

Genocea Biosciences Inc

COMPANY AND PIPELINE OVERVIEW REPORT

A comprehensive coverage of the company and a summary of the drug pipeline portfolio.

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ABOUT COMPANY AND PIPELINE OVERVIEW REPORT

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GLOSSARY

Number of Drugs in Active Development

Number of drugs associated with the company or subsidiary that are currently in active development, i.e. the development status for the drug(s) is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended.

Number of Inactive Drugs

Number of drugs associated with the company or subsidiary that are currently classified as inactive, i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.

Number of Patents as Owner

Number of patents associated with the company where the company is listed as owner; i.e. the relationship type (or way the patent refers to the company) is: Patent Assignee/Owner, Patent owner (not assignee), Licensee for development and marketing, Licensee – marketing only (Distributor), Patent assignee of family member, Inferred assignee.

Number of Patents as Third Party

Number of patents associated with the company where the company is listed as third party; i.e. the relationship type (or way the patent refers to the company) is: Patent assignee (not owner), Ex-Licensee for development and marketing, Ex-Licensee marketing only (Distributor), Customer of technology, Ex-Customer of technology, Patent opponent or infringer, Affiliate organization of inventor, Owner of underlying technology.

Patents summary table

This table represents a summary of the core patent coverage for this company covering Therapeutic EP, US and WO patents since 1990 only.

Number of Deals

A count of deals where the company or one of its subsidiaries is the primary company.

Key Indications

Displays top ten key indications for the company and its subsidiaries based on frequency (indications occurring with high and identical frequency are always included, and this may result in more than ten Key Indications being listed). Includes both indications associated with patents where the company is patent owner and indications associated with drugs in active development. A drug is classified as 'active' if it features on a row (or rows) in the current development status table where the status is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended.

Key Target-based Actions

Displays top ten key target-based actions for the company and its subsidiaries based on frequency (actions occurring with high and identical frequency are always included, and this may result in more than ten Key Target-based Actions being listed). Includes both target-based actions associated with patents where the company patent owner and target-based actions associated with drugs in active development. A drug is classified as 'active' if it features on a row (or rows) in the current development status table where the status is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended. A target-based action is one that is associated with a target.

Key Technologies

Displays top ten key technologies for the company and its subsidiaries based on frequency (technologies occurring with high and identical frequency are always included, and this may result in more than ten Key Technologies being listed). Includes both key technologies associated with patents where the company relationship is patent owner and key technologies associated with drugs in active development. A drug is classified as 'active' if it features on a row (or rows) in the current development status table where the status is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended.

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PLEASE NOTE: the financials section where present in the report includes: Share Information, Stock Performance chart (including the consensus recommendation), and Major Shareholders. Financial Performance presents graphical and tabular data on Worldwide Sales, Operating Income and Net Income over time, together with a Quarterly earnings update. Balance Sheet lists Assets, Liabilities and Stockholders Equity, and Forecasts includes: EPS Forecast and Other Forecasts. The data reported in all sections (except share information and major stock holders) are correct as of the publication date of the report (and not the download date). For share information and major stock holders the data is correct for the date shown with these sections

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Genocea Biosciences Inc

COMPANY OVERVIEW

Company Name	Genocea Biosciences Inc
Parent Company Name	Genocea Biosciences Inc
Website	http://www.genocea.com/
Country	US
Number of Drugs in Active Development	6
Number of Inactive Drugs	1
Number of Patents as Owner	15
Number of Patents as Third Party	0
Number of Deals	15
Key Indications	HSV-2 infection, Streptococcus pneumoniae infection, Chlamydia trachomatis infection, Cancer, Plasmodium falciparum infection, Sepsis, Chlamydia infection, Bacterial meningitis, Bacterial pneumonia, Chlamydia pneumoniae infection, Herpes simplex virus infection, Klebsiella pneumoniae infection, Moraxella catarrhalis infection, Neisseria gonorrhoeae infection, Otitis media, Pneumocystis carinii infection, Sinusitis, Staphylococcus aureus infection
Key Target-based Actions	CD4 agonist, T-cell surface glycoprotein CD8 stimulator, IL-17 agonist, Trans acting transcription protein ICP4 modulator, TLR agonist, Herpesvirus envelope glycoprotein D stimulator, Herpesvirus envelope glycoprotein G stimulator, IL-12 agonist, Trans acting transcription protein ICP4 stimulator
Key Technologies	Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide, Natural product, Liposome formulation, Glycoprotein, Nanoparticle formulation, Nanoparticle formulation

