.66.1.2 Antibody Drug Conjugates (ADCs)
- 10.67 Spectrum Pharmaceuticals Inc
 - 10.67.1 Zevalin
- 10.68 Synthon Pharmaceuticals Inc
- 10.69 TapImmune Inc
- 10.70 ThioLogics Ltd.
- 10.71 Transgene SA
- 10.72 TVAX Biomedical Inc
 - 10.72.1 TVI-Brain-1
 - 10.72.2 TVI-Kidney-1
- 10.73 Vaccinogen Inc
- 10.74 Viventia Biotechnologies Inc
- 10.75 Willex AG
- 10.76 Ziopharm Oncology Inc

11.0 CANCER IMMUNOTHERAPY MARKET PARTICIPANTS BY PRODUCT SEGMENT

12.0 CAR T THERAPY

12.1 Challenges Relating to Chimeric Antigen Receptor T Cells in Immunotherapy

- 12.1.1 Clinical Status of CD19 CAR-T Cells To Date
- 12.1.2 Clinical and Regulatory Challenges for Development of CAR T Cells
- 12.1.3 Key Regulatory Challenges Associated with CAR-T Development
- 12.1.4 Summary of Select CAR-T Products by Juno, Novartis and Kite
- 12.1.5 Clinical Benefit Versus Toxicity in CD19-Directed ALL Clinical Trials
- 12.1.6 How to Manage Toxicity of CAR-T Therapy

13.0 REGULATIONS PERTAINING TO IMMUNOTHERAPY REGULATION IN THE USA

13.1 Center for Biologics Evaluation and Research (CBER)

- 13.1.1 Compliance and Surveillance
- 13.1.2 Extra Resources on Immunotherapeutics from the FDA
- 13.1.3 Cellular, Tissue and Gene Therapies Advisory Committee
- 13.1.4 Consumer Affairs Branch (CBER) Contact in FDA
- 13.1.5 FDA Regulations Pertaining to Immunotherapies
- 13.1.6 Case Study Ovarian Cancer Immunotherapy Regulations
 - 13.1.6.1 Efficacy
 - 13.1.6.2 Adverse Effects
- 13.1.7 Trial Design Considerations for Immunotherapy
- 13.1.8 Development of Immune-Related Response Criteria (irRC) & Clinical Endpoints Specific to Immunotherapies

14.0 REGULATIONS FOR IMMUNOTHERAPY IN JAPAN

14.1 PMDA and Immunotherapy

- 12.1.1 Increasing the Efficiency in Immunotherapy Regulatory Review
- 12.1.2 Forerunner Review Assignment System
- 12.1.3 Revised Guidelines for Clinical Evaluation of Anti-Malignant Tumor Agents
- 12.1.4 Key Contacts Within the PMDA for Immunotherapeutics

15.0 EUROPEAN REGULATION AND IMMUNOTHERAPEUTICS

15.1 Introduction

15.2 Challenges for Immunotherapy in EMEA

- 15.2.1 EMA Status on Potency Testing
 - 15.2.1.1 In Vivo Potency Testing

- 15.2.1.2 In Vitro Potency Testing
- 15.2.1.3 Viable Cell Count
- 15.2.1.4 Autologous Cell Based Products
- 15.2.1.5 Reference Preparation
- 15.2.1.6 Adjuvant Containing Immunotherapy Products
- 15.2.2 EMA Status on Identifying hyper, Hypo or non-Responders
- 15.3 Challenges Relating to Biomarkers in Immunotherapy
- 15.4 Challenges Relating to Chimeric Antigen Receptor T Cells in Immunotherapy
- 15.5 Estimating Optimal Cut-Off Parameters
- 15.6 EU-Approved Immunotherapies in Melanoma
- 15.7 Key Contacts Within EMA for Immunotherapeutics

