

Genoce Biosciences Inc

CORTELLIS COMPANY DETAILED PIPELINE REPORT

A comprehensive coverage of the the company's drug pipeline portfolio including detailed product records.

Publication Date: 19-Nov-2014

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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i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.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 | 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 infection, Bacterial meningitis, Bacterial pneumonia, Chlamydia pneumoniae infection, Fungal infection, Helminth infection, Herpes simplex virus infection, Klebsiella pneumoniae infection, Moraxella catarrhalis infection, Neisseria gonorrhoeae infection, Otitis media, Pneumocystis carinii infection, Protozoal |
| 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 | 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 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

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

FINANCIAL

In July 2014, the company announced an underwritten public offering of 3.4 million shares of its common stock; later that month, Genocoe 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, Genocoe had raised a total of \$76 million in equity financing.

In January 2011, Genocoe 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, Genocoe 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*. Genocoe received \$2.7 million from USAMRMC.

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

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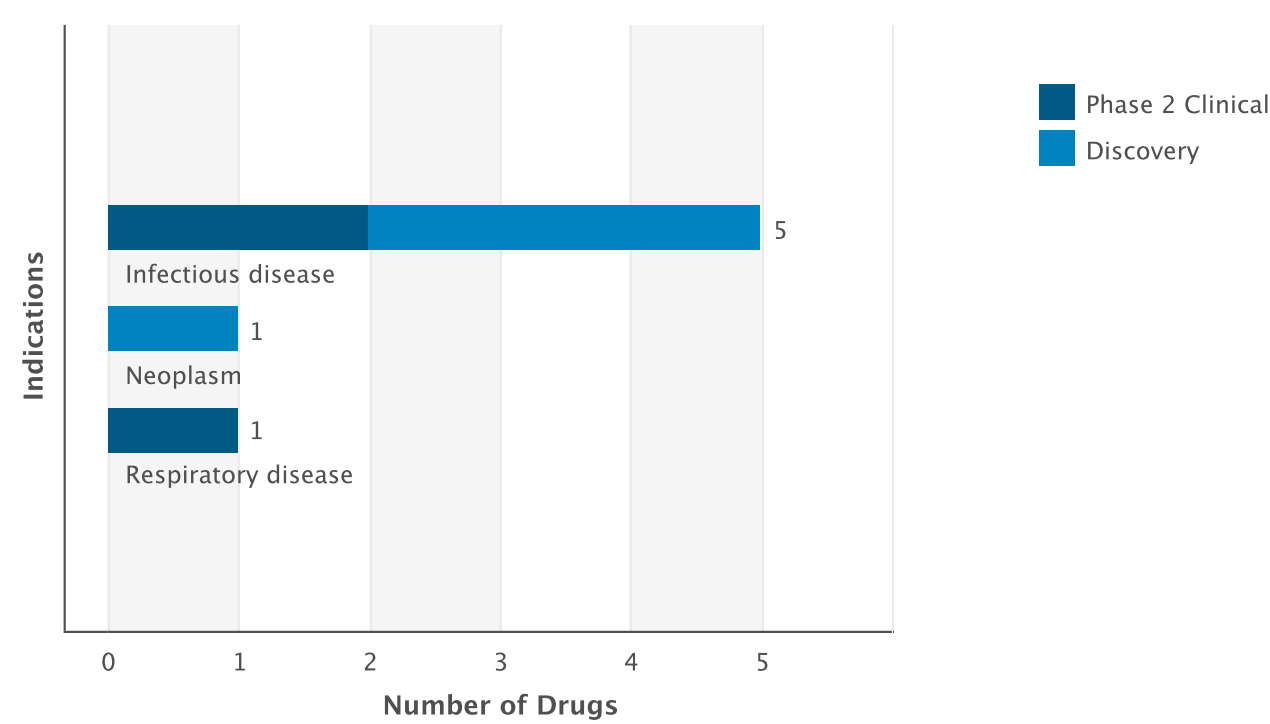


PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



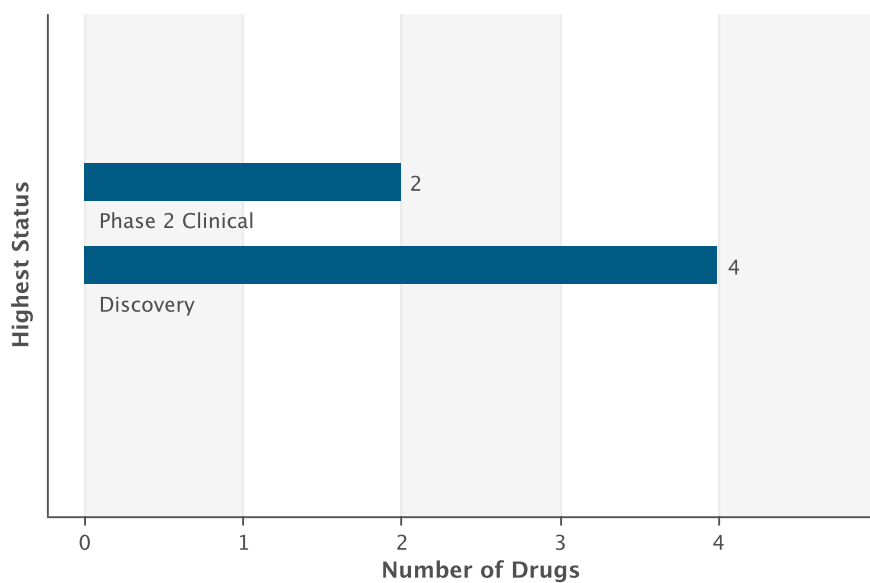
Drugs by Indication Table

| 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 | 1 | 2 |

Trials by Phase

| Phase | Ongoing | All |
|---------|---------|-----|
| Phase 2 | 2 | 3 |
| 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 DRUG PIPELINE DETAIL

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

GEN-004

GEN-004 SNAPSHOT

| | |
|-----------------------------|--|
| Drug Name | GEN-004 |
| Key Synonyms | |
| Originator Company | Genoceas Biosciences Inc |
| Active Companies | Boston Children's Hospital;Program for Appropriate Technology in Health;Genoceas 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;Adjuvant;Protein subunit vaccine |
| Technologies | Natural product;Antigen;Biological therapeutic;Parenteral formulation unspecified;Peptide |
| Last Change Date | 18-Sep-2014 |

GEN-004 DEVELOPMENT PROFILE

SUMMARY

PATH, Children's Hospital Boston, in collaboration with Genoceas Biosciences, are developing GEN-004 (GENO-002; GENO-4), a protein-subunit vaccine that contains three protein antigens, SP0148, SP1912, and SP2108, and targets the T helper-17 pathway, using the company's T-cell antigen discovery technology that stimulates CD4 and CD8 cells, for the potential prevention of infection caused by Streptococcus pneumoniae,. In September 2014, a phase IIa trial was initiated in the UK and at that time, interim data were expected in mid-2015. In November 2013, a phase I study of the vaccine in healthy adult subjects was initiated in the US ; in June 2014, positive top-line data were reported.