COMPANY PROFILE

SUMMARY

Genocea Biosciences was founded in 2006 based on the technology developed from University of California at Berkeley and Harvard Medical School, with the aim of commercializing key breakthroughs in vaccine discovery. Genocea utilizes its technology which enables it to rapidly identify antigens which result in the in vivo stimulation of protective CD8+ and CD4+ T cells. These targets can then be incorporated into an existing antigen delivery system to produce multivalent vaccines.

LICENSING AGREEMENTS

In April 2010, the US Naval Medical Research Center (NMRC) entered into a cooperative research and development agreement (CRADA) with Genocea Biosciences to identify antigens for the development of a malaria vaccine against Plasmodium falciparum. Genocea would apply its technology to identify novel T-cell antigens while NMRC was to share their experience and materials for developing subunit malaria vaccines. The antigen discovery was funded by US Army Medical Research and Materiel Command (USAMRMC) to Genocea. Financial terms were undisclosed.

In February 2010, Genocea Biosciences licensed an extensive patent estate related to herpes simplex virus (HSV) type 2 antigens from the University of Washington and the Fred Hutchinson Cancer Research Center. The patents complemented Genocea's novel antigens which were discovered by its unique and proprietary antigen discovery technology. Financial terms were undisclosed.

In December 2007, the company licensed 14 antigens to Chlamydia trachomatis from Harvard Medical School, discovered by Dr Darren Higgins, the scientific founder of Genocea. These antigens had previously shown promising therapeutic potential for vaccine development.

EARLY R&D

By December 2007, GENO-004 against an undisclosed target was listed on Genocea's pipeline; this was still the case in February 2009.

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FINANCIAL

In November 2014, the company entered into a loan and security agreement with Hercules Technology Growth Capital, Inc for a term loan of up to \$27.0 million. In addition, Genoclea entered into an equity rights letter agreement with Hercules and Hercules purchased 223,463 shares of Genoclea's common stock at \$8.95 per share, which was the closing price of Genoclea's common stock as reported on The NASDAQ Global Market on November 19, 2014 and at that time, the proceeds of the initial draw of \$12.0 million would be used to repay Genoclea's existing term loan facility and to provide additional working capital for general corporate purposes and the company would draw up to an additional \$5.0 million at its option through June 30, 2015. Two further tranches of \$5.0 million each would be drawn down at Genoclea's option on or prior to December 15, 2015 subject to the achievement of certain clinical and corporate milestones.

In July 2014, the company announced an underwritten public offering of 3.4 million shares of its common stock; later that month, Genoclea decided not to pursue the underwritten public offering .

In March 2014, the company was added to the Russell 3000 and Russell 2000 Indices.

In December 2013, the company filed a registration statement for a proposed initial public offering of shares of its common stock; in February 2014, the company announced an initial public offering of 5.5 million shares of its common stock at a price of \$12 per share. At that time, underwriters were granted a 30-day option to purchase up to an additional 825,000 shares to cover any over-allotments. The shares were traded on the NASDAQ Global Market under the ticker symbol 'GNCA' and expected to close on February 10, 2014. Later that month, the company raised net proceeds of \$61.4 million in the closed offering.

In October 2012, the company raised \$30 million in series C financing. With the close of the financing round, Genoclea had raised a total of \$76 million in equity financing.

In January 2011, Genoclea raised \$35 million in series B financing.

