NanoViricides’ Highly Effective and Safe Topical Drug Candidate Against Shingles (VZV) Preparing for Regulatory Trials; An Array of Indications in Herpecide™ Program Alone

Corporate Presentation
September 9, 2019

Presented by:
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President & Exec. Chairman
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NanoViricides, Inc. is a NYSE-Amer. listed publicly traded company (stock symbol: NNVC). This is not an offering memorandum and should not be construed as such. It is provided as a non-confidential document for informational purposes only.

NanoViricides, Inc. (www.nanoviricides.com) is a development stage company that is creating special purpose nanomaterials for viral therapy. The Company's novel nanoviricide® class of drug candidates are designed to specifically attack enveloped virus particles and to dismantle them. The Company is developing drugs against a number of viral diseases. All of our drug candidates are based on broad and exclusive worldwide licenses in perpetuity from TheraCour Pharma, Inc. for the development of drugs to combat viral infections of Human Immunodeficiency Virus (HIV/AIDS), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Herpes Simplex Viruses (HSV-1 and HSV-2), Influenza and Asian Bird Flu viruses, Dengue viruses, Ebola/Marburg viruses, Japanese Encephalitis virus, viruses causing viral Conjunctivitis (a disease of the eye. A license for the development of drugs to combat viral infections of VZV and the remaining human herpesviruses is in progress.

This document contains forward-looking statements that reflect the current expectation of NanoViricides, Inc. (the “Company) regarding future events. Actual events could differ materially and substantially from those projected herein and depend on a number of factors. Certain statements are “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. You should not place undue reliance on forward-looking statements since they involve known and unknown risks, uncertainties and other factors which are, in some cases, beyond the Company’s control and which could, and likely will, materially affect actual results, levels of activity, performance or achievements.

The Company assumes no obligation to publicly update or revise these forward-looking statements for any reason, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. 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 under the heading "Risk Factors" and elsewhere in documents filed by the company from time to time with the United States Securities and Exchange Commission and other regulatory authorities.

Although it is not possible to predict or identify all such factors, they may include the following: demonstration and proof of principle in pre-clinical trials that a nanoviricide is safe and effective; successful development of our product candidates; our ability to seek and obtain regulatory approvals, including with respect to the indications we are seeking; the successful commercialization of our product candidates; and market acceptance of our products.
How Does NanoViricides Address Challenges in Developing Effective Antiviral Drugs? **Design is the Key:**

- A Nanoviricide® is a Chemical Nanomachine that Performs the Complete Task of Finding, Binding, and Destroying a Virus Particle
- Does Not Need Competent Immune System, unlike most other approaches

**Direct Attack on Virus Particle**

**Virus Escape by virtue of Mutations is Unlikely, by Design**

**Drug Works Independent of Host Immune System**

**Regardless of Host Species**

**Animal Studies Should be Predictive for Human Clinical Trials**

![Diagram showing the process of Nanoviricide® attacking a virus](image-url)
How Does NanoViricides Address Nanomedicines Challenges? Scalability, Manufacturing, and Control

Polymeric (P) - Kg Scale
- Narrow MW Control Achieved Using Highly Scalable Process Parameters Control
- Highly Scalable Processes Developed

Ligand (L) - Kg-Scale
- Virus-binding Small Molecule

Nanoviricide = Kg-Scale
- P-L Conjuagte

Formulated - Multi-Kg Scale
- Skin Cream
- No Encapsulated API at Present
- Reduced Complexity
NanoViricides Has Established Multi-Kg Scale Manufacturing for the Lead Product Already

- Several Kg Per Batch of Formulated Drug Product
  - NV-HHV-101 Skin Cream for Treatment of Shingles Rash

- Sufficient Scale for Phase I and Phase II Clinical Trials

- Further Scaling or Combining Batches Will Suffice for Phase III

- In Our Own cGMP-capable Facility at Shelton, CT
  - Internal Efforts Save Both Time and Money

- Have Sufficient Capacity for Initial Market Introduction
  - Upon Approval

- Other HerpeCide™ Program Drugs to Follow
  - Cold Sores, Genital Ulcers, HK Eye Drops, others
A nanoviricide® is a Cell Mimic “passive view”

A nanoviricide “Looks Like” a Human Cell to the Virus

A nanoviricide is large enough for a virus particle to latch onto it. Yet small enough to circulate readily in the body.

