



# Biocompatible Nanoparticle Technology Unlocking Cancer Therapies & Rapid Diagnostics

---

# Forward Looking Statement

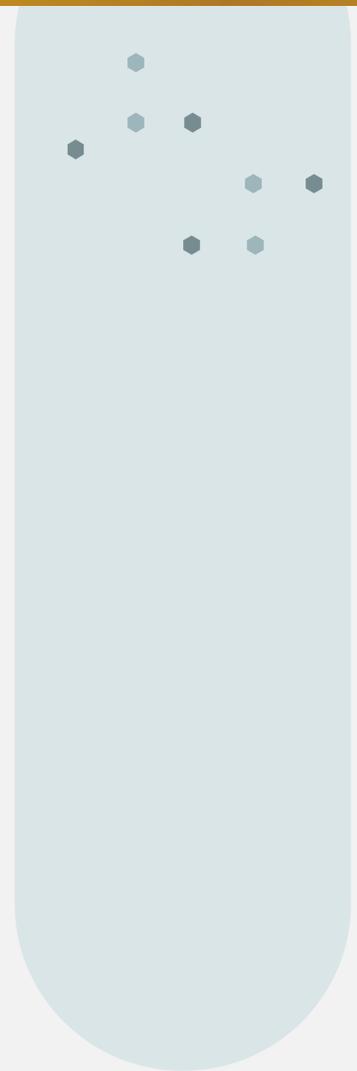
This presentation contains forward-looking information under applicable securities law. All information that addresses activities or developments that we expect to occur in the future is forward-looking information. Forward-looking statements are based on the estimates and opinions of management on the date the statements are made.

Such forward-looking statements include, but are not limited to, statements regarding the benefits to accrue to Sona from the Proposed Transaction, the future development of Siva's Targeted Hyperthermia Therapy and the anticipated timing and terms of Sona's planned equity raises.

Forward-looking statements are necessarily based upon a number of assumptions or estimates that, while considered reasonable, are subject to known and unknown risks, uncertainties, and other factors which may cause the actual results and future events to differ materially from those expressed or implied by such forward-looking statements, including the risk that Sona and Siva may not be able to successfully complete the Proposed Transaction, secure animal and human clinical studies, or develop the envisioned device or therapy, and the risk that equity financing may not be available on the anticipated terms or at all.

Actual results may differ materially from those set forth in this presentation due to risks and uncertainties affecting Sona and its products, including the demand for Sona's tests which may be adversely affected by introduction or success of competing products, the ability for Sona to successfully develop longer-term applications for its technology and other risks detailed from time to time in Sona's ongoing filings and in its most recent annual information form filed with the Canadian regulatory authorities on SEDAR at [www.sedar.com](http://www.sedar.com).

Readers are cautioned not to place undue reliance on these forward-looking statements and are encouraged to read Sona's continuous disclosure documents which are available on SEDAR. Such statements should not be regarded as a representation that any of the plans, expectations or intentions will be achieved. Sona takes no responsibility to update forward-looking statements in this presentation except as required by law.



# Proposed Transformational Acquisition\* of Siva Therapeutics by Sona Nanotech: A mutual unlocking of value



## Deal Rationale

- Sona gold nanorods key to THT success
- Approval for THT could provide validation for Sona gold nanorods in other therapies
- First targeted application will be for rectal cancer
- The relevant market size for rectal cancer treatment is 28,000 new cases per year in US alone:

**Total number of new cases of rectal cancer annually in US = 44 000**

Diagnosis Stage	Relevant Cases	Number of US cases treatable by THT per year
Stage 1	100%	10,516
Stage 2	100%	11,968
Stage 3	50%	5,786
<b>Total Relevant Cases</b>	<b>77.4%</b>	<b>28,270</b>
Stage 4 (not relevant)	0%	0
<b>Total, all stages</b>	<b>100%</b>	<b>28,270</b>

## Salient Deal Terms:

Sona to acquire 100% of Siva for up to US\$8.65 million

- 100% share consideration
- US\$2m payment upfront conditional on minimum equity raise
- Closing conditional on raising US \$1m in equity, etc.
- Success and time-based earn-out payments (with minimum share price 'floors') based on:
  1. Securing of a colorectal cancer tumor model
  2. Delivery of functional infrared light device, SivaLum™ 2.0
  3. Positive results from a large animal study
  4. Positive results from a “first in human” study and patent

## Siva Assets And IP To Be Acquired

- Validation of therapy with melanoma with small animal study
- Safety study data
- Two supporting patents held
- Significant know-how, reputation, contacts and studies
- Nanotechnology Characterization Laboratory assessment study
- SivaLum™ 1.0 infrared lightsource (with version 2.0 in design)
- Expertise of Len Pagliaro with 24 years' experience in biotechnology

# Sona Nanotech at a Glance\*

- Unique biocompatible proprietary gold nanorod manufacturing technology
- Developer of novel lateral flow rapid tests
- Key role in the advancement of photothermal medical therapies
- Proposed transformative acquisition\* provides a mutual unlocking of value