In February 2009, the company raised \$23 million in series A financing.

R&D GRANTS

In April 2010, Genoclea Biosciences was awarded funding from the US Army Medical Research and Materiel Command (USAMRMC) to identify novel T-cell antigens for the development of a malaria vaccine against Plasmodium falciparum. Genoclea received \$2.7 million from USAMRMC.

The University of Pittsburgh Medical Center's Sexually Transmitted Infections Cooperative Research Center awarded Genoclea Biosciences a grant for the development of vaccines for Chlamydia trachomatis.

COMPANY FINANCIALS

SHARE INFORMATION

Close Price (USD)	7.25
Change (USD)	0.07 (0.97%)
Previous Close Price (USD)	7.18
Volume	33,975
52-Week High (USD)	23.99
52-Week Low (USD)	6.97
Date	16-Jan-2015
Exchange	NASDAQ(COMPOSITE)
Current Number of Shares Outstanding	17,610,154
Current Market	127,673,616

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Capitalization	
EPS (Date Reported)	-1.30161

STOCK PERFORMANCE



MAJOR SHAREHOLDERS

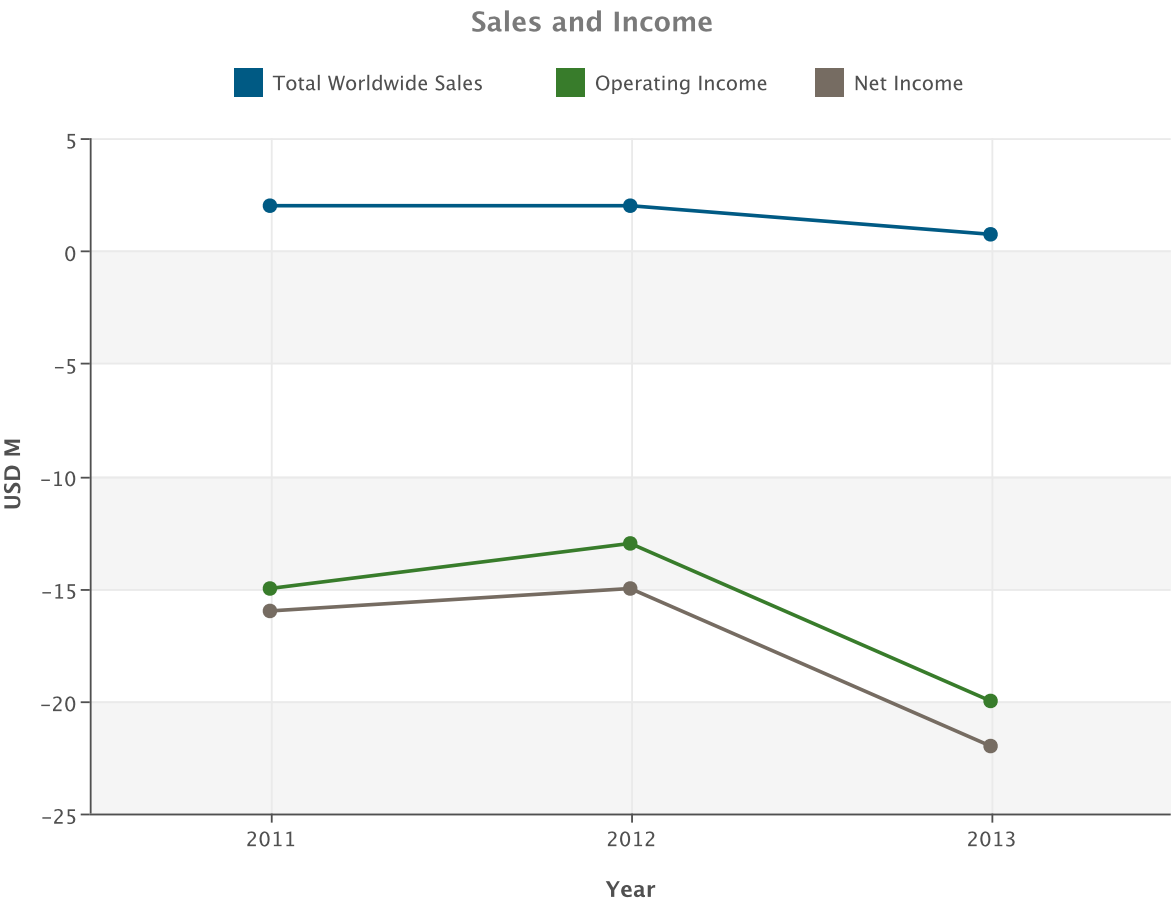
Shareholder	Type	Country	Shares held	% of shares held	Change in holding	% changes in shares held	Date
Fidelity OTC Portfolio	Mutual Fund	United States	686,570	3.9	0	0	30-Nov-2014
Fidelity Growth Company Fund	Mutual Fund	United States	627,130	3.56	1,964	0	30-Nov-2014
Fidelity Select Biotechnology Portfolio	Mutual Fund	United States	609,781	3.46	0	0	30-Nov-2014
Fidelity Series Small Cap Opportunities Fund	Mutual Fund	United States	256,943	1.46	852	0	31-Oct-2014
Fidelity Series Growth Company Fund	Mutual Fund	United States	155,446	0.88	4,925	0.03	30-Nov-2014
Fidelity Advisor Biotechnology Fund	Mutual Fund	United States	97,479	0.55	0	0	30-Nov-2014
Vanguard Total Stock Market Index Fund	Mutual Fund	United States	85,345	0.48	3,552	0.04	30-Nov-2014

