

“Find-Encapsulate-Destroy”



# NanoViricides Incorporated

Nanotechnology-enabled,  
Targeted,  
Virus-Killing Treatments

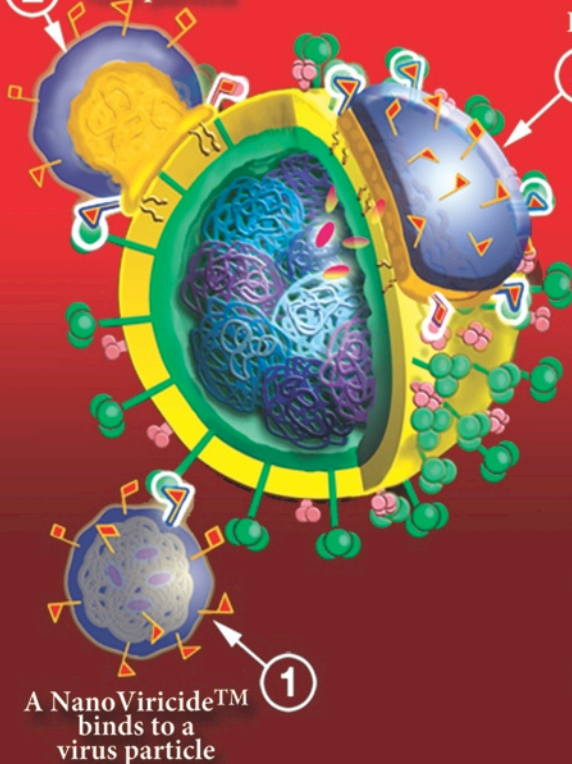
Stock Symbol:  
NNVC

Nanotechnology-Enabled Targeted Viricides, A Publicly Traded Company.

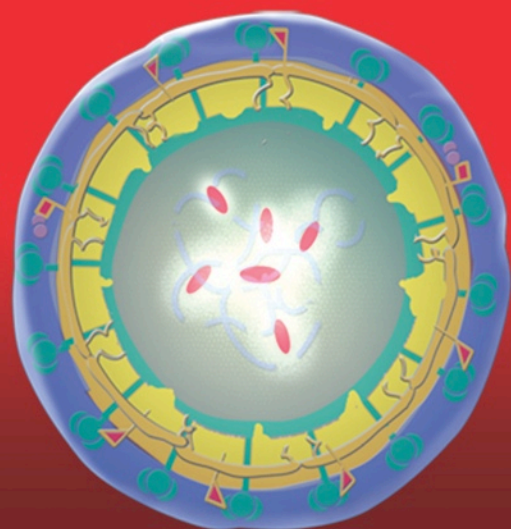
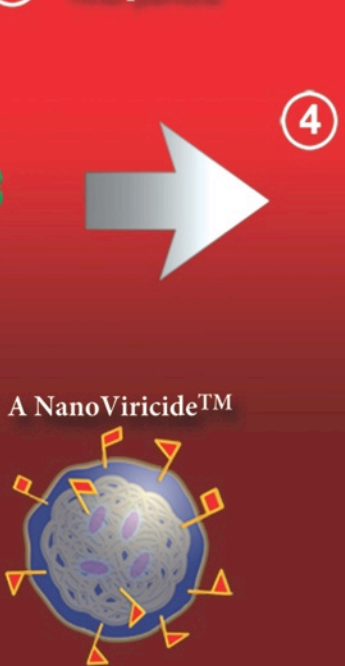
## Novel Mechanism Ensuring Expanding Pipeline of First-In-Class Drug Candidates