Rather than the virus particle entering into a nanoviricide, a nanoviricide wraps around the virus particle and encapsulates it, by using the virus particle’s very same ability to enter a cell.

Resistance to the nanoviricide drug is unlikely because even as the virus mutates, the virus continues to bind to the same cell surface receptor(s) in the same fashion.
A NanoViricide® Attacking a Virus Particle: Unique, Novel, Nanotech Design

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

1. A nanoviricide® binds to a virus particle
2. Bound nanoviricide® lipid fusion with virus particle
3. Bound nanoviricide® wrapping onto virus particle
4. A virus particle destroyed by a nanoviricide®

BIND
ENCAPSULATE
DESTROY
Nanoviricides Dismantling MCMV Virus Particle

<table>
<thead>
<tr>
<th>Control</th>
<th>Treated</th>
</tr>
</thead>
</table>

**MCMV Virus Particle Containing Multiple Capsids**

_Virus Dismantled;
Capsids Spilling Out_

A: intermediate state;
C: total dismantling
Deep and Wide Pipeline Enabled by Unique NanoViricides Platform Technology

“Resistance is Futile” => If a virus escapes the nanoviricide drug, it would also have lost its ability to bind to its cognate cellular receptor, and to cause productive infection =>

Potentially foster viral incompetence

Broad-spectrum drugs since many viruses share cognate receptor(s)

Deep and Wide Pipeline Moving Into Regulatory Development

HerpeCide™ Program Alone - Closely Related Drug Candidates for:

- VZV Shingles - NV-HHV-101 Lead
- HSV-2 Genital Herpes
- HSV-1 Herpes Labialis “Cold Sores”

Herpes Keratitis (HSV-1 >95%) (External Eye)

Also: Ocular Herpes; Acute Retinal Necrosis; Other Indications

Other Programs - FluCide™, HIVCide™, Dengue, Ebola…
### NanoViricides Broad Drug Pipeline

#### HerpeCide™ Program Drugs Franchise approaching Clinical Stage

<table>
<thead>
<tr>
<th>1. HSV</th>
<th>2. HSV</th>
<th>3. VZV</th>
<th>4. HSV</th>
<th>9. ARN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Sores</td>
<td>Herpes Keratitis</td>
<td>Shingles</td>
<td>Genital Lesions</td>
<td>Acute Retinal Necrosis</td>
</tr>
</tbody>
</table>


- **FluCide™**
  - 5. Injectable
  - 6. ORAL
  - For Hospitalized & Out Patients

- **DengueCide™**
- Avoid ADE

- **HivCide™**
- "Functional Cure?"

#### Post-Discovery...
- Many More to Do

<table>
<thead>
<tr>
<th>One Drug for All Influenzas</th>
<th>Conjunctivitis/Keratitis</th>
<th>Skin Cream &amp; Gel - Oral, Genital Herpes</th>
<th>HIVCide™ &quot;Functional Cure&quot;?</th>
<th>DengueCide™ Avoid ADE Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Mkt Size</td>
<td>Current Mkt Size</td>
<td>&gt;$2B</td>
<td>&gt;$2B</td>
<td>&gt;$1B</td>
</tr>
<tr>
<td>&gt; $8B</td>
<td>&gt; $1B-$5B</td>
<td>&gt;$2B</td>
<td>&gt;$22B</td>
<td>&gt;$1B</td>
</tr>
</tbody>
</table>

- Injectable: $1B est, if effective drug
- market will expand if effective drug
- market will expand if effective drug
- market size should decrease as HIV is controlled
- Est > $10B global if effective drug