16.0 MANUFACTURING OF IMMUNOTHERAPIES

- 16.1 Introduction
- 16.2 Generation of CAR-Modified T Cells
 - 16.2.1 What Co-Stimulation and Activity Domain is Optimal to Use?
 - 16.2.2 Optimizing Cell Culture Media
 - 16.2.3 Manufacturing Lentiviral Vectors
 - 16.2.4 Detection of Integrated CAR-Expressing Vectors
 - 16.2.5 Donor Lymphocyte Infusion Procedure
 - 16.2.6 Ex Vivo Costimulation & Expansion of Donor T Cells
 - 16.2.7 Infusion to the Patient
- 16.3 Manufacturing Devices and Instruments Required for Immunotherapy Production
 - 16.3.1 Leukapheresis
 - 16.3.2 Cell Counters and Analyzer
 - 16.3.3 Cell Seeding, Growth and Propagation
- 16.4 Good Manufacturing Procedure (GMP) for Immunotherapy
- 16.5 Case Study Production of Lentivirus Induced Dendritic Cells under GMP Conditions
- 16.6 Quality Control
- 16.7 Regulatory Affairs
- 16.8 Key Challenges in Manufacturing
 - 16.8.1 Electroporation of T-cells
 - 16.8.2 Allogenic CAR T cells
 - 16.8.3 Relapse Rates are Critical
 - 16.8.4 Antigen Negative Relapse
 - 16.8.5 Incorporating Suicide Genes
 - 16.8.16 Automation in Cell Therapy Manufacturing

16.8.17 Autologous Cell Therapy Manufacture Scale Up

17.0 SUPPLY CHAIN & LOGISTICS

17.1 Introduction

17.2 Case Study: Juno Therapeutics

18.0 PRICING & COST ANALYSIS

18.1 Introduction

18.2 CAR T Therapy Market Evaluation

19.0 CURRENT DEALS WITHIN THE CAR T MARKET

20.0 CAR T THERAPY COMPANY CASE STUDIES

20.1 Juno Therapeutics

20.2 Kite Pharma

20.3 Collectis

Index Of Figures

INDEX OF FIGURES

Figure 2.1: Components of an Antibody Drug Conjugate (ADC)

Figure 2.2: Mechanism of Action of Antibody Drug Conjugates

Figure 2.3: Ranking of Commonly Used Cytotoxin Wareheads

Figure 4.1: Number of Successful and Unsuccessful Melanoma Drugs, 1998-2014

Figure 4.2: Successes and Failures in Lung Cancer Medicine Development, 1998-2014

Figure 4.3: Successes and Failures in Brain Cancer Drug Development, 1998-2014

Figure 5.1: Ibritumomab Linked to Yttrium Radfionucleotide

Figure 5.2: Kadcyla (Trastuzumab + DMI)

Figure 6.1: Dominance of MAbs and Vaccines in Cancer Clinical Research

Figure 7.1: Global Economic Burden of Cancer

Figure 7.2: Number of Colorectal, Breast and Lung Cancer Cases Diagnosed Globally, 2012

Figure 7.3 Percentage of Top Three Cancers Diagnosed Globally, 2012

Figure 7.4: Number of Deaths due to Lung, Liver and Stomach Cancers Globally, 2012

Figure 7.5: Percentage of Deaths due to Lung, Liver and Stomach Cancers, 2012

Figure 7.6: Global Cancer Deaths in Women by Type of Cancer

Figure 7.7: Worldwide Incidence of Female Breast Cancer and Mortality Rate by Geography

Figure 7.8: Five Year Relative US Breast Cancer Survival Rates by Stage at Diagnosis & Age

Figure 7.9: Breast Cancer Incidence and Mortality in Latin America

Figure 7.10: Breast Cancer Incidence and Mortality in Europe

Figure 7.11: Breast Cancer Incidence Rates in Asia/Pacific Region

Figure 7.12: Top 15 Countries in Gastric Cancer Incidence

Figure 7.13: Top 15 Countries in Colorectal Cancer Incidence

Figure 7.14: Adults Aged 50-75 Years (%) That are Up-to-Date with Colorectal Screening Tests by State in the U.S 114

