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Genocea Biosciences Inc

COMPANY AND PIPELINE OVERVIEW REPORT

Coverage of the company and a summary of the drug pipeline portfolio.

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ABOUT COMPANY AND PIPELINE OVERVIEW REPORT

Thomson Reuters provides the knowledge, tools, and expertise to help support drug discovery and development activities, IP portfolio optimization, identification of licensing and partnering opportunities, delivery of successful regulatory submissions, and the ability to keep current with the rapidly-changing pharmaceutical and chemical markets, supporting informed, early decisions.

This report was created by Thomson Reuters, using information from *Thomson Reuters Cortellis™ for Competitive Intelligence*; a comprehensive, proven intelligence solution that leverages the most accurate, complete, and widely respected drug pipeline information.From drug discovery and development activities to patent reports, the latest deals, and partnering opportunities, *Cortellis* can provide the confidence to make the most informed business decisions, faster. *Cortellis for Competitive Intelligence* provides accurateand validated information on pharmaceutical and biotechnology companies globally, their drug pipelines, deals, patents, and clinical trials, plus breaking industry news and conference coverage. All contained in one simple, highly intuitive research platform.

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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i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.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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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	0
Number of Patents as Owner	13
Number of Patents as Third Party	0
Number of Deals	10
Key Indications	HSV-2 infection,Streptococcus pneumoniae infection,Chlamydia trachomatis infection,Neisseria gonorrhoeae infection,Plasmodium falciparum infection,Sepsis,Chlamydia infection,Bacterial infection,Bacterial meningitis,Bacterial pneumonia,Cancer,Fungal infection,Helminth infection,Otitis media,Protozoal infection,Sinusitis,Viral infection
Key Target-based Actions	CD4 agonist,T-cell surface glycoprotein CD8 stimulator,IL-17 agonist,Trans acting transcription protein ICP4 modulator,TLR agonist,CD4 modulator,Herpesvirus envelope glycoprotein D stimulator,Herpesvirus envelope glycoprotein G stimulator,IL-12 agonist,Interferon gamma ligand modulator,Listeriolysin stimulator,Perforin 1 stimulator,TNF alpha ligand modulator,TNF beta ligand modulator,Trans acting transcription protein ICP4
Key Technologies	Biological therapeutic,Antigen,Parenteral formulation unspecified,Peptide,Natural product,Liposome formulation,Glycoprotein,Nanoparticle formulation,Nanoparticle formulation

COMPANY PROFILE

SUMMARY

Genocea Biosciences was founded in 2006 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 October 2012, the company raised $30 million in series C financing. With the close of the financing round, Genocea had raised a total of $76 million in equity financing.

In January 2011, Genocea 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, Genocea 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. Genocea received $2.7 million from USAMRMC.

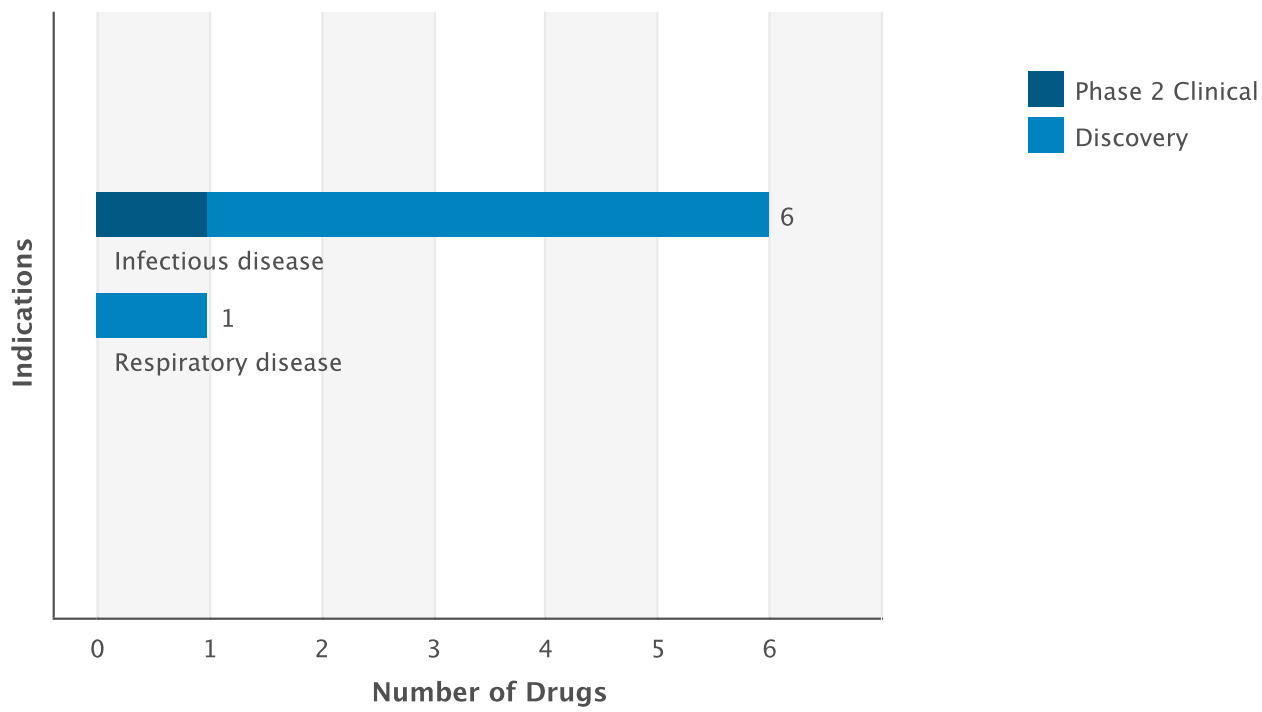
The University of Pittsburgh Medical Center's Sexually Transmitted Infections Cooperative Research Center awarded Genocea Biosciences a grant for the development of vaccines for Chlamydia trachomatis.

PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



Drugs by Indication Table

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

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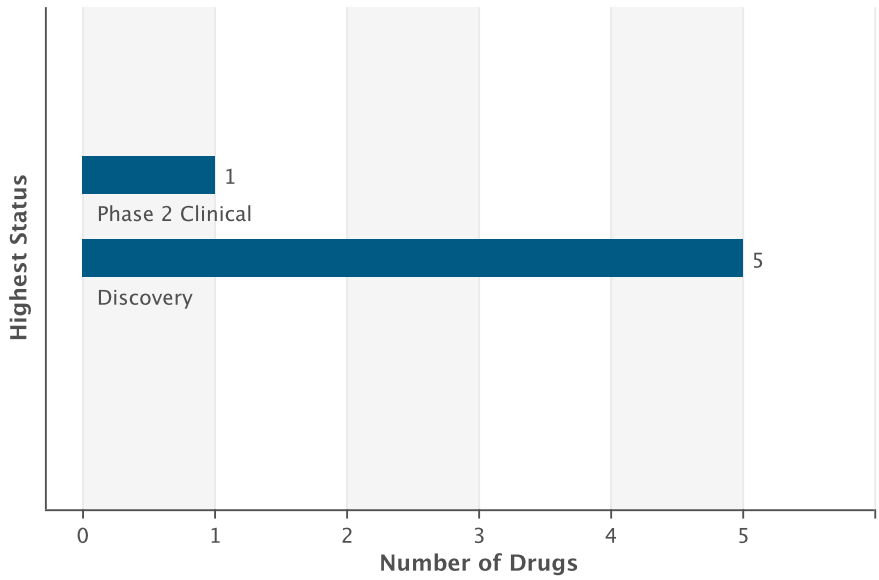
Drugs by Highest Status

Active Drugs by Highest Status Chart



Drugs by Highest Status Table

Development Status	Number of Drugs
Phase 2 Clinical	1
Discovery	5

DEALS

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

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CLINICAL TRIALS

Trials by Condition Studied

Condition Studied	Ongoing	All
Infectious disease	1	1

Trials by Phase

Phase	Ongoing	All
Phase 2	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
Respiratory disease	3	0	3
Infectious disease	11	0	11
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-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, Trans acting transcription protein ICP4 modulator, T-cell surface glycoprotein CD8 stimulator
Other Actions	Protein subunit vaccine, Antiviral, Immunostimulant, Therapeutic vaccine, Ganglioside GD2 modulator, Adjuvant
Technologies	Liposome formulation, Nanoparticle formulation injectable, Antigen, Glycoprotein, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	19-Mar-2013

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	CD4 agonist, T-cell surface glycoprotein CD8 stimulator
Other Actions	Protein subunit vaccine, Antibacterial, Adjuvant, Therapeutic vaccine
Technologies	Natural product, Antigen, Biological therapeutic, Parenteral formulation unspecified
Last Change Date	08-Jun-2012

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GEN-004

Drug Name	GEN-004
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Children's Hospital Boston, Genocea Biosciences Inc, Program for Appropriate Technology in Health
Inactive Companies	
Highest Status	Discovery
Active Indications	Streptococcus pneumoniae infection
Target-based Actions	CD4 agonist, T-cell surface glycoprotein CD8 stimulator, IL-17 agonist
Other Actions	Protein subunit vaccine, Prophylactic vaccine, Adjuvant
Technologies	Natural product, Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	19-Mar-2013

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	Adjuvant, Protein subunit vaccine, Prophylactic vaccine
Technologies	Natural product, Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	30-May-2012

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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	Protein subunit vaccine, Prophylactic vaccine
Technologies	Antigen, Biological therapeutic, Parenteral formulation unspecified, Peptide
Last Change Date	30-May-2013

gonorrhea vaccine (Matrix M), Genocea

Drug Name	gonorrhea vaccine (Matrix M), Genocea
Key Synonyms	
Originator Company	Genocea Biosciences Inc
Active Companies	Genocea Biosciences Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Neisseria gonorrhoeae infection
Target-based Actions	
Other Actions	Unspecified vaccine, Adjuvant
Technologies	Liposome formulation, Nanoparticle formulation, Biological therapeutic
Last Change Date	30-Aug-2012

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