- Oral: to >$20B est, for effective drug
- HSV-1 linked to Alzheimer's Disease
- however, market will increase until cure
- Orphan Drug Benefits in US and EU

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NanoViricides is a Unique Drug Developer Company with Its Own cGMP-Capable Manufacturing Capability

- Custom Manufacture of All of Our Nanomedicines for Clinical Trials
- Skin creams, Eye drops, Gels, Injectables, Oral Syrups...
- Protect Proprietary Technologies and Intellectual Property
- Significant Time and Cost Savings
- Enables Rapid Transfer from Lab Bench to cGMP Manufacture
### HerpeCide™ Program Indications: Strong ROI Opportunity

<table>
<thead>
<tr>
<th></th>
<th>Disease/Virus</th>
<th>$ Billions, 2018 est. (1)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VZV Shingles (incl. PHN, Chickenpox)</td>
<td>$0.5~5 B</td>
<td>In spite of a new shingles vaccine (Shingrix™) Upper Range for PHN control; Lower range for shingles rash without PHN control</td>
</tr>
<tr>
<td>2</td>
<td>Herpes HSV-2 “Genital Ulcers”</td>
<td>$1~10 B</td>
<td>Current therapies have limited effectiveness; Effective therapies could lead to market explosion</td>
</tr>
<tr>
<td>3</td>
<td>Herpes HSV-1 “Cold Sores”</td>
<td>$2~10B</td>
<td>Current therapies have limited effectiveness; Effective therapies could lead to market explosion</td>
</tr>
<tr>
<td>4</td>
<td>Eye Drops for Herpes Keratitis</td>
<td>$1~5 B</td>
<td>No current non-toxic drugs</td>
</tr>
<tr>
<td>5</td>
<td>Viral Acute Retinal Necrosis (vARN) (VZV, HSV-1, HSV-2)</td>
<td>~$1B</td>
<td>No current non-toxic drugs. Potentially orphan disease.</td>
</tr>
<tr>
<td>6+</td>
<td>Other Human Herpesviruses: CMV, EBV, HHV-6A/B, HHV-7, and KSHV</td>
<td>$2~10B</td>
<td>No current non-toxic drugs. Effective therapies could lead to market explosion.</td>
</tr>
</tbody>
</table>

### Market Sizes for other NanoViricides Programs

<table>
<thead>
<tr>
<th></th>
<th>Disease/Virus</th>
<th>$ Billions, 2018 est. (1)</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>HIV/AIDS</td>
<td>$21.8 B</td>
<td>HIV-Cide™ Potentially a “Functional Cure”</td>
</tr>
<tr>
<td></td>
<td>Influenzas</td>
<td>$8.3 B</td>
<td>Resistance to Current Drugs widespread. FluCide™ as a Pan-Influenza Drug</td>
</tr>
<tr>
<td></td>
<td>Dengue, Rabies, other NTD’s combined</td>
<td>$1 B (2)</td>
<td>Rapidly increasing developing world markets not properly accounted for</td>
</tr>
<tr>
<td></td>
<td>Ebola/ Marburg/ VHF combined</td>
<td>$1 B (2)</td>
<td>Biodefense; Single customer issues Government Grants &amp; Contracts Global Epidemic Potential</td>
</tr>
</tbody>
</table>

(1) Estimation based on market research and industry data.