### Attacking the Virus Using Its Own, Conserved, Cell-Binding Features: Multi-point, Multi-targeted Therapeutics

Bound NanoViricide™  
lipid fusion with  
virus particle



Bound NanoViricide™  
wrapping onto  
virus particle



A virus particle destroyed by  
a NanoViricide™

## NanoViricides : Mimicking Cells, Fooling Viruses!

### Advanced Pre-clinical Leads

**Influenzas**  
Epidemic H1N1  
“Swine Flu”  
Seasonal Influenzas  
H7N, H9N, High  
Path Avian  
Influenzas  
H5N1 Bird Flu

**EKC Causing  
Adenovirus**

**Herpes  
Oral & Genital  
 (“Cold Sores”)**

**HIV**

**Dengue Viruses,  
West Nile Virus,  
Yellow Fever Virus,  
Jap. Encephalitis  
Virus**

\* **FluCide™**  
one Drug for All

\* **Eye Drops**  
against Most  
Front Eye Viruses

\* **Skin Cream for**  
Oral, Genital  
Cold Sores

\* **HIVCide™**  
“Functional  
Cure” ?

\* **Denguecide**  
Avoid ADE Effect

## DRUG PIPELINE

### **FLU-CIDE™**

One Drug for All Influenzas: Seasonal Influenzas, Bird Flu (H5N1), Epidemic Flu, "Swine Flu"  
Excellent efficacy shown in H1N1-animals, H5N1 in vitro.

### **HIV-CIDE™**

Anti-HIV nanoviricide showed efficacy superior to HAART cocktail in animal studies.

### **EKC-CIDE™**

Topical solution for most front eye diseases caused by viruses

### **HERPECIDE™**

Skin Cream for Oral and Genital Herpes Virus Infections

### **DENGUECIDE™**

Broad-Spectrum Treatment for All 4 types of Dengue Viruses

### **MORE IN R&D**

Hepatitis C, Ebola/Marbug, Rabies...





## FEATURES

-  **OVERCOME RESISTANCE FROM VIRUS MUTATION**
-  **HIGH EFFICACY AND SAFETY**
-  **BEYOND ANTIBODIES AND VACCINES**

## STAGE

-  **PRE-IND FILED FOR FLUCIDE**
-  **ADVANCED PRECLINICAL DRUG CANDIDATES**

## PLATFORM TECHNOLOGY FOR

-  **BIOMIMETIC , VIRUS TRAPPING DRUGS FOR**
-  **SPECIFIC VIRUSES**
-  **BROAD-SPECTRUM**
-  **"ACCURATE-DRUG-IN-FIELD" (ADIF™) FOR BIODEFENSE**

## Company Overview

NanoViricides, Inc. is a development stage company with a unique nanomedicine technology. The Company is developing nanotechnology-based biomimetic anti-viral medicines, that we call "nanoviricides®". Virus-specific nanoviricide drug candidates against five commercially important viral diseases, viz. seasonal and potentially-epidemic influenzas and bird flu, HIV/AIDS, cold sores and genital herpes infection, viral eye diseases, as well as dengue viruses, have demonstrated very high levels of effectiveness.

## Unique Find-Encapsulate-Destroy Antiviral Strategy

A "nanoviricide" is an agent designed by the Company to fool a virus into attaching to this agent, in the same way that the virus normally attaches to receptors on a cell surface. Once attached, the flexible nanoviricide glob would wrap around the virus and trap it. In the process, the virus could lose its coat proteins that it needs to bind to a cell. The virus is thus neutralized and effectively destroyed. Nanoviricides are designed to complete the task of dismantling the virus particle without immune system assistance.

Thus nanoviricides represent the next great advance in "Immunotherapeutics" (antibodies and vaccines,) the well established antiviral strategies. Viruses have developed smart strategies to derail the human immune system function. This results in failure of antibodies and vaccines.

The nanoviricide technology attempts to circumvent virus escape that results from natural changes in virus structure. Despite all such changes, the cell receptor to which a virus binds remains the same. Nanoviricides mimic this conserved feature of virus binding to its host cell receptor. If a virus "escapes" a properly designed nanoviricide, it would also have reduced its ability to attach to the cell receptor and would have become much less pathogenic in the process.