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Fidelity Stock Selector Small Cap Fund	Mutual Fund	United States	82,423	0.47	300	0	31-Oct-2014
iShares Russell 2000 ETF	Mutual Fund	United States	65,886	0.37	8,333	0.14	31-Dec-2014
Principal SmallCap Blend Fund	Mutual Fund	United States	49,193	0.28	0	0	30-Nov-2014
Met Inv. Ser. Trust Blackrock Large-Cap Core Portf	Mutual Fund	United States	47,339	0.27	0	0	30-Nov-2014
Fidelity Spartan Extended Market Index Fund	Mutual Fund	United States	31,294	0.18	0	0	30-Nov-2014
Vanguard Extended Market Index Fund	Mutual Fund	United States	23,944	0.14	0	0	30-Nov-2014
iShares Russell 2000 Growth ETF	Mutual Fund	United States	28,914	0.16	2,263	0.08	31-Dec-2014
iShares Micro-Cap ETF	Mutual Fund	United States	11,810	0.07	846	0.08	31-Dec-2014
Fidelity Spartan Total Market Index Fund	Mutual Fund	United States	8,642	0.05	0	0	30-Nov-2014
Schwab Small-Cap Index Fund	Mutual Fund	United States	7,100	0.04	0	0	31-Oct-2014
Principal Variable Contract SmallCap Blend Account	Mutual Fund	United States	6,129	0.03	0	0	30-Nov-2014
AXA Tactical Manager 2000 Portfolio	Mutual Fund	United States	4,365	0.02	0	0	30-Nov-2014
TIAA-CREF Small Cap Blend Index Fund	Mutual Fund	United States	3,940	0.02	0	0	30-Nov-2014

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FINANCIAL PERFORMANCE



	2013	2012	2011		
Sales (USD M)	0.731	1.977	1.82		
Operating Income (USD M)	-19.925	-12.953	-14.727		
Net Income (USD M)	-22.411	-15.148	-16.29		

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Quarterly earnings update

Period	Sales (USD M)	Operating Income (USD M)	Net Income (USD M)
2014 Q3	0	-8.958	-9.171
2014 Q2	0	-6.909	-7.146
2014 Q1	0	-6.373	-7.509
2013 Q4	0.02	-6.169	-6.751
2013 Q3	0.223	-4.475	-5.243
2013 Q2	0.228	-4.749	-5.357
2013 Q1	0.259	-4.531	-5.059
2012 Q4	0.536	-4.542	-5.239
2012 Q3	0.4	-3.609	-4.131