PATH and Children's Hospital Boston are also investigating a whole-cell pneumococcal vaccine .

GEN-004 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

| Company | Indication | Country | Development Status | Date |
|----------------------------|------------------------------------|---------|--------------------|-------------|
| Boston Children's Hospital | Streptococcus pneumoniae infection | UK | Phase 2 Clinical | 11-Sep-2014 |
| Genoceas Biosciences Inc | Streptococcus pneumoniae infection | UK | Phase 2 Clinical | 11-Sep-2014 |
| Program for Appropriate | Streptococcus pneumoniae infection | UK | Phase 2 Clinical | 11-Sep-2014 |

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| Company | Indication | Country | Development Status | Date |
|--|------------------------------------|---------|--------------------|-------------|
| Technology in Health | Streptococcus pneumoniae infection | UK | Phase 2 Clinical | 11-Sep-2014 |
| Boston Children's Hospital | Streptococcus pneumoniae infection | US | Phase 1 Clinical | 26-Nov-2013 |
| Genocea Biosciences Inc | Streptococcus pneumoniae infection | US | Phase 1 Clinical | 26-Nov-2013 |
| Program for Appropriate Technology in Health | Streptococcus pneumoniae infection | US | Phase 1 Clinical | 26-Nov-2013 |

GEN-004 DRUG NAMES

| Names | Type |
|--|---------------|
| GENO-4 | Research Code |
| GENO-002 | |
| GEN-004 | Research Code |
| protein subunit vaccine (antigen, Streptococcus pneumoniae), Genocea/PATH/Children's Hospital Boston | |

GEN-004 CLINICAL TRIALS

Total Trials by Phase and Status

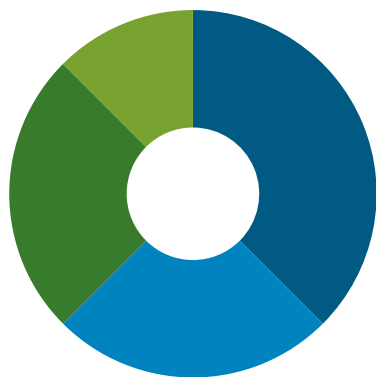
| Phase 4 Clinical | | Phase 3 Clinical | | Phase 2 Clinical | | Phase 1 Clinical | | Phase Unspecified | | Total | |
|---------------------------|-----|------------------|-----|------------------|-----|------------------|-----|-------------------|-----|----------|-----|
| On-going | All | On-going | All | On-going | All | On-going | All | On-going | All | On-going | All |
| Total by Phase and Status | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 2 |

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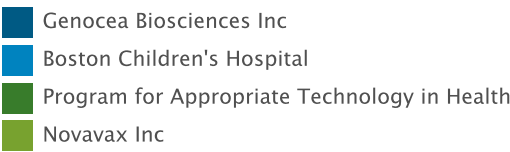
GEN-004 DEALS AND PATENTS

DEALS

Deals by Parent Company Chart



Active Deals
Total: 4

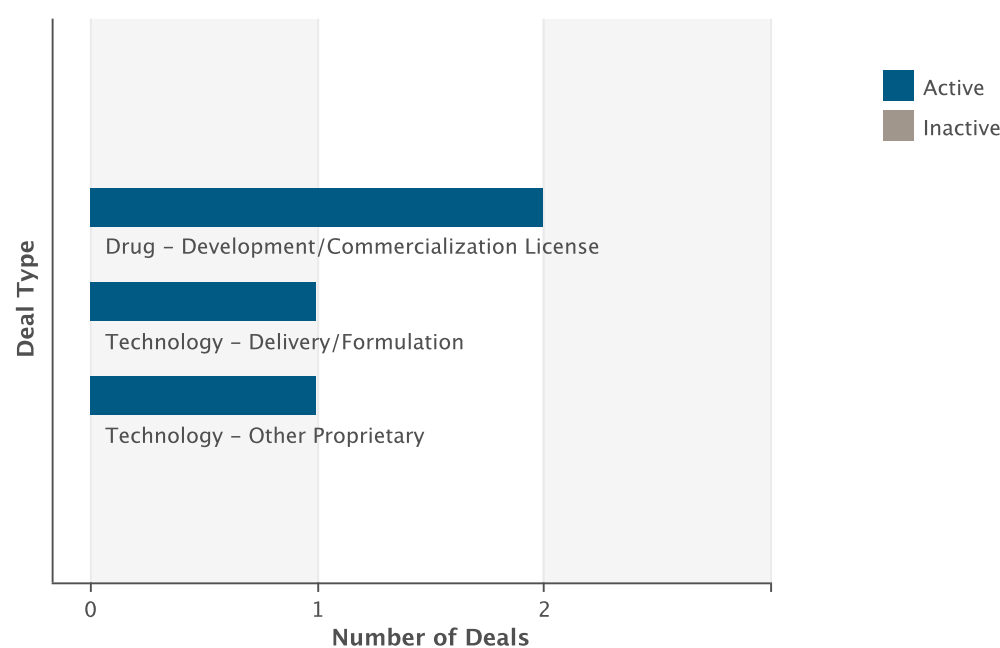


Deals by Parent Company Table

| Company Name | Principal | | Partner | | Total |
|--|-----------|----------|---------|----------|-------|
| | Active | Inactive | Active | Inactive | |
| Genocea Biosciences Inc | 1 | 0 | 2 | 0 | 3 |
| Boston Children's Hospital | 1 | 0 | 1 | 0 | 2 |
| Program for Appropriate Technology in Health | 1 | 0 | 1 | 0 | 2 |
| Novavax Inc | 1 | 0 | 0 | 0 | 1 |