## Versatile Platform Technology

A nanoviricide is created by chemically attaching a virus-binding ligand, derived from the binding site of the virus located on its cell surface receptor, to a nanomicelle flexible polymer. This binding site does not change significantly when a virus mutates.

Tailor-made design and selection of (1) the virus-binding ligand; and (2) the backbone "nanomicelle", separately, allows us to rapidly optimize drug candidates (a) against a number of viruses; (b) for desired pharmacokinetic characteristics (e.g. sustained effect); and (c) for different routes of administration. This versatility is unmatched in the Industry.

**Virus-specific nanoviricides** have been created against important viruses such as HIV, Influenza and Bird Flu by choosing highly virus-specific ligands.

**Broad-spectrum nanoviricides** have been created that can bind to possibly as many as 90-95% of known viruses. The Company is developing broad-spectrum nanoviricides to combat several neglected tropical diseases, such as Dengue, Rabies, and Ebola/Marburg. *This is similar to antibiotics such as penicillin against bacteria that exploit a feature common to all bacteria.*

**Our ADIF Technology** enables the creation of a virus-specific accurate drug in the field. This is the only way to effectively respond to novel and emerging infectious diseases and bioterrorism agents rapidly. We have successfully demonstrated this technology.

## Strong Nanomedicines Intellectual Property Portfolio

NanoViricides, Inc. product candidates are based on TheraCour® technology invented and developed by company president and founder Anil R. Diwan, PhD. NanoViricides, Inc. holds an exclusive, worldwide license to this technology for its antiviral drugs. The technology is protected by two very broad international patent applications that cover compositions of matter, processes of manufacture, methods of use, and fields of use. Additional patent applications are expected, and the Company intends to patent each drug separately as well.

## Independent Researchers Perform Biological Testing

The Company has several collaborations at leading academic and federal institutions. Their independent researchers perform nanoviricides testing against various viral targets. The core intellectual property sensitive activities are performed by us. This drug development strategy saves on capital needs and provides unbiased data on our drug candidates.

## Advancing Rapidly Towards FDA Submissions

We have filed a pre-IND application for FluCide (NV-INF-1), a novel, first-in-class drug with the FDA. We anticipate moving rapidly after the product development path is defined.

We are working on developing a state-of-the-art cGMP manufacturing facility to enable production of human clinical batches of nanoviricide drug substances. A world-class team has been put together to work on the facility design, construction, and validation.

We continue to advance our other drugs towards the goal of filing a pre-IND application for each of them, in order to define the product development path.

We plan to perform regulatory submissions and file for drug approvals internationally.

## Robust Drug Commercialization & Marketing Strategy

The Company strategy is focused on achieving FDA approvals and commercialization of nanoviricides drugs to maximize investor returns as well as provide social benefit.

**Pharmaceutical Company Collaborations** will be sought for the commercially important drug candidates including Flu-Cide, EKC-Cide, HIV-Cide, HerpeCide, DengueCide, and later, a drug against Hepatitis C, among others.

## Strong Leadership and Management Team

**Eugene Seymour, MD, MPH, Chief Executive Officer**, has been working in the HIV field since the very first AIDS cohort was identified. This is his second public company.

**Anil R. Diwan, PhD, President and Chairman**, has invented and developed novel nanomedicine technologies. He holds a PhD from Rice University, TX, and a B.Tech. from IIT-Bombay, India. He has 20+ years of experience running entrepreneurial businesses and R&D.

**Randall W. Barton, PhD, Chief Scientific Officer**, has over 20 years of experience in drug discovery and early stage drug development of both small molecules and biologicals in immunology, virology and cardiovascular diseases at Boehringer Ingelheim Pharmaceuticals. He has over 70 scientific publications, 5 patents, and 3 patent applications. Dr. Barton has a Ph.D. in biochemistry from the University of Tennessee at Oak Ridge National Laboratory.