BALANCE SHEET

Assets (USD M)

	2011	2012	2013		
Cash & Short Term Investments	5.742	11.613	12.365		
Inventories - Total	0	0	0		
Current Assets - Total	6.116	12.133	12.875		
Property, Plant And Equipment - Net	0.634	0.794	0.865		
Other Assets - Total	0.093	0.289	1.863		
Total Assets	6.94	13.531	15.761		

Liabilities (USD M)

	2011	2012	2013		
Accounts Payable	0.936	1.452	2.176		
Short Term Debt & Current Portion Of Long Term Debt	0.154	1.675	0.861		
Current Liabilities - Total	2.264	4.201	4.493		
Long Term Debt	0.051	2.37	8.933		
Other Liabilities	0.339	0.392	0.667		
Total Liabilities	2.654	7.226	14.33		

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Stockholders Equity (USD M)

	2011	2012	2013		
Minority Interest	0	0	0		
Preferred Stock	47.848	64.707	81.562		
Common Stock	0	0			
Treasury Stock	0	0	0		
Total Liabilities & Shareholders' Equity	6.94	13.531	15.761		

FORECASTS

EPS Forecast

Year ending	Current Forecast	1 month ago	3 months ago
31-Dec-2015	-1.86	-1.86	-1.73
31-Dec-2016	-1.61	-1.61	-1.46
31-Dec-2017	-1.87	-1.87	-1.59

Other Forecasts

Year ending	DPS	CPS	Pretax	Sales
31-Dec-2015	0		-40.28	0
31-Dec-2016	0		-37.42	13.75
31-Dec-2017			-44.49	25.25

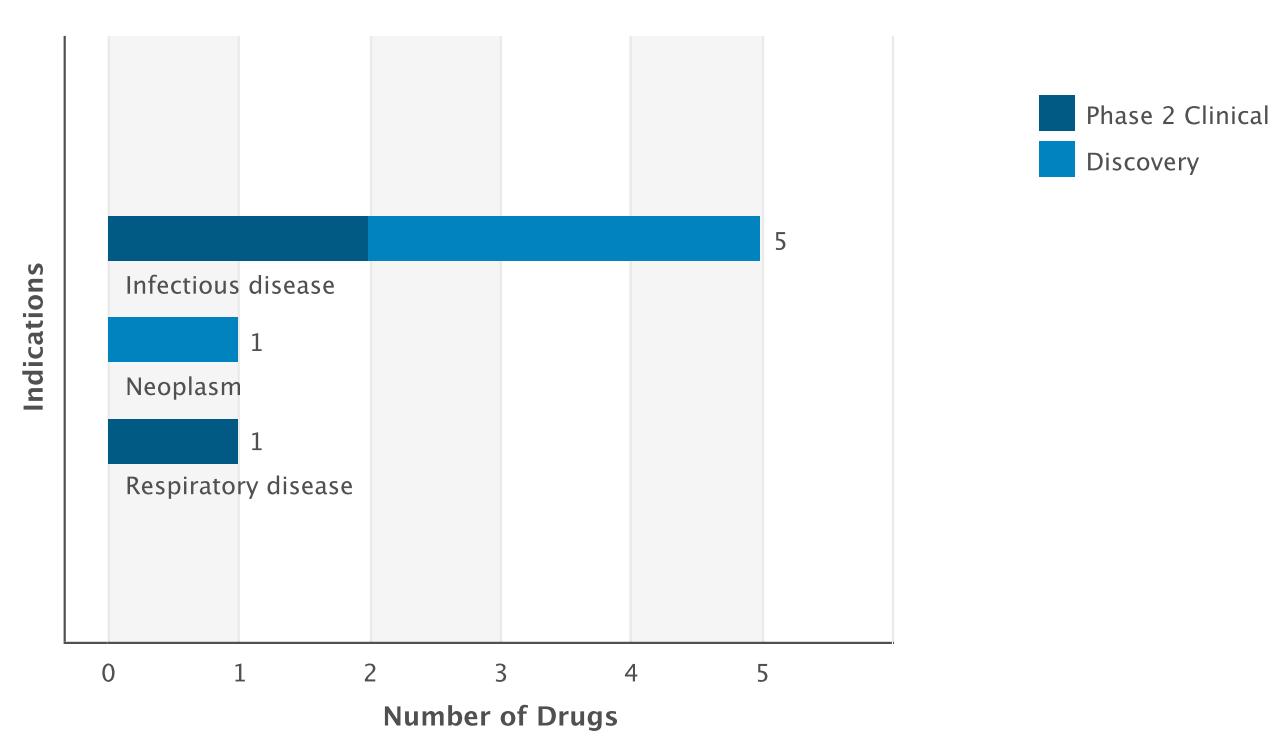
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PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