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Deals by Type Chart



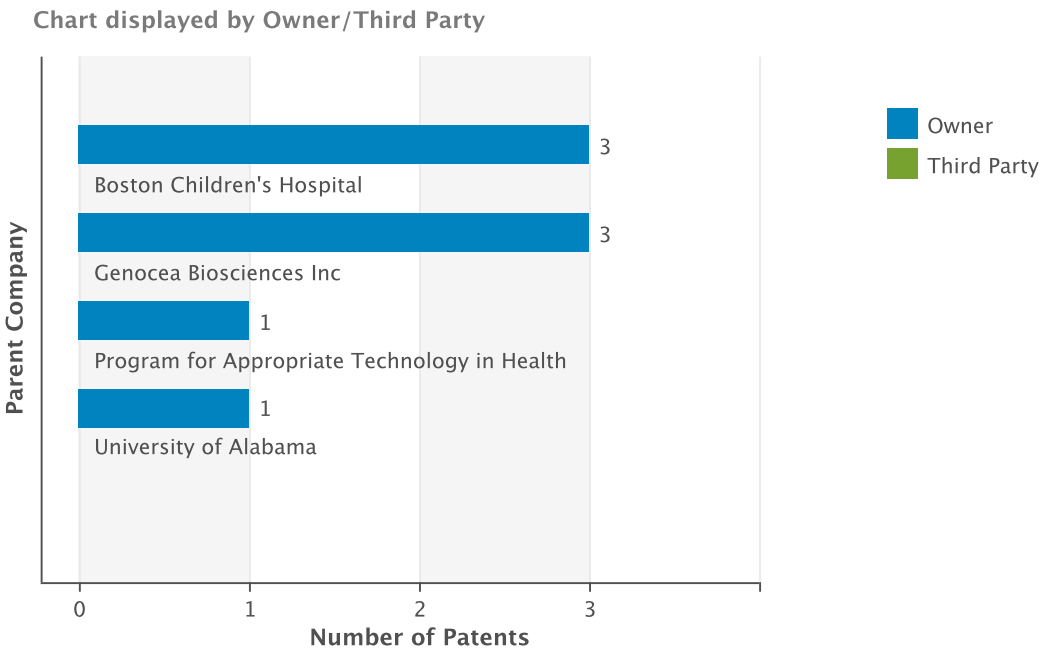
Deals by Type Table

| Deal Type | Active | Inactive | Total |
|--|--------|----------|-------|
| Drug - Development/Commercialization License | 2 | 0 | 2 |
| Technology - Other Proprietary | 1 | 0 | 1 |
| Technology - Delivery/Formulation | 1 | 0 | 1 |

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PATENTS

Patents by Parent Company Chart

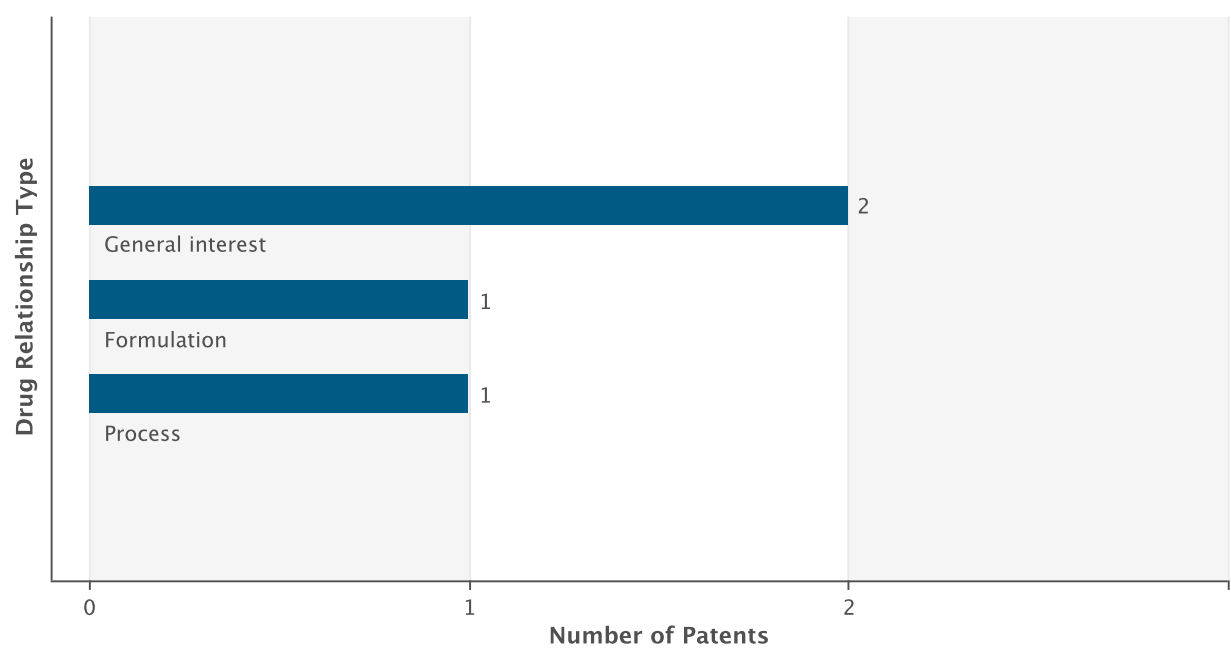


Patents by Parent Company Table

| Company Name | As Owner | As Third Party | Total |
|--|----------|----------------|-------|
| Genocoea Biosciences Inc | 3 | 0 | 3 |
| Boston Children's Hospital | 3 | 0 | 3 |
| University of Alabama | 1 | 0 | 1 |
| Program for Appropriate Technology in Health | 1 | 0 | 1 |

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Patents by Drug Relationship Type Chart



Patents by Drug Relationship Type Table

| Drug Relationship | Total |
|-------------------|-------|
| General interest | 2 |
| Process | 1 |
| Formulation | 1 |

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GEN-003

GEN-003 SNAPSHOT

| | |
|----------------------|---|
| 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 | T-cell surface glycoprotein CD8 stimulator;CD4 agonist;Trans acting transcription protein ICP4 modulator |
| Other Actions | Protein subunit vaccine;Ganglioside GD2 modulator;Therapeutic vaccine;Adjuvant;Immunostimulant;Antiviral |
| Technologies | Liposome formulation;Nanoparticle formulation injectable;Antigen;Glycoprotein;Biological therapeutic;Parenteral formulation |
| Last Change Date | 04-Nov-2014 |

GEN-003 DEVELOPMENT PROFILE

SUMMARY

Genocea Biosciences is developing GEN-003 (GENO-003; GEN-003/MM-2), a therapeutic protein subunit vaccine comprising ICP4 and gD2 proteins and adjuvant Matrix-M (MM-2), using the company's T-cell antigen discovery technology (AnTigen Lead Acquisition System (ATLAS)) that stimulates CD4 and CD8 cells, for the potential treatment of moderate-to-severe HSV-2 infection,. In July 2014, data from the phase I/IIa trial were presented. In August 2012, IND approval was received from the FDA for a phase I/IIa trial, and the trial was initiated; in September 2013, positive interim data were reported . In July 2014, a phase II dose optimization trial was initiated. At that time, interim data were expected in mid-2015. In March 2014, additional phase II studies were being planned .