**Krishna Menon, VMD, PhD, MRCS, Chief Regulatory Officer-Consulting**, was most recently Group Leader, Cancer In-Vivo Research and Clinical Development, at Eli Lilly. He has led the development of several blockbuster drugs. He has a PhD in Pharmacology from Harvard and was a research scientist at Dana Farber Institute.

**Jayant Tatake, PhD, Vice-President of R&D**, is a co-inventor of the Company's nanomedicine technologies. Dr. Tatake has over 23 years experience with pharmaceutical production from lab scale through c-GMP manufacture. He holds a PhD from UICT-Bombay.

## Renowned Scientific Advisory Board (SAB)

The Company's Scientific Advisory Board consists of highly renowned scientists. **Prof. Paul Marks, our SAB Chairman**, Rockefeller Institute & President-Emeritus, Memorial Sloan-Kettering Cancer Center; **Prof. Cy Stein**, Head, Medical Genitourinary Oncology, Albert Einstein College of Medicine; **Prof. John Rossi**, Dean, City of Hope Beckman School of Graduate Studies; **Dr. Howard Fields**, retd. Chief, Molec. & Immunodiagnosics Section, Hepatitis Branch, CDC; **Dr. Harmon Aronson**, a renowned pharmaceutical industry consultant; **Prof. Kazuo Tsubota**, Chairman, Ophthalmology Dept., Keio University School of Medicine, Japan; and **Prof. Thomas Lentz**, Emeritus Professor and a pioneer in virus-directed bio-mimetic therapeutics, Yale University; advise us.

## Extremely Effective (Pre-Clinical) Treatments

**FluCide™**, our anti-influenza drug candidate, was shown to be more than 15X (1,500%) more effective than extended treatment with Tamiflu®, (Roche), in a lethal animal model.

**HIVCide™**, our anti-HIV drug candidate demonstrated effectiveness equal to a three drug cocktail (HAART) even with less than 12X reduced dosages in the SCID-huThy/Liv mouse model. If the results hold in humans, it could be a potential "Functional Cure" for HIV/AIDS.

**EKC-Cide™**, our antiviral eye drops demonstrated complete clearance of adenoviral epidemic kerato-conjunctivitis (EKC) within 2.5 days in a rabbit model.

**DengueCide™**, our broad-spectrum drug candidate against all four types of dengue, has led to survival of 50% of mice in an ADE (antibody-dependent-enhancement) mouse model of dengue infection, clinically relevant for the high fatality rate dengue DHF/DSS manifestations.

**HerpeCide™**, our skin cream against oral and genital herpes, has shown near-complete inhibition (in cell cultures) of 2 different HSV-1 strains, viz McKrae, important for eye infections, & H129, a highly pathogenic, encephalitic strain important for oral & genital herpes.

## Large Market Size - over \$40B total by 2013 <sup>(1)</sup>

Viral Disease	Mkt Size 2013	NNVC Opportunity
HIV/AIDS	\$ 21 Billion (B)	HIV-Cide a "Functional Cure"?
Influenza, Bird Flu	\$ 7 B	Resistance to current drugs widespread
Viral Diseases of Ext. Eye	\$ 1 B	No current non-toxic drugs <sup>(2)</sup>
Hepatitis C	\$ 6 B	Current therapies not very effective
Herpes- Cold Sores and Genital	\$ 2 B	
Dengue, Rabies, other	\$ 1 B(combined)	Rapidly increasing Developing World markets <sup>(2)</sup>
Ebola/Marburg/VHF	\$ 1 B(combined)	Biodefense, Biosecurity <sup>(2)</sup>

(1). Jain Pharma Biotech. March 2009. "Antiviral Therapeutics: Technologies, Companies & Markets", by Prof. K. K. Jain, MD, FRACS, FPPM. Basel, Switzerland. (2). Estimates based on the Jain Report, and a report commissioned by the Company for more detailed analyses of these special markets. March 2009.