Figure 7.15 Colorectal Cancer Incidence Rates (per 100,000) by State in the U.S

Figure 7.16: Colorectal Cancer Mortality Rates (per 100,000) in the U.S. by States

Figure 7.17: Top 15 Countries with Lung Cancer

Figure 7.18: Global NSCLC Incidence

Figure 7.19: Number of Smokers in China, India, Russia, the U.K. and U.S

Figure 7.20: Global Incidence of Glioblastoma

Figure 7.21: Global Incidence of Kidney Cancer

Figure 7.22: Top 15 Countries in Leukemia Mortality

- Figure 7.23: Five Year Survival Rates in the U.S. for Blood Cancer Patients
- Figure 7.24 Top 15 Countries in Cervical Cancer
- Figure 7.25: Top 15 Countries with Prostate Cancer
- Figure 7.26: Skin Cancer Death Rates for Top 15 Countries
- Figure 8.1: Global Market for Oncology Drugs by Geography/Country, Through 2020
- Figure 8.2: Global Oncology Drug Sales by Top Five Companies, Through 2020
- Figure 8.3: Top Five Oncology Drugs, Through 2020
- Figure 8.4: Global Oncology Therapeutics Market by Cancer Type, 2014
- Figure 9.1: Global Cancer Immunotherapy Market, Through 2020
- Figure 9.2: Global Market for Immunotherapy by Product Class, Through 2020
- Figure 9.3: Global Market for Immunotherapy Drugs by Cancer Type, Through 2020
- Figure 9.4: Global Market for Monoclonal Antibodies for Cancer by Type, Through 2020
- Figure 9.5: Global and U.S. Market for Herceptin, Through 2020
- Figure 9.6: Global and U.S. Market for Avastin, Through 2020
- Table 9.7: Global Market for Erbitux, Through 2020
- Figure 9.8: Global Market for Yervoy, Through 2020
- Figure 9.9: Global Market for Mabthera, Through 2020
- Figure 9.10: Global Market for Adcetris, Through 2020
- Figure 9.11: Global Market for Keytruda, Through 2020
- Figure 9.12: Global Market for Cancer Vaccines, Through 2020
- Figure 9.13: Global Market for Cancer Vaccines by Type, Through 2020
- Figure 9.14: Global Market for Cytokine Drugs for Cancer, Through 2020
- Figure 13.1: Clinical Regulatory Pathway – Conventional Route
- Figure 13.2: Clinical Regulatory Pathway – Option for Rapid Translation
- Figure 14.1: PMDA Total Review Period of Standard Drugs
- Figure 14.2: PMDA Total Review Period of Priority Drugs
- Figure 14.3: Number of Approved Recombinant Protein Products by PMDA 1985-2013
- Figure 14.4: Forerunner Review Assignment System Timeframe
- Figure 14.5: Adaptive Licensing and Accelerated Approval in Japan-US-EU
- Figure 15.1: CheckMate 066 Clinical Trial
- Figure 15.2: CheckMate 037 Clinical Trial
- Figure 16.1: Method of Generating CAR-Modified T Cells
- Figure 16.2: Clinical Activity, Cost Structure Patient Flow Chart of CAR-T Therapy
- Figure 16.3: Allogenic Versus Autologous Cell Manufacturing
- Figure 17.1: Streptamer® -Based Magnetic Bead Cell Isolation
- Figure 18.1: Annual Cost of Patented Cancer Therapeutics from 2000 to Today
- Figure 18.2: Cost of Nivolumab, Pembrolizumab & Ipilimumab per mg
- Figure 20.1 Juno Therapeutics CAR T Therapeutic Molecular Design
- Figure 20.2 Juno Therapeutics CAR T Therapeutic Mechanism of Action

Figure 20.3 Juno Therapeutics T Cell Receptor (TCR) Technology Mechanism of Action