GEN-003 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

| Company | Indication | Country | Development Status | Date |
|-------------------------|-----------------|---------|--------------------|-------------|
| Genocea Biosciences Inc | HSV-2 infection | US | Phase 2 Clinical | 15-Aug-2012 |

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GEN-003 DRUG NAMES

| Names | Type |
|---|---------------|
| GEN-003 | Research Code |
| HSV 2 therapeutic vaccine, Genocea Biosciences | |
| GEN-003/MM-2 | |
| therapeutic protein subunit vaccine (antigen, HSV-2 infection), Genocea Biosciences | |
| GENO-003 | Research Code |

GEN-003 CLINICAL TRIALS

Trials by Phase and Condition Studied

| Phase 4 Clinical | | Phase 3 Clinical | | Phase 2 Clinical | | Phase 1 Clinical | | Phase Unspecified | | Total | |
|------------------|-----|------------------|-----|------------------|-----|------------------|-----|-------------------|-----|----------|-----|
| On-going | All | On-going | All | On-going | All | On-going | All | On-going | All | On-going | All |
| HSV-2 infection | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 2 |

Total Trials by Phase and Status

| Phase 4 Clinical | | Phase 3 Clinical | | Phase 2 Clinical | | Phase 1 Clinical | | Phase Unspecified | | Total | |
|---------------------------|-----|------------------|-----|------------------|-----|------------------|-----|-------------------|-----|----------|-----|
| On-going | All | On-going | All | On-going | All | On-going | All | On-going | All | On-going | All |
| Total by Phase and Status | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 2 |

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

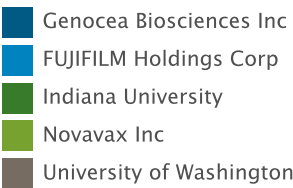
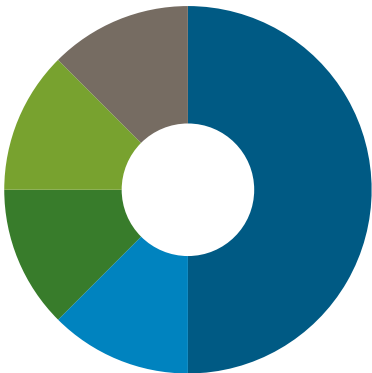
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GEN-003 DEALS AND PATENTS

DEALS

Deals by Parent Company Chart

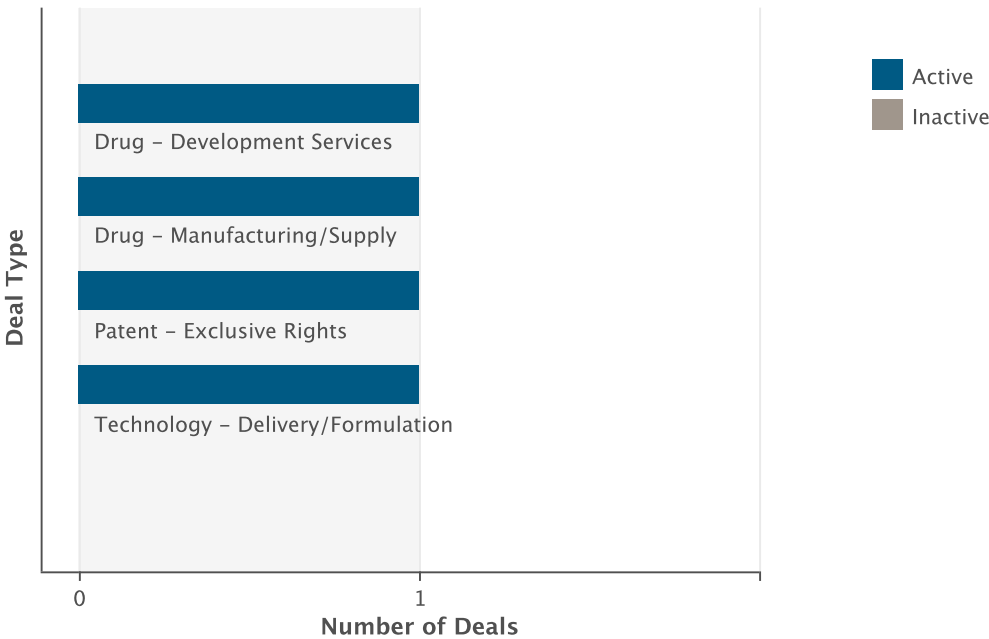


Deals by Parent Company Table

| Company Name | Principal | | Partner | | Total |
|--------------------------|-----------|----------|---------|----------|-------|
| | Active | Inactive | Active | Inactive | |
| Genoclea Biosciences Inc | 0 | 0 | 4 | 0 | 4 |
| Indiana University | 1 | 0 | 0 | 0 | 1 |
| FUJIFILM Holdings Corp | 1 | 0 | 0 | 0 | 1 |
| Novavax Inc | 1 | 0 | 0 | 0 | 1 |
| University of Washington | 1 | 0 | 0 | 0 | 1 |

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Deals by Type Chart



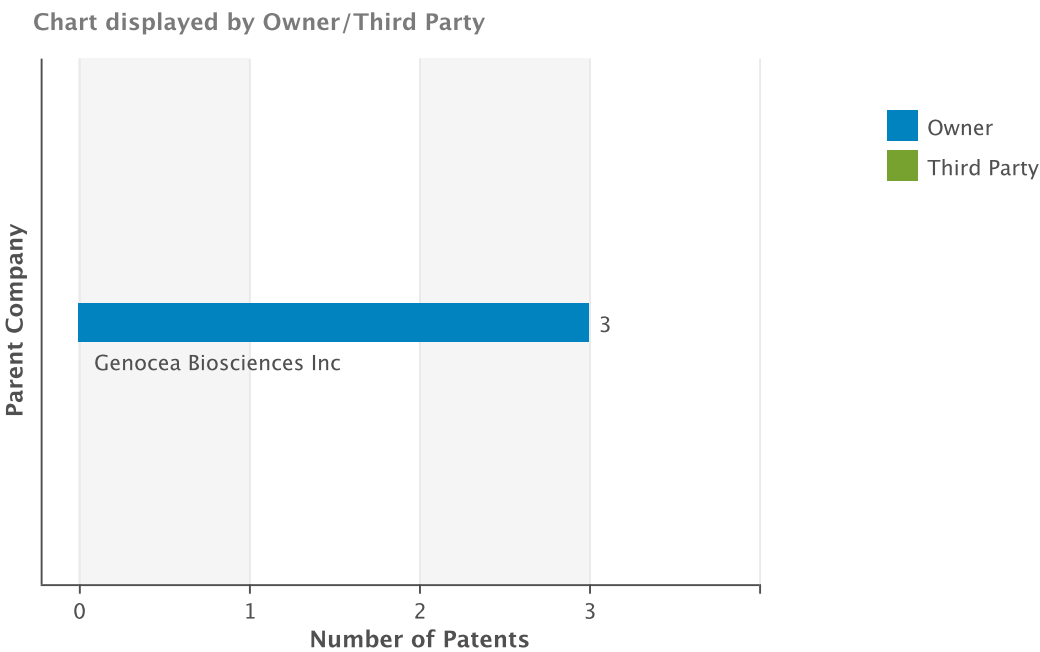
Deals by Type Table

| Deal Type | Active | Inactive | Total |
|-----------------------------------|--------|----------|-------|
| Drug - Manufacturing/Supply | 1 | 0 | 1 |
| Patent - Exclusive Rights | 1 | 0 | 1 |
| Drug - Development Services | 1 | 0 | 1 |
| Technology - Delivery/Formulation | 1 | 0 | 1 |