(2) Combined figures for Dengue, Rabies, other NTD’s, and Ebola/ Marburg/ VHF.
Herpes Viruses Family
Topical Indications Enable Rapid Drug Development

- Broad-Spectrum Activity Against Various HerpesViruses
  - found >99.99% viral reduction in cell cultures - HSV-1 McKrae and other strains
  - similar strong viral reduction in VZV in cell cultures
  - Also effective on HSV-1 H129c strain - an aggressive, neurotropic, zosteriform presenting, clinical-isolate derived strain in Professor Ken Rosenthal’s Lab

- Achieved >85%~100% Survival in vivo in Mouse Dermal Infection model with the HSV-1 H129c Zosteriform Spreading Strain
  - 100% survival in HSV-1 Infection Model Reproduced in another lab

- Very High Effectiveness in Human Skin Organ Culture Model of VZV Infection in Prof. Moffat Lab at UMC, SUNY, Syracuse

- Clinical Candidate Designated for VZV, IND-enabling Studies Started

- Clinical Candidate Designation Studies for Several Additional Indications are in Progress

A Franchise of anti-Herpesvirus Indications
NanoViricides’ Regulatory Strategy

Dermal Topical Drug as First Candidate -> Quicker Path
rather than systemic therapeutics

Multiple Indications with Same Drug Candidate or its Derivatives to Maximize Shareholder Value and ROI

- VZV Shingles
- HSV-2 Genital Herpes
- HSV-1 Herpes Labialis “Cold Sores”
- Herpes Keratitis (HSV-1 >95%) (External Eye)
- Also: Ocular Herpes; Acute Retinal Necrosis; Other Indications

Distribute Development Costs over Multiple Indications

Shingles Rash from img.webmd.com
Herpes Keratitis
Stromal vascularization, Lipid keratopathy
Herpes Cold Sores from www.removecoldsores.com
Shingles Rash breakouts - HHV-3 aka VZV

- The chickenpox virus surviving in ganglia causes Shingles in adults
  - Everyone over 50 Will Likely Get Shingles

- Unmet medical need: No approved drugs (vaccines exist)

- Triggered by Reduced Immune Function
  - Stress, Age, Immune Compromised/Suppressed

- Severe Stinging Pain & Zosteriform Rash
  - Pain May Persist for Months or Years
    After Resolution of Outbreak - PHN

  - Virus Damaged Nerves Continue to Signal Sharp, Debilitating Pain

  - Pain Could be Avoided/Minimized if Virus is Controlled

- Broad-Spectrum HerpeCide™ Could be a Highly Effective Drug

Potential Billion+ Dollar Market Size
projected even after the new vaccine introduction
Topical Treatment of Shingles chosen to be Lead Indication of the Drug Candidate

- No Current Approved Effective Treatment for Shingles
  - Zostavax® and other attenuated virus vaccines lead to “rebound shingles” when immune system function goes down
  - New 2-Dose GSK “Shingrix®” vaccine has severe side effects
- Post-Herpetic Neuralgia (PHN) due to nerve endings damage by VZV
- Chickenpox in Children still creates Episodic Breakouts
- No Animal Model for Evaluating Topical Treatment
  - VZV infection range is restricted to Humans only
- Human Skin Organ Culture Model Relevant for Drug Development
- Phase I/II Studies to focus on Shingles Rash Resolution
  - Shorter Studies with Clear Primary End-point
  - Strategy is to add PHN as a separate indication afterwards
Optimization Studies
VZV (Shingles) Topical Candidates Highly Effective - Five Times More Effective against VZV than Acyclovir in Cell Cultures

Also, Against HSV-1 and HSV-2, Found Similar Strong Effectiveness in Cell Cultures using multiple virus strains and multiple cell lines

Poster Presented by NanoViricides at the American Society of Virology Annual Meeting, 2018, Madison, WI.
VZV (Shingles) Topical Drug Candidates Are Highly Effective Match Efficacy of Cidofovir in Human Skin Organ Culture Model of VZV Infection

Note: Cidofovir is highly toxic.