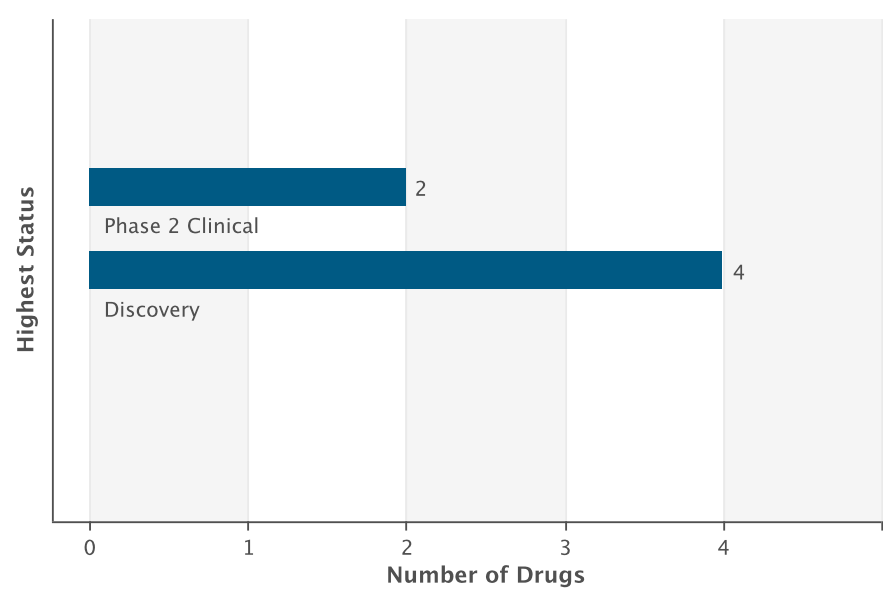
Drugs by Indication Table

Indication	Active	Inactive	Total
Infectious disease	5	1	6
Neoplasm	1	0	1
Respiratory disease	1	0	1

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Drugs by Highest Status

Active Drugs by Highest Status Chart



Drugs by Highest Status Table

Development Status	Number of Drugs
Phase 2 Clinical	2
Discovery	4
No Development Reported	1

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DEALS

Deal Type	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Technology - Other Proprietary	1	0	0	0	1
Patent - Exclusive Rights	0	0	3	0	3
Drug - Funding	4	0	0	0	4
Drug - CRADA	1	0	0	0	1
Drug - Early Research/Development	0	0	2	0	2
Drug - Development/Commercialization License	0	0	1	0	1
Drug - Manufacturing/Supply	0	0	1	0	1
Drug - Development Services	0	0	1	0	1
Technology - Delivery/Formulation	0	0	1	0	1