## LEADERSHIP

*Chairman and President:*

**ANIL R. DIWAN, PhD**

*Chief Executive Officer and Acting Chief Financial Officer:*

**EUGENE SEYMOUR, MD MPH**

*Chief Scientific Officer:*

**RANDALL W. BARTON, PhD**

*Chief Regulatory Officer - Consulting:*

**KRISHNA MENON, VMD, PhD**

*Vice-President, R&D:*

**JAYANT G. TATAKE, PhD**

## CORPORATE INFO

Founded: 2005  
Public Since: June, 2005  
Symbol: NNVC

*As of Dec. 2011, Financial Data*

Shares Outstanding 150M.  
Cash-in-Hand: \$12M  
Short/Long Term Debt \$0

## CONTACT INFO

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**RANDALL W. BARTON, PhD, CSO.**

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*Website*

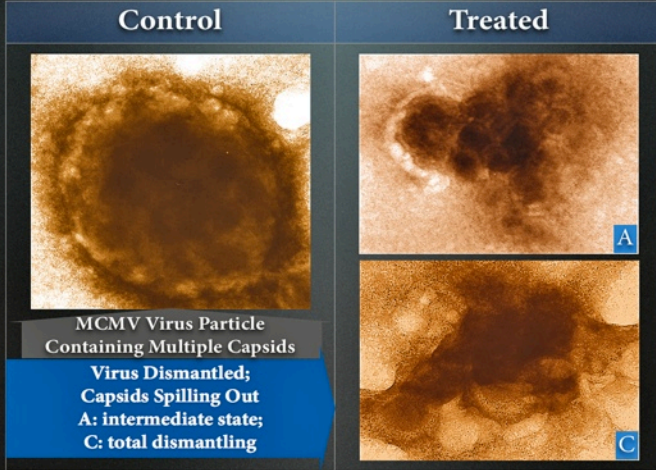
[www.nanoviricides.com](http://www.nanoviricides.com)

## Disclosure Statement

This disclosure document contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. The forward-looking statements are based on current expectations, estimates and projections made by management. The Company intends for the forward-looking statements to be covered by the safe harbor provisions for forward-looking statements. Important factors that could cause actual results to differ materially from the Company's expectations include, but are not limited to, those factors that are disclosed from time to time with the United States Securities and Exchange Commission.

# Nanoviricides Are Highly Effective and Safe

## Nanoviricides Dismantling MCMV Virus Particle

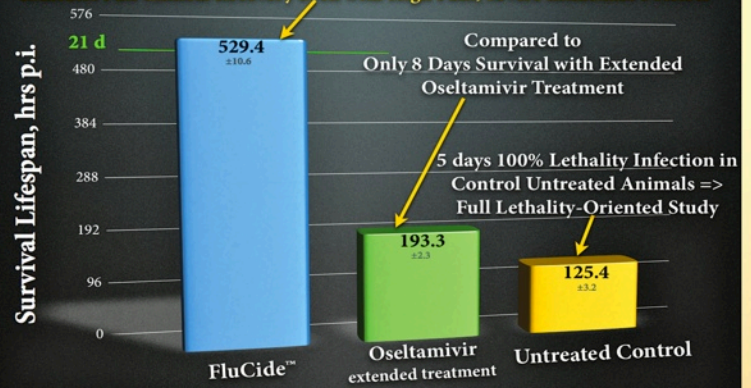


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# FluCide™: pre-IND Filed cGMP Lab Under Construction

## FluCide™ Candidates Unquestionably Superior to Oseltamivir

Full Survival (>21d) upon FluCide Treatment in H1N1 Mice Lethality Study, 2011-01  
Indicates Full Clinical Recovery Even with High Path, Severe Influenzas Possible