Figure 20.4: Streptamer® -Based Magnetic Bead Cell Isolation

Figure 20.5 Kite Pharma CAR Technology

Figure 20.6 Kite Pharma TCR Technology

Index Of Tables

INDEX OF TABLES

- Table 2.1: Types of Immune Cells and their Functions
- Table 2.2: FDA-Approved Cancer Immunotherapies, 1986-2014
- Table 2.3: FDA-Approved Monoclonal Antibodies (MAbs) to Treat Cancer
- Table 2.4: Most Frequently Targeted Antigens by MAbs
- Table 2.5: FDA-Approved Monoclonal Antibodies
- Table 2.6: Cytotoxic Wareheads Used in ADCs
- Table 2.7: Targeted Indications for ADCs
- Table 2.8: Antibody Drug Conjugates: Developmental Tmeline
- Table 2.9: Target Antigens for ADCs in Preclinical and Clinical Development
- Table 2.10: Current ADCs Launched, Withdrawn and in Phase I/II/III Trials by Sponsor, Indication, Antigen, Cytotoxin and Linker
- Table 2.11: MAb Products and Candidates that Recruit T Cells
- Table 2.12: Bispecific MAbs in Clinical Trials Targeting Cancer by Indication and Company
- Table 2.13: Bispecific Antibody Technology Platforms
- Table 2.14: Side Effects of Some of the Approved Cancer Immunotherapy MAbs
- Table 2.15: FDA-Approved Cancer Vaccines
- Table 2.16: Cancer Vaccines in Development
- Table 2.17: FDA-Approved Cytokines for Cancer Immunotherapy
- Table 2.18: Cancer Indications Approved for IFN-alfa
- Table 2.19: FDA-Approved Immune Checkpoint Modulators
- Table 2.20: Immune Checkpoint Inhibitors in Clinical Development
- Table 2.21: Cancer Immunotherapy: Timeline of Progress
- Table 3.1: PD-1 Therapies Targeting either the PD-L1/L2 or PD-1 Receptor
- Table 3.2: Overview of Clinical Trial Landscape for Top Five Anti-PD-1 and Anti-PD-L1 Drugs
- Table 3.3: Nivolumab Efficacy from Expansion Coharts of Study 003
- Table 3.4: Phase I Data of MK-3475 in Melanoma
- Table 3.5: Phase I Data of RG7446 in NSCLC Patients
- Table 3.6: RG7446 Phase I Data from RCC Patients
- Table 3.7: Phase I Melanoma Data for RG7446
- Table 3.8: Phase II Data for Pidilizumab in Diffuse Large B Cell Lymphoma (DLBCL)
- Table 3.9: Phase II Melanoma Data for Pidilizumab
- Table 3.10: An Overview of Anti-PD-1 Development by Company, Drug Candidate, Indication and Clinical Phase