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PATENTS

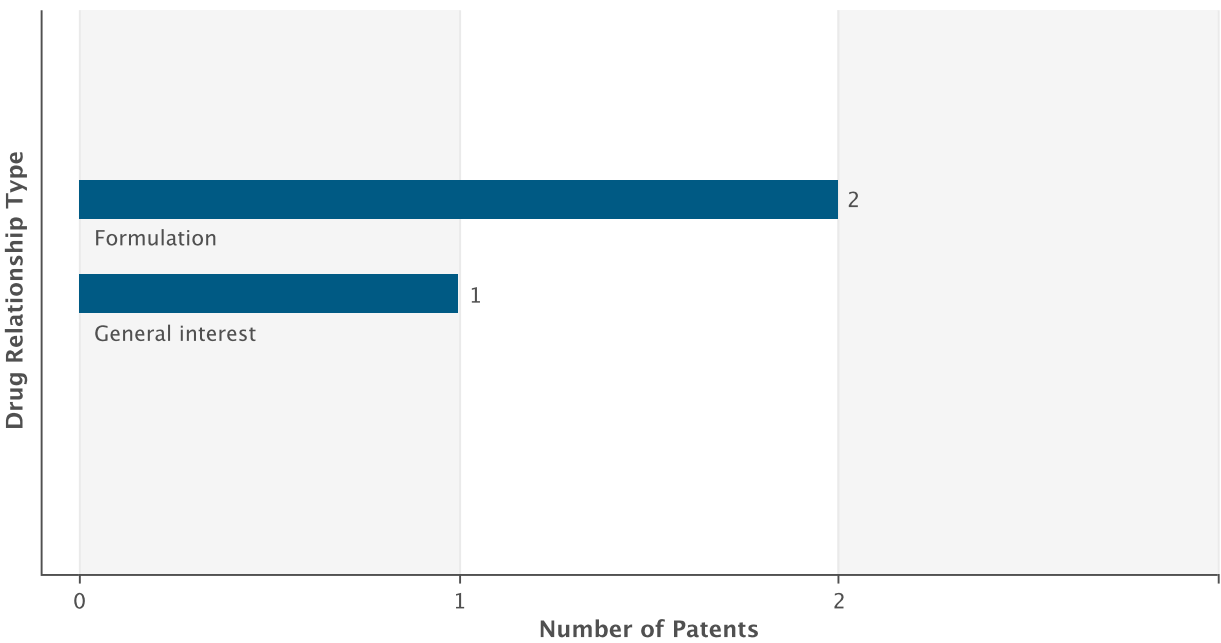
Patents by Parent Company Chart



Patents by Parent Company Table

| Company Name | As Owner | As Third Party | Total |
|-------------------------|----------|----------------|-------|
| Genocea Biosciences Inc | 3 | 0 | 3 |

Patents by Drug Relationship Type Chart



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Patents by Drug Relationship Type Table

| Drug Relationship | Total |
|-------------------|-------|
| Formulation | 2 |
| General interest | 1 |

GENO-2

GENO-2 SNAPSHOT

| | |
|----------------------|---|
| 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 |

GENO-2 DEVELOPMENT PROFILE

SUMMARY

Genocea Biosciences is investigating GENO-2, a protein subunit vaccine comprising adjuvant Matrix-M, using the company's T cell antigen discovery technology that stimulates CD4 and CD8 cells, for the potential prevention of HSV-2 infection,. By May 2010, preclinical animal proof-of-concept (POC) studies had been completed. In May 2012, the program was in animal validation studies. In August 2014, the drug was listed as being in preclinical development.

GENO-2 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

| Company | Indication | Country | Development Status | Date |
|-------------------------|-----------------|---------|--------------------|-------------|
| Genocea Biosciences Inc | HSV-2 infection | US | Discovery | 06-May-2010 |

GENO-2 DRUG NAMES

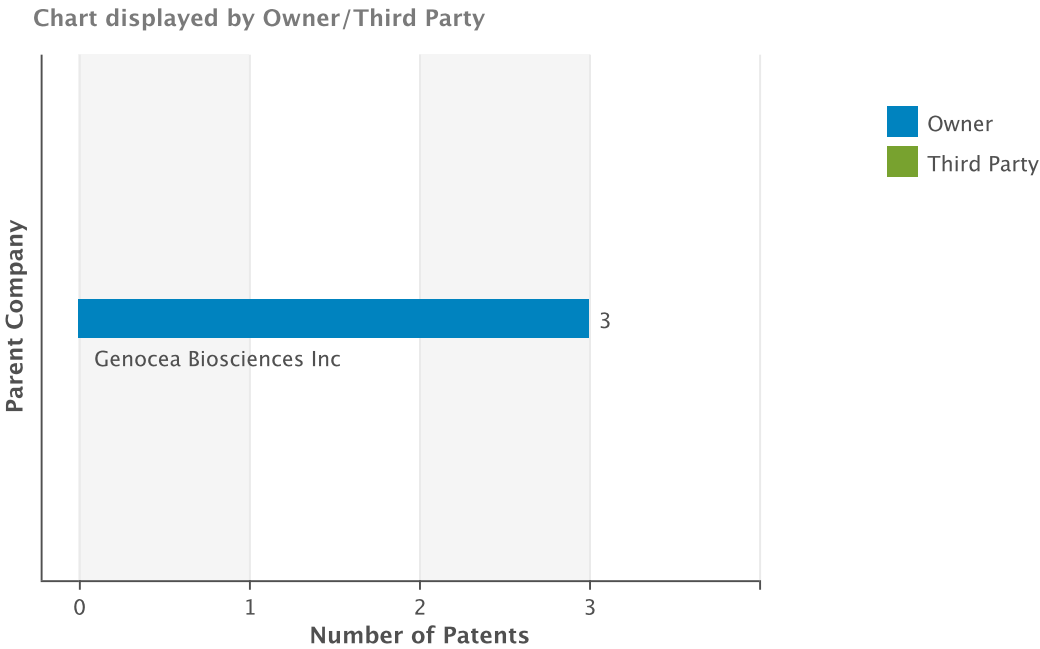
| Names | Type |
|--|---------------|
| GENO-2 | Research Code |
| HSV-2 prophylactic vaccine, Genocea Biosciences | |
| prophylactic protein subunit vaccine (Matrix-M, antigen, HSV-2 infection), Genocea Biosciences | |