Poster Presented by Moffat Group, SUNY Syracuse Upstate Medical Center, at the International Conference on Antiviral Research, June 11-15, 2018, Porto, Portugal

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VZV (Shingles) Topical Candidate Moving Rapidly To Clinical Trials

Preliminary Non-GLP Safety/Tolerability Studies in Rats Successful (2018)

- No clinically observable adverse safety and toxicology effects in topical administration
- No clinically observable adverse safety and toxicology effects in systemic administration (IV or IP)
- No observable direct effects on the primary organ functions whether the drug was administered to the skin or systemically
  - liver and kidney function is unaffected, among other organs
- Consistent with Strong Safety Observed in Human Skin Patch Efficacy Model Studies

Thereupon Undertook Manufacturing Scale-up, Final Drug Candidate Optimization, Final Drug Product Formulation, and Entry into IND-enabling Safety/Toxicology Studies (“Tox Package”)
VZV (Shingles) Topical Drug Candidate: Manufacture and Characterization

Clinical Candidate for VZV Designated => “NV-HHV-101”

cGMP-like Manufacturing at Kg-scale for IND-Enabling Safety/Toxicology Studies

Scale-Up of Drug Substance Completed at Kilograms Scale

Scale-Up of Drug Product Completed at Several Kilograms Scale

Manufacture of Drug Product for non-GLP IND-Enabling Studies Completed in November, 2018

Manufacture of Drug Product for GLP IND-Enabling Studies Completed in April, 2019 - Multi-Kg scales

Drug Batch Characterizations Completed for these batches

Regulatory Stability Studies In Progress

Of note - Drug Product Formulation was Accomplished in <6 weeks
Non-GLP Portion of IND-Enabling Safety/Toxicology Studies Completed by BASi, IN ca. February, 2019

Excellent Safety Profile Observed

cGMP Manufacture for GLP Safety/Toxicology Studies Completed

GLP Studies have began in May, 2019, at BASi, IN
In-life Portion of GLP Studies was completed in July, 2019, at BASi, IN

Excellent Safety Profile Observed in Clinical Observations

Toxicokinetics Studies In Progress

Histological Studies in Progress
VZV (Shingles) Topical Drug Candidate: Favorable Response to Our Pre-IND Application from US FDA

- Received May 23, 2019
- CMC Plan is Generally Adequate for IND
- Safety/Toxicology Study Plan is Generally Adequate
- Proposed Human Clinical Studies Program is Reasonable
- Additional Studies Recommended are Consistent with the Company’s Planned Non-Clinical Development Work
VZV (Shingles) Topical Drug Candidate: Next Steps

- c-GMP Manufacture of Drug Product for Human Clinical Studies
  - In Progress
- Complete IND-Enabling Safety/Toxicology Studies and Get Certified Reports
- Prepare IND (Investigational New Drug Application)
- File IND with US FDA
- Phase I and Phase II Human Clinical Trials

HSV-1 & HSV-2 Topical Drug Candidates: Next Steps

- Animal Model Optimization, at CORL, Univ. Wisconsin, Madison
- Nearing Completion for HSV-2 Genital Infection Animal Model
- Animal Studies for Candidate Optimization (variant of NV-HHV-101)
Drug Candidates in Current HerpeCide Program are Anticipated to Have Applications Against Other HerpesViruses:

**Epstein-Barr Virus:**
- Mononucleosis
- Monoclonal Gammopathy
- other B-cell diseases, etc.

**Cytomegalovirus:** Retinitis, Organ Transplant etc.

**HHV-6A, HHV-6B, HHV-7**
- several diseases are associated
- encephalopathy, epilepsy
- sialoadenopathy, Sicca syndrome
- T-cell diseases
Technology Strategy

Focus on Bringing First Drug Candidate into Human Clinical Trials

Dermal Topical Treatments in the HerpeCide™ Program

Shingles Treatment as Lead Indication

HSV-2 Genital Ulcers Topical Treatment and HSV-1 Cold Sores Topical Treatment, both to follow

Based on Closely Related Drug Candidates

Maximize ROI and Shareholder Value

HIVCide™ and FluCide™ Programs - in parallel, lower priority

IND-Enabling Studies for Shingles Treatment

cGMP-like Manufacturing at Multi-Kg Scale in Progress

Quality Control and Quality Assurance Programs in Progress
**NanoViricides Financials - Low Burn**