- Table 3.11: Clinical Development of CTLA-4, TIM3, and LAG3 Checkpoint Inhibitors by Company, Drug Candidate, Indication and Clinical Trial Stage
- Table 3.12: Pivotal Phase III Results for Yervoy in Second-Line Patients with Metastatic Melanoma
- Table 3.13: Updated Data from Phase III Clinical Study 024 for Yervoy
- Table 3.14: Data from the Failed Phase III Study of Tremelimumab for Melanoma
- Table 3.15: An Overview of Clinical Development of Dendritic Cell Therapies by Company, Drug Candidate, Indication and Clinical Phase
- Table 3.16: Pivotal Phase III Results for Yervoy in Second-Line Patients with Metastatic Melanoma.
- Table 3.17: Phase I/IIa Results from Kite Pharma's CAR-T Therapy
- Table 3.18: Cancer Vaccines in Development by Company, Drug Candidate, Indication & Clinical Phase
- Table 3.19: Advaxis Phase II Results for Cervical Cancer Patients in India
- Table 3.20: Phase II Data for Contego
- Table 3.21: Valuable R&D Projects in Cancer Immunotherapy
- Table 6.1: Cancer Types Addressed by Immunotherapies by Drug, Trade Name and Company
- Table 6.2: Oncology Drugs Losing Patent Protection by 2020 by Product, U.S. Expiry Date and E.U. Expiry Date
- Table 7.1: Global Cancer Statistics – Key Facts
- Table 7.2: Top Five Most Frequent Cancers, Globally
- Table 7.3: Estimated Breast Cancer Cases and Deaths in the U.S. by Age, 2013
- Table 7.4: Estimated Canadian Breast Cancer Statistics for 2014
- Table 7.5: Age-Standardized Breast Cancer Incidence Rate per 100,000 Women by Country
- Table 7.6: Global Colorectal Cancer Incidence and Mortality Rates by Gender per 100,000 people
- Table 7.7: Risk Factors for Colorectal Cancer
- Table 7.8: Lung Cancer Incidence and Mortality Rate in Americas by Gender
- Table 7.9: Current Therapeutic Options for Lung Cancer
- Table 7.10: Estimated Number of New Leukemia Cases in the U.S., 2014
- Table 7.11: Estimated Deaths in the U.S. from Leukemia, 2014
- Table 7.12: Estimated Deaths from HL and NHL in the U.S., 2014
- Table 7.13: Estimated Incidence and Deaths for Myeloma in the U.S., 2014
- Table 7.14 Global Prostate Cancer Incidence and Mortality Rates by Geography
- Table 7.15: Incidence and Mortality Rates of Prostate Cancer in Americas
- Table 7.16: Incidence and Mortality Rates for Melanoma in Americas
- Table 8.1: Global Market for Oncology Drugs by Geography/Country, Through 2020

- Table 8.2: Top Ten Companies in Oncology Sales, Through 2020
- Table 8.3: Top Five Oncology Drugs, Through 2020
- Table 9.1: Global Cancer Immunotherapy Market, Through 2020
- Table 9.2: Global Market for Immunotherapy by Product Class, Through 2020
- Table 9.3: Global Market for Immunotherapy Drugs by Cancer Type, Through 2020
- Table 9.4: Global Market for Monoclonal Antibodies for Cancer by Type, Through 2020
- Table 9.5: Global and U.S. Market for Herceptin, Through 2020
- Table 9.6: Global and U.S. Market for Avastin, Through 2020
- Table 9.7: Global Market for Cancer Vaccines, Through 2020
- Table 9.8: Global Market for Cancer Vaccines by Type, Through 2020
- Table 9.9: Projected Market for the Forthcoming Nivolumab, RG7446, DCVax-L and MEDI4736
- Table 9.10: Annual Cost of MAbs in the U.S. by Product, Indication and Biomarker
- Table 10.1: Ablynx's Product Pipeline
- Table 10.2: Aduro's Product Pipeline
- Table 10.3: Agenus' Product Pipeline
- Table 10.4: AlphaVax Cancer Immunology Product Pipeline
- Table 10.5: Amgen's Product Pipeline
- Table 10.6: Antigen Express' Cancer Therapeutic Pipeline
- Table 10.7: Argos' Cancer Product Pipeline
- Table 10.8: Bavarian Nordic's Product Pipeline
- Table 10.9: Bellicum's Pipeline Product Candidate
- Table 10.10: Biogen's Oncology Pipeline
- Table 10.11: Bristol-Myers Squibb's Pipeline Products in Cancer Immunotherapy
- Table 10.12: Cellectis' Products in Development
- Table 10.13: Cellerant's Product Pipeline
- Table 10.14: Celldex's Therapeutic Pipeline
- Table 10.15: CEL-SCI's Immunotherapy Products in Development
- Table 10.16: EMD Serono's Product Pipeline
- Table 10.17: Etubic's Product Pipeline
- Table 10.18: Galena's Product Pipeline
- Table 10.19: Genentech's Cancer Immunotherapy Pipeline Products
- Table 10.20: Genmab's Products in Development
- Table 10.21: Gliknik's Product Pipeline
- Table 10.22: GlobelImmune's Product Pipeline
- Table 10.23: Heat Biologic's Product Pipeline
- Table 10.24: Immatics Biotechnology's Product Pipeline
- Table 10.25: ImmunoCellular's Product Pipeline
- Table 10.26: Immunomedics' Late-Stage Antibody-Based Therapies