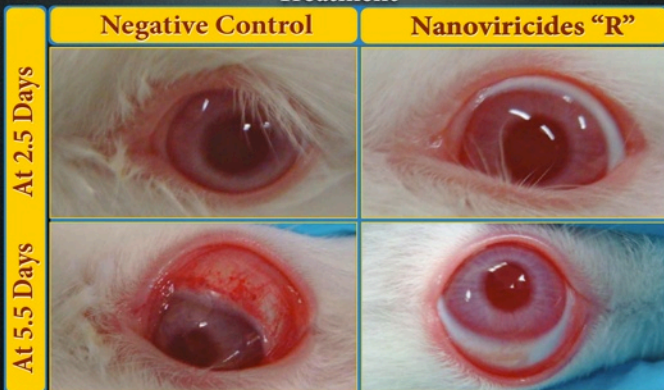


FluCide Probably The Most Effective Anti-Influenza Drug At Present

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## Epidemic Kerato-Conjunctivitis (EKC) - Severe Pink Eye Disease Adenovirus 5 Animal Studies

White Conjunctiva Restored by Nanoviricide Drug Candidate Treatment



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## Nanoviricide Treatment was >12X More effective than the HAART standard therapy in a SCID-hu Thy/Liv Mouse Model

- ❖ Only 300mg/kg total HIVCide produced effect equal to or better than 4,100mg/kg HAART drugs load
- ❖ Viral load Reduction on nanoviricides treatment was equal to or better than that on HAART treated mice
- ❖ CD4+/CD8+ (human) T cells increased equal to or better than that on HAART treated mice
- ❖ Virus Particle count inside human T cells decreased to much smaller levels on nanoviricides compared to HAART treatment

## Potential "Functional Cure" for HIV/AIDS?

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## Significant Survival of Mice in Dengue Virus Lethal Infection ADE Model

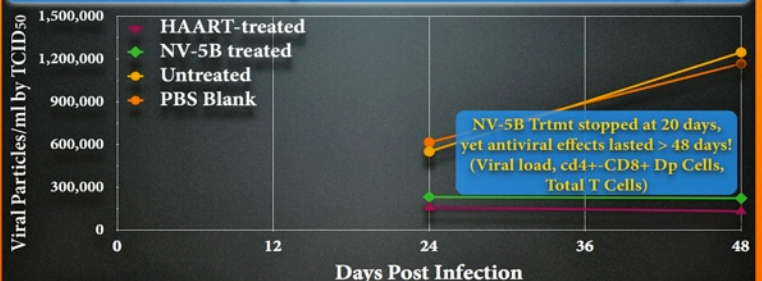
- ❖ First Ever Significant Survival Other than for Specific MABs
- ❖ Broad-Spectrum Nanoviricides: Drug May Look Against All Dengue Virus Types and possibly related Flaviviruses
- ❖ ADE = Antibody-Dependent Enhancement of Dengue Virus Infection. Causes Severe Dengue Hemorrhagic fever, with high fatality rates.

## Different HSV-1 Viruses Completely Inhibited in Several Different Cell Culture Studies

- ❖ > 99.99% Reduction of HSV-1 McKrae Strain
- ❖ McKrae Strain important in Herpes Keratitis (External Eye)
- ❖ Almost Complete Inhibition of HSV-1 H129 Strain
- ❖ H129: Relevant for "Cold Sores", a Highly Pathogenic Strain

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## Sustained Reduction in HIV-1 Viral Load Even After Treatment Stopped in the SCID-hu Thy/Liv Mouse Model in Study #2



Day	NV-5B Trtmt	HAART Trtmt
0	1,200 mg/kg	4,500 mg/kg
20	1,200 mg/kg	4,500 mg/kg
48	0 mg/kg	0 mg/kg

## "Functional Cure" for HIV/AIDS?

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Many More in R&D

Hepatitis C  
Ebola/Marburg  
Rabies  
Other Viruses...