## Poised to benefit from multiple catalysts

### Proposed Transformative Acquisition\* of



Pioneer in targeted hyperthermia (THT)

### Therapies

Three key Siva development milestones targeted for 2023

### Diagnostics

Two novel, rapid point of care tests heading towards clinical trials



**David Regan, MBA**  
CEO, Sona Nanotech

- Strategy consultant and corporate director
- 15 years capital markets experience



**Len Pagliaro, PhD**  
President, Siva Therapeutics

- Prof. of Bioengineering & Laboratory Medicine
- 24 years' experience in biotech products & licensing

\*Assumes the proposed acquisition of Siva Therapeutics

# Sona's Platform Technology: Uniquely biocompatible gold nanorods (GNRs)



## What are gold nanorods

- Rod-shaped nanoparticles made of gold
- Nanometer is one-billionth of a meter
- Sizes of 10 to 100 nanometers in length
- Produced by chemical synthesis
- Can be conjugated to different molecules



## Limitations of other nanoparticles<sup>1</sup>

- ✗ **Toxicity:**  
**Other gold nanorod production uses CTAB** (cyltrimethylammonium bromide)  
CTAB is a known toxin that can
  - kill cells
  - is therefore less suitable for in-vivo therapies



## Sona's GNR technology solution

- ✓ **Uniquely Biocompatible:**  
**Sona surfactant uses no CTAB**
  - Can produce heat in the same way as CTAB-based GNRs.
  - Potentially more suitable for use in the body<sup>2</sup>



## Uses of gold nanorods

### Therapies

- Photothermal therapy
- Tumor targeting activity
- Anti-bacterial activity
- Drug delivery vehicle

### Diagnostics

- Diagnostic markers for imaging
- Immunoassay and biosensing

- ✗ **Shape:**  
**Nanospheres, nanostars or nanoshells have**
  - Limited **surface area**
  - Limited **stability**
  - Limited **penetration depth into cells**

- ✗ **Limited ability to tune for resonance**

- ✓ **Shaped as rods:**  
**Nanorods by Sona have**
  - Variety of lengths and widths to increase surface area
  - Long shelf life and stable surface properties

- ✓ **Complex light polarization and novel optical properties for use in diagnostic imaging**
  - High color intensity can lead to enhanced sensitivity in lateral flow tests<sup>3</sup>

Sona GNRs could unlock the power of in-vivo applications



# Two Areas of Strategic Focus\*

## 01 THERAPIES

## 02 DIAGNOSTICS

### CURRENT



#### THT Photothermal Cancer Therapy\*

Targeting therapeutic heat to tumors by injecting gold nanorods



#### Rapid Diagnostic Tests (RDTs)

- TBI (Concussion)
- Bovine TB



#### 3<sup>rd</sup> Party Test Development Services

### FUTURE POSSIBILITIES



#### Targeted Drug Delivery



#### Photothermal Cosmetic Therapy



#### Further Proprietary Testing Solutions



#### Cell Imaging

\*Subject to the proposed acquisition of Siva Therapeutics

01

# GNR-Based Therapies

BIOCOMPATIBLE  
**GNR**  
GOLD NANOROD  
TECHNOLOGY

**Sona Gold Nanorod ("GNR") Technology**

Uniquely biocompatible

Unlocking of in-vivo medical applications potential

# Sona's GNR technology in Siva Therapeutics' Targeted Hyperthermia Therapy™ (THT)



Pioneered by



Len Pagliaro, PhD

- 24 years of experience
- Successful commercialization of biotechnology products, services, and licensing
- Completed prestigious assessment program at the US Nanotechnology Characterization Laboratory (Established by the FDA and the National Cancer Institute)

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

Current Cancer Treatments are risky, expensive and can do harm

- Chemotherapy and radiotherapy are non-selective in their destruction of cells
- Advanced therapies are expensive
- Surgery is risky

How does THT work?

- Targets heat directly to the tumor
- Uses IV injection of GNRs to heat the tumor from the inside
- Achieves hyperthermia instead of ablation destroying cancerous cells selectively
- Sona GNRs are inert and **do not** use toxic CTAB

Sona GNRs in targeted hyperthermia may create the opportunity to treat cancer without doing significant harm to healthy cells

# Targeted Hyperthermia Therapy™ (THT)

Medical device with two components:

- Gold nanorods for injection
- Infrared light source

Heating tumors does the following:

- Stimulates immune system
- Kills cancer cells
- Increases tumor perfusion
- Shrinks tumors

01

Injection of billions of SivaRods™ into the bloodstream



02

SivaRods™ concentrate in solid tumors, 7-fold vs in non-tumor tissue



03

Tumor is treated for 10 min with SivaLum™ infrared light set to same wavelength as the nanorods



04

IR Light energy causes the SivaRods™ to vibrate, creating sufficient heat to kill cancer cells selectively



Healthy cells withstand heat stress, **up to 52°C**, typical with ablation therapies

Not damaged by hyperthermia's 44°C

SivaRods™ heat to **44°C**

Selectively kills cancer cells

Works from the inside of the tumor out

Heat shock protein (HSP) synthesis used