Table 10.27: Immunovaccine's Product Pipeline

Table 10.28: Inovio Pharmaceuticals Product Pipeline

Table 10.29: Juno Therapeutics' Current Pipeline

Table 10.30: Kite Pharma's Product Pipeline

Table 10.31: MabVax's Product Pipeline

Table 10.32: MedImmune's Products in Development

Table 10.33: Merck's Pipeline of Cancer Immunotherapy Products

Table 10.34: Merrimack's Product Pipeline

Table 10.35: NewLink Genetics' Product Pipeline

Table 10.36: Northwest's Product Pipeline

Table 10.37: NovaRx Clinical Development Pipeline

Table 10.38: Oncothyreon's Immunotherapy Product Pipeline

Table 10.39: OSE Pharma's Product Pipeline

Table 10.40: Pique Therapeutics' Product Pipeline

Table 10.41: Prima BioMed's Pipeline

Table 10.42: Progenics Pharmaceutical's Pipeline

Table 10.43: Roche Holding's Cancer Immunotherapy Product Pipeline

Table 10.44: Seattle Genetics' Pipeline Products

Table 10.45: Seattle Genetics' Collaborator Pipeline

Table 10.46: Synthon Biopharmaceuticals' Pipeline

Table 10.47: TapImmune's Product Pipeline

Table 10.48: ThioLogic's Product Pipeline

Table 10.49: Transgene's Product Pipeline

Table 10.50: Vaccinogen's Product Pipeline

Table 10.51: Viventia's Product Pipeline

Table 10.52: Willex's Product Pipeline

Table 10.53: Ziopharm's Products in Development

Table 11.1: Cancer Immunotherapy Market Participants by Product Segment

Table 12.1: Selected CD19-directed Product Candidates in Clinical Trials by Costimulatory & Binding Domains, Starting Cell Population, Vector and Ablation Technology

Table 12.2: Select CD19-Directed ALL Clinical Trials

Table 12.3: Select Anti-CD22 CAR-T Clinical Projects

Table 13.1: CBER Compliance and Surveillance Activities

Table 13.2: Contacts for the Cellular, Tissue and Gene Therapies Advisory Committee, FDA

Table 14.1: Key Contacts Within PMDA, Japan

Table 15.1: Contact Details for EMA Immunotherapy Experts

Table 16.1: General Technical and Personnel Requirements of a GMP, QC, QA, FDA

Regulated Cell Therapy Manufacturing Facility

Table 16.2: Technician/Scientific Requirements for CAR T Manufacturing

Table 16.3: Selection of Apheresis Instruments Currently on the Market

Table 16.4: Selection of Cell Counters and Analyzer Instruments Currently on the Market

Table 16.5: Main Objectives of GMP Manufacturing Immunotherapeutics

Table 16.6: Main Objectives of Quality Control While Manufacturing Immunotherapeutics

Table 16.7: Main Objectives of Regulatory Affairs During Manufacturing Immunotherapeutics

Table 16.8: CAR-T Studies Using mRNA Transfection Electroporation

Table 16.9: Challenges for Autologous Cell Therapy Manufacture

Table 16.10: Current Company/Institutions with Suicide Gene CAR T Projects

Table 16.11: Advantages of Using Automated Cell Therapy Manufacturing

Table 16.12: Main Drivers to Implement Automated Cell Therapy Manufacturing

Table 16.13: Main Benefits of Automated Cell Therapy Manufacturing

Table 16.14: Advantages & Disadvantages of Autologous Cell Therapy Manufacture Scale Up