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GENO-2 DEALS AND PATENTS

PATENTS

Patents by Parent Company Chart

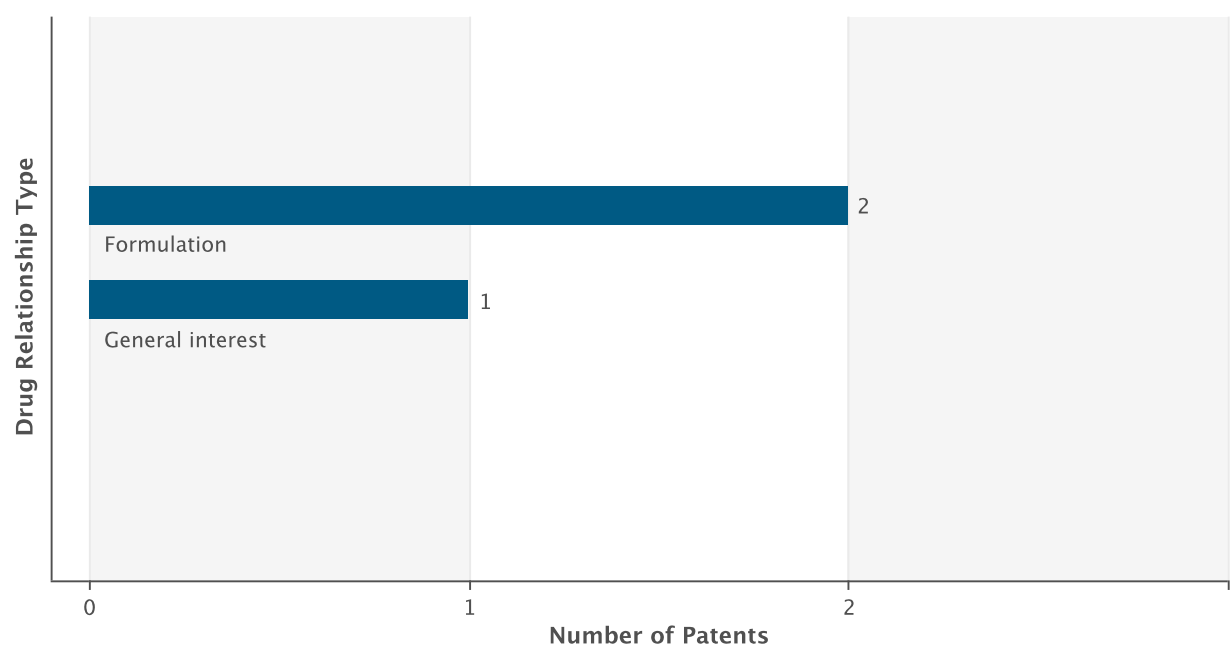


Patents by Parent Company Table

| Company Name | As Owner | As Third Party | Total |
|-------------------------|----------|----------------|-------|
| Genocea Biosciences Inc | 3 | 0 | 3 |

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Patents by Drug Relationship Type Chart



Patents by Drug Relationship Type Table

| Drug Relationship | Total |
|-------------------|-------|
| Formulation | 2 |
| General interest | 1 |

GENO-1

GENO-1 SNAPSHOT

| | |
|----------------------|---|
| 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 | Therapeutic vaccine;Antibacterial;Protein subunit vaccine;Adjuvant |
| Technologies | Natural product;Antigen;Biological therapeutic;Parenteral formulation unspecified |
| Last Change Date | 22-Aug-2014 |

GENO-1 DEVELOPMENT PROFILE

SUMMARY

Genocea Biosciences is investigating GENO-1 (GENO-001), a protein subunit vaccine, using the company's T cell antigen discovery technology that stimulates CD4 and CD8 cells, for the potential treatment of Chlamydia trachomatis infection,. In May 2012, the vaccine was listed as being in animal validation studies. In August 2014, the vaccine was listed as being in preclinical development.

GENO-1 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

| Company | Indication | Country | Development Status | Date |
|-------------------------|---------------------------------|---------|--------------------|-------------|
| Genocea Biosciences Inc | Chlamydia trachomatis infection | US | Discovery | 18-Dec-2007 |

GENO-1 DRUG NAMES

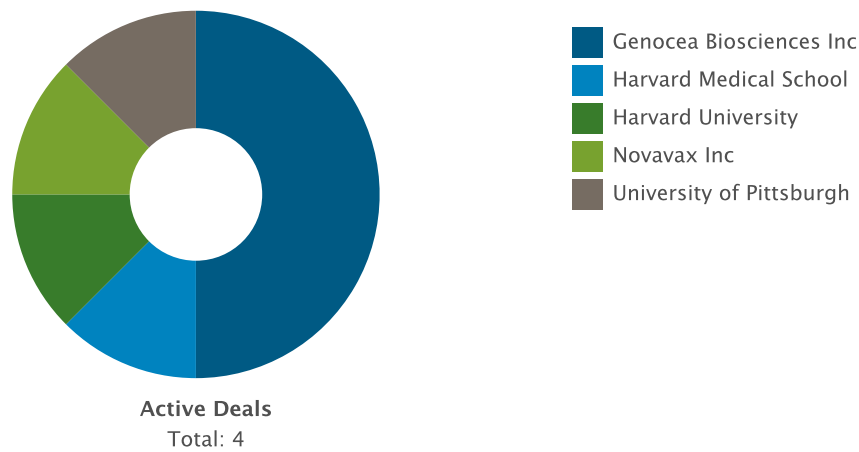
| Names | Type |
|---|---------------|
| protein subunit vaccine (antigen, Chlamydia trachomatis infection), Genocea | |
| Chlamydia trachomatis vaccine, Genocea Biosciences | |
| GENO-1 | Research Code |
| GENO-001 | Research Code |

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GENO-1 DEALS AND PATENTS

DEALS

Deals by Parent Company Chart



Deals by Parent Company Table

| Company Name | Principal | | Partner | | Total |
|--------------------------|-----------|----------|---------|----------|-------|
| | Active | Inactive | Active | Inactive | |
| Genocea Biosciences Inc | 1 | 0 | 3 | 0 | 4 |
| University of Pittsburgh | 0 | 0 | 1 | 0 | 1 |
| Harvard University | 1 | 0 | 0 | 0 | 1 |
| Novavax Inc | 1 | 0 | 0 | 0 | 1 |
| Harvard Medical School | 1 | 0 | 0 | 0 | 1 |