CLINICAL TRIALS

Trials by Condition Studied

Condition Studied	Ongoing	All
Infectious disease	2	3

Trials by Phase

Phase	Ongoing	All
Phase 2	3	4
Phase 1	1	1

Phase Definitions

Phase 3 Clinical

Includes Phase 3, Phase 3b, Phase 3a, Phase 2/3 (where enrolment count is 300 or over)

Phase 2 Clinical

Includes Phase 2, Phase 2a, Phase 2b, Phase 1/2 (where enrolment count is 100 or over), Phase 2/3 (where enrolment count is under 300 or not specified)

Phase 1 Clinical

Includes Phase 1, Phase 1a, Phase 1, Phase 1/2 (where enrolment count is under 100 or not specified), Phase 0

PATENTS *

Indication	As Owner	As Third Party	Total
Neoplasm	1	0	1
Neurological disease	1	0	1

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Respiratory disease	5	0	5
Infectious disease	13	0	13
Inflammatory disease	1	0	1
Otorhinolaryngological disease	1	0	1

* This table represents a summary of the core patent coverage for this company covering Therapeutic EP, US and WO patents since 1990 only.

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PRODUCT PORTFOLIO DRUGS

PLEASE NOTE: Highest status refers to highest development of that drug for one of the active companies

GEN-004

Drug Name	GEN-004
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Boston Children's Hospital, Program for Appropriate Technology in Health, Genocea Biosciences Inc
Inactive Companies	
Highest Status	Phase 2 Clinical
Active Indications	Streptococcus pneumoniae infection
Target-based Actions	IL-17 agonist, T-cell surface glycoprotein CD8 stimulator, CD4 agonist
Other Actions	Prophylactic vaccine, Protein subunit vaccine, Adjuvant
Technologies	Natural product, Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	18-Sep-2014

GEN-003

Drug Name	GEN-003
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Genocea Biosciences Inc
Inactive Companies	
Highest Status	Phase 2 Clinical
Active Indications	HSV-2 infection
Target-based Actions	CD4 agonist, T-cell surface glycoprotein CD8 stimulator, Trans acting transcription protein ICP4 modulator
Other Actions	Immunostimulant, Antiviral, Ganglioside GD2 modulator, Protein subunit vaccine, Therapeutic vaccine, Adjuvant
Technologies	Liposome formulation, Nanoparticle formulation injectable, Antigen, Glycoprotein, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	08-Jan-2015

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GENO-1

Drug Name	GENO-1
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Genocea Biosciences Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Chlamydia trachomatis infection
Target-based Actions	T-cell surface glycoprotein CD8 stimulator, CD4 agonist
Other Actions	Adjuvant, Protein subunit vaccine, Therapeutic vaccine, Antibacterial
Technologies	Natural product, Antigen, Biological therapeutic, Parenteral formulation unspecified
Last Change Date	22-Aug-2014

GENO-5

Drug Name	GENO-5
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	US Naval Medical Research Center, Genocea Biosciences Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Plasmodium falciparum infection
Target-based Actions	CD4 agonist, T-cell surface glycoprotein CD8 stimulator
Other Actions	Prophylactic vaccine, Protein subunit vaccine, Adjuvant
Technologies	Natural product, Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	25-Aug-2014

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GENO-2

Drug Name	GENO-2
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Genocea Biosciences Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	HSV-2 infection
Target-based Actions	CD4 agonist, T-cell surface glycoprotein CD8 stimulator
Other Actions	Prophylactic vaccine, Protein subunit vaccine
Technologies	Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	22-Aug-2014

melanoma vaccine (ATLAS), Genocea/Dana-Farber Cancer Institute

Drug Name	melanoma vaccine (ATLAS), Genocea/Dana-Farber Cancer Institute
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Dana-Farber Cancer Institute Inc, Genocea Biosciences Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	T-cell surface glycoprotein CD8 stimulator, CD4 agonist
Other Actions	Anticancer, Therapeutic vaccine, Protein subunit vaccine
Technologies	Antigen, Biological therapeutic, Parenteral formulation unspecified
Last Change Date	09-Apr-2014

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