Table 17.1: Juno Therapeutics Manufacturing Facility Objectives

Table 18.1: Current Juno Therapeutics Trials and CAR T Products

Table 19.1: Current CAR T Business Deals

Table 20.1: Juno Therapeutics Target Biomarker Portfolio

Table 20.2 Juno Therapeutics CAR Technology

Table 20.3 Juno Therapeutics T Cell Receptor (TCR) Technology

Table 20.4 Juno Therapeutics Clinical Pipeline by Target, Product and Trial

Table 20.5: Select CD19-Directed ALL Clinical Trials

Table 20.6: Select Anti-CD22 CAR-T Clinical Projects

Table 20.7 Juno Therapeutics Manufacturing Facility Objectives

Table 20.8 Current Kite Pharma CAR T Clinical Studies and Trials

Table 20.9 Current Kite Pharma TCR Clinical Studies and Trials

COMPANIES MENTIONED

Ablynx NV

Activartis Biotech GmbH

Advaxis Inc.

Aduro BioTech Inc.

Agenus Inc.

AlphaVax Inc.

A. Menarini
Amgen Inc.
Antigen Express Inc.
Argos Therapeutics Inc.
Bavarian Nordic A/S
Bellicum Pharmaceuticals Inc.
Biogen Idec Inc.x
Biovest International Inc.
Bristol-Myers Squibb Co.
Cellestis
Cellerant Therapeutics Inc.
Celldex Therapeutics
CEL-SCI Corp.
CureTech Ltd
Delta-Vir GmbH
Dendreon Corp.
DenDrit Biotech USA
DNAtrix Inc.
Eli Lilly and Co.
EMD Serono Inc.
Etubics Corp.
Galena Biopharma Inc.
Genentech Inc.
Genmab AS
GlaxoSmithKline
Gliknik Inc.
GlobelImmune Inc.
Heat Biologics Inc.
Immatics Biotechnologies GmbH
ImmunoCellular Therapeutics Ltd.
Immunocore Ltd
ImmunoFrontier Inc.
ImmunoGen Inc.
Immunomedics Inc.
Immunotope Inc.
Immunovaccine Inc.
Inovio Pharmaceuticals Inc.
Janssen Biotech Inc.
Juno Therapeutics Inc.

Kite Pharma Inc.
MabVax Therapeutics Holdings Inc.
MedImmune LLC
Merck & Co., Inc.
Merrimack Pharmaceuticals Inc.
Morphotek Inc.
NewLink Genetics Corp.
Northwest Biotherapeutics Inc.
NovaRx Corp.
OncoPep Inc.
Oncothyreon Inc.
OSE Pharma SA
Oxford BioTherapeutics Ltd.
Pique Therapeutics
Polynoma LLC
Prima BioMed Ltd.
Progenics Pharmaceuticals Inc.
Regen Biopharma Inc.
Roche Holdings Inc.
Seattle Genetics Inc.
Sorrento Therapeutics Inc.
Spectrum Pharmaceuticals Inc.
Synthon Pharmaceuticals Inc.
TapImmune Inc.
ThioLogics Ltd.
Transgene SA
TVAX Biomedical Inc.
Vaccinogen Inc.
Viventia Biotechnologies Inc.
Willex AG

I would like to order

Product name: Global & USA Cancer Immunotherapy Market Analysis to 2020: Antibody Drug Conjugates (ADCs), Bispecific Monoclonal Antibodies, Cancer Vaccines, Cytokines, Interferons, Chimeric Antigen Receptor (CAR) T-Cell Therapy, PD-1/PD-L1 inhibitors, Dendritic Cells, Checkpoint Inhibitors, Adopted Cell Therapy (ACT) & IDO Inhibitors

Product link: <https://marketpublishers.com/r/GEC991CCD9DEN.html>

Price: US\$ 3,800.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/GEC991CCD9DEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below
and fax the completed form to +44 20 7900 3970