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Deals by Type Chart



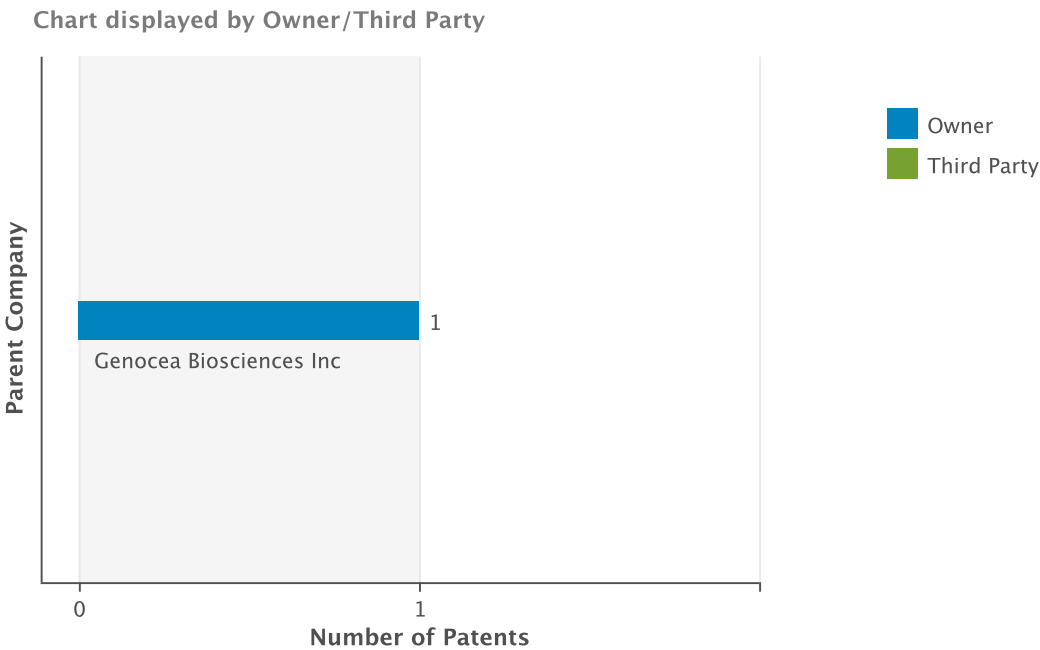
Deals by Type Table

| Deal Type | Active | Inactive | Total |
|-----------------------------------|--------|----------|-------|
| Drug - Early Research/Development | 1 | 0 | 1 |
| Drug - Funding | 1 | 0 | 1 |
| Patent - Exclusive Rights | 1 | 0 | 1 |
| Technology - Delivery/Formulation | 1 | 0 | 1 |

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PATENTS

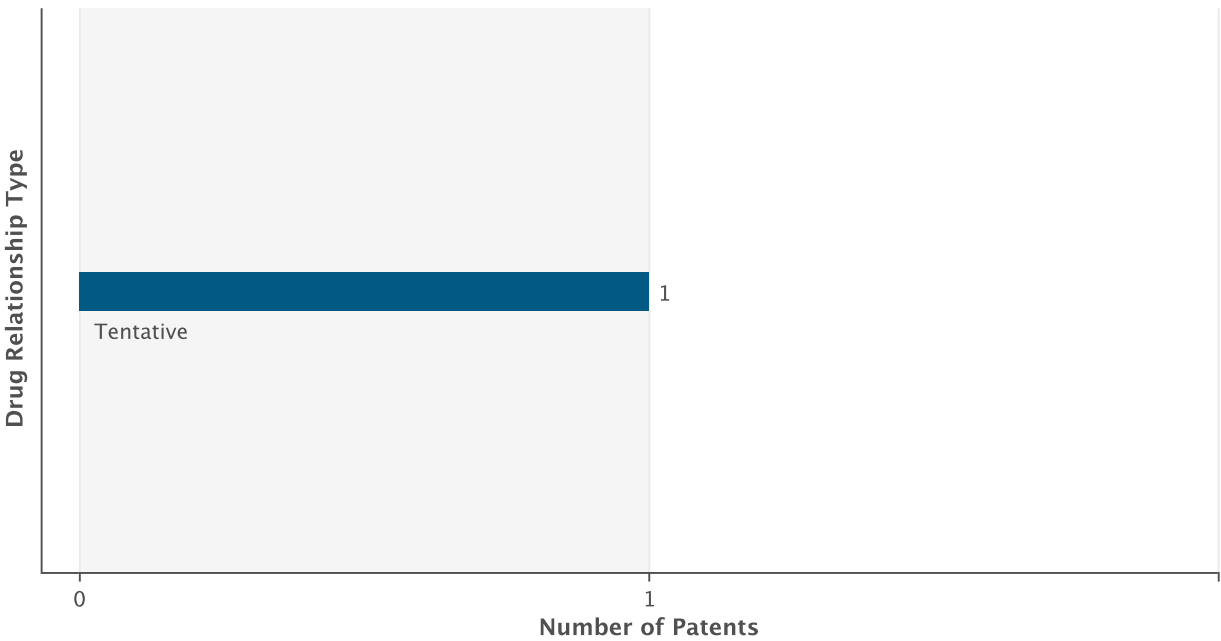
Patents by Parent Company Chart



Patents by Parent Company Table

| Company Name | As Owner | As Third Party | Total |
|-------------------------|----------|----------------|-------|
| Genocea Biosciences Inc | 1 | 0 | 1 |

Patents by Drug Relationship Type Chart



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Patents by Drug Relationship Type Table

| Drug Relationship | Total |
|-------------------|-------|
| Tentative | 1 |

GENO-5

GENO-5 SNAPSHOT

| | |
|----------------------|---|
| 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 | Protein subunit vaccine;Prophylactic vaccine;Adjuvant |
| Technologies | Natural product;Antigen;Biological therapeutic;Parenteral formulation unspecified;Peptide |
| Last Change Date | 25-Aug-2014 |

GENO-5 DEVELOPMENT PROFILE

SUMMARY

Genocea Biosciences, in collaboration with US Naval Medical Research Center (NMRC), is investigating GENO-5, a malarial protein-subunit vaccine, using the company's T cell antigen discovery technology that stimulates CD4 and CD8 cells, for the potential prevention of Plasmodium falciparum infection,. In June 2010, the vaccine was in discovery; in August 2014, this was still the case. In May 2012, the vaccine was in human screen studies.

GENO-5 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

| Company | Indication | Country | Development Status | Date |
|----------------------------------|---------------------------------|---------|--------------------|-------------|
| Genocea Biosciences Inc | Plasmodium falciparum infection | US | Discovery | 15-Apr-2010 |
| US Naval Medical Research Center | Plasmodium falciparum infection | US | Discovery | 15-Apr-2010 |

GENO-5 DRUG NAMES

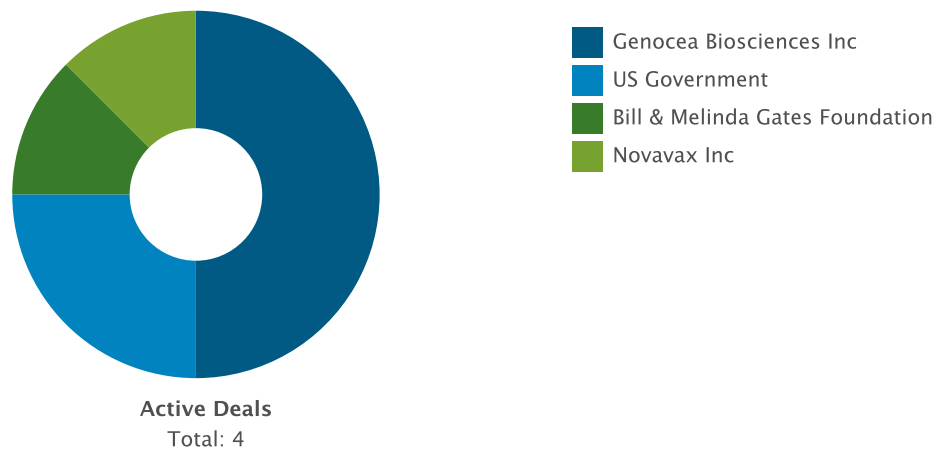
| Names | Type |
|--|---------------|
| protein-subunit malaria vaccine (antigen, Plasmodium falciparum infection), Genocea Biosciences/NMRC GENO-5 | Research Code |