<table>
<thead>
<tr>
<th></th>
<th>Current Report (6/30/2019)</th>
<th>Year 1</th>
<th>Year 2</th>
</tr>
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<tbody>
<tr>
<td>Cash - In - Hand, Approx</td>
<td>$2.8M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property- Plant &amp; Eqpt</td>
<td>$10.2M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt</td>
<td>$0M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budgeted Expenditures</td>
<td></td>
<td>$9.0M</td>
<td>$14.0M</td>
</tr>
</tbody>
</table>

- **Raised $43 Million in 2013-2014: most ever for Company**
- **Raised $2.5 Million in February, 2019 - RDO**
- **Spend only ~$7M Annually in cash, or <$2M per quarter**
- **Estimate Low Cost, Short Duration Clinical Trials for First Indication, namely VZV Shingles Rash Topical Treatment**
- Additional funding, if and when it becomes available, would be used for furthering other drug programs - Influenza and HIV into clinical stage, Dengue, others
- All anticipated timelines and expenditures are subject to variables outside the Company’s control, and may change. In addition, the Company re-prioritizes its development programs from time to time as necessary to align its resources in the most productive manner in its best judgement.
Strong Executive Team

Anil R. Diwan, PhD
President & Exec. Chairman
Co-Founder
Led Uplisting to NYSE-Amer. in 2013
Raised $65M
Co-Inventor of Nanoviricides® & of TheraCour®
25+ years Leadership & Entrepreneurial experience
Key Patents, Several NIH SBIR Awards
PhD (Biochem Eng - Rice), BTech (ChemEng - IITB)

Randall W. Barton, PhD
CSO and Acting CRO
30+ Years of Pharmaceutical Industry Experience in Drug Discovery and Pre-clinical Regulatory Development
Former Director of In-Vitro Cardiovascular Research at Boehringer Ingelheim
Nevirapine (Viramune™) Development
Visiting Faculty at the University of Connecticut Medical School, Farmington, CT

Meeta R. Vyas, MBA
CFO
30+ years Experience in Corporate Performance Improvement, Finance, M&A, EBITDA Growth...
Previously: Principal, The Gores Group; Director, Kamylon Capital; CEO, Signature Brands, Inc. (a public company, known for “Mr. Coffee”); Ran $1B GE Appliances Division;
Consultant, McKinsey & Company
MBA (Fin.) Columbia, BS (ChemEng) MIT

Jayant Tatake, PhD
VP, R&D
30+ Years of Pharmaceutical Industry Experience in Drug Discovery, Manufacturing, QA/QC, CRO
Synthesis, Scale-up, Formulations, and Pharmaceutical cGMP Expertise
Former Asst. Director, Pharma. Analytics, InterPharm, Inc.
Co-Inventor of Nanoviricides® & TheraCour®
PhD UICT, Bombay
Strong Independent Board of Directors

**Anil R. Diwan, PhD**
President & Exec. Chairman

Co-Founder, Led Uplisting to NYSE-Amer. in 2013, Raised $65M+, Co-Inventor of Nanoviricides® & of TheraCour ®
25+ years Leadership & Entrepreneurial experience

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**Stanley Glick, CPA**

Auditing, Accounting, Tax, & Mgmt. Advisory Services
Financial Management Oversight, Civic Leader

*Independent Board Member and Chair of Audit Committee - June 2012*

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**James Sapirstein, MBA**

35+ Years of Pharmaceutical Industry Experience, with over 2 dozen Product Launches at Big Pharma and Small Pharma. ex-CEO of ContraVir (CTRV). Raised over $100+M in Capital Markets. Board member of Enochian Biosciences (ENOB), RespireRx Pharma, (RSPI) and Leading Biosciences (pvt.). Also a Board member of BIONJ (Chaired unHi Feb. 2019) and a Board Director for BIO (on both the Health Section Governing & Emerging Companies Section)

*Independent Board Member - November, 2018*

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**Mark Day, PhD**


*Independent Board Member - June, 2019*