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GENO-5 DEALS AND PATENTS

DEALS

Deals by Parent Company Chart

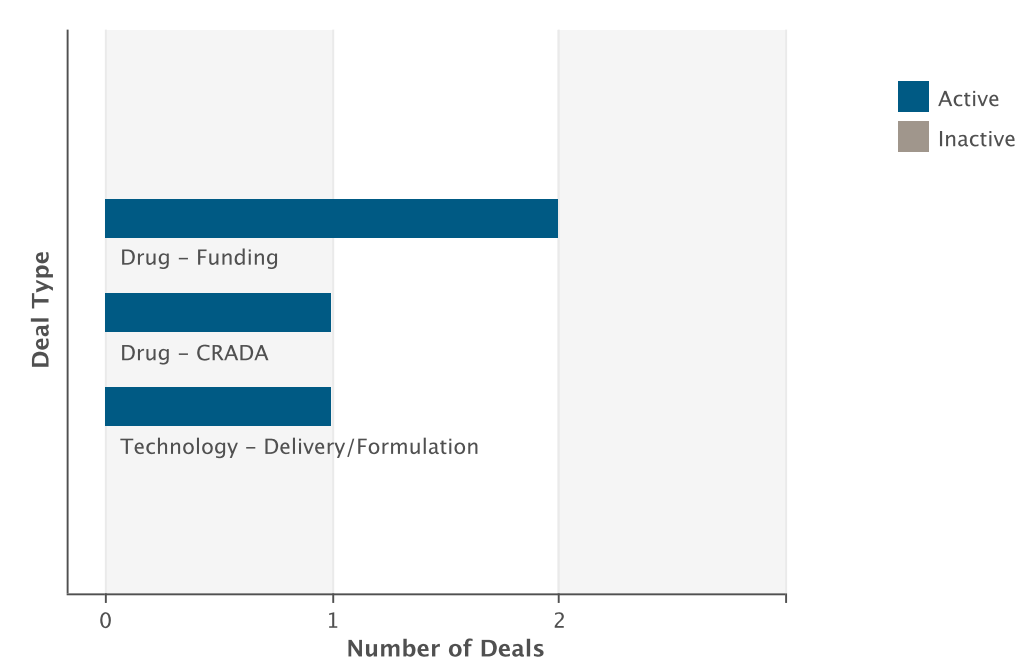


Deals by Parent Company Table

| Company Name | Principal | | Partner | | Total |
|---------------------------------|-----------|----------|---------|----------|-------|
| | Active | Inactive | Active | Inactive | |
| Genocea Biosciences Inc | 3 | 0 | 1 | 0 | 4 |
| US Government | 0 | 0 | 2 | 0 | 2 |
| Novavax Inc | 1 | 0 | 0 | 0 | 1 |
| Bill & Melinda Gates Foundation | 0 | 0 | 1 | 0 | 1 |

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Deals by Type Chart



Deals by Type Table

| Deal Type | Active | Inactive | Total |
|-----------------------------------|--------|----------|-------|
| Drug - Funding | 2 | 0 | 2 |
| Technology - Delivery/Formulation | 1 | 0 | 1 |
| Drug - CRADA | 1 | 0 | 1 |

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

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

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

melanoma vaccine (ATLAS), Genoclea/Dana-Farber Cancer Institute DEVELOPMENT PROFILE

SUMMARY

Genoclea Bioscience in collaboration with Dana-Farber Cancer Institute, is investigating a protein subunit vaccine comprising of T cell antigens, using Genoclea's AnTigen Lead Acquisition System (ATLAS) technology that stimulates CD4 and CD8 cells, for the potential treatment of melanoma . In March 2014, development was ongoing.

melanoma vaccine (ATLAS), Genoclea/Dana-Farber Cancer Institute DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

| Company | Indication | Country | Development Status | Date |
|----------------------------------|------------|---------|--------------------|-------------|
| Dana-Farber Cancer Institute Inc | Cancer | US | Discovery | 03-Mar-2014 |
| Genoclea Biosciences Inc | Cancer | US | Discovery | 03-Mar-2014 |

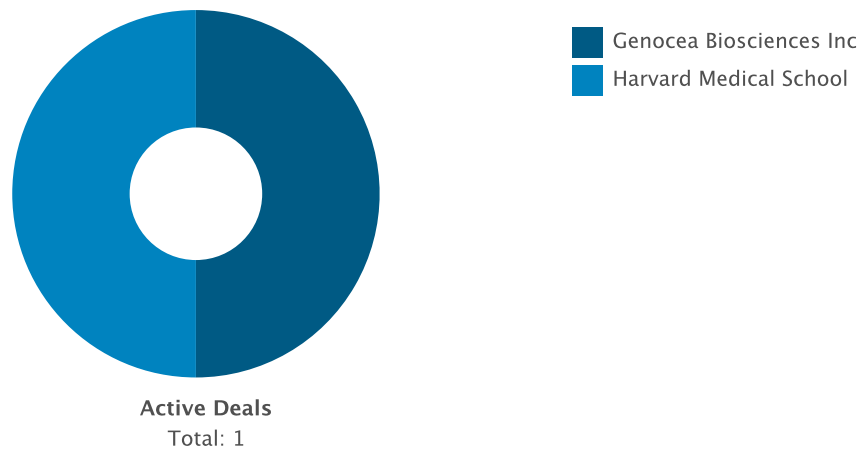
melanoma vaccine (ATLAS), Genoclea/Dana-Farber Cancer Institute DRUG NAMES

| Names | Type |
|---|------|
| melanoma vaccine (ATLAS), Genoclea/Dana-Farber Cancer Institute | |

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DEALS

Deals by Parent Company Chart



Deals by Parent Company Table

| Company Name | Principal | | Partner | | Total |
|--------------------------|-----------|----------|---------|----------|-------|
| | Active | Inactive | Active | Inactive | |
| Genoclea Biosciences Inc | 0 | 0 | 1 | 0 | 1 |
| Harvard Medical School | 1 | 0 | 0 | 0 | 1 |

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Deals by Type Chart



Deals by Type Table

| Deal Type | Active | Inactive | Total |
|-----------------------------------|--------|----------|-------|
| Drug - Early Research/Development | 1 | 0 | 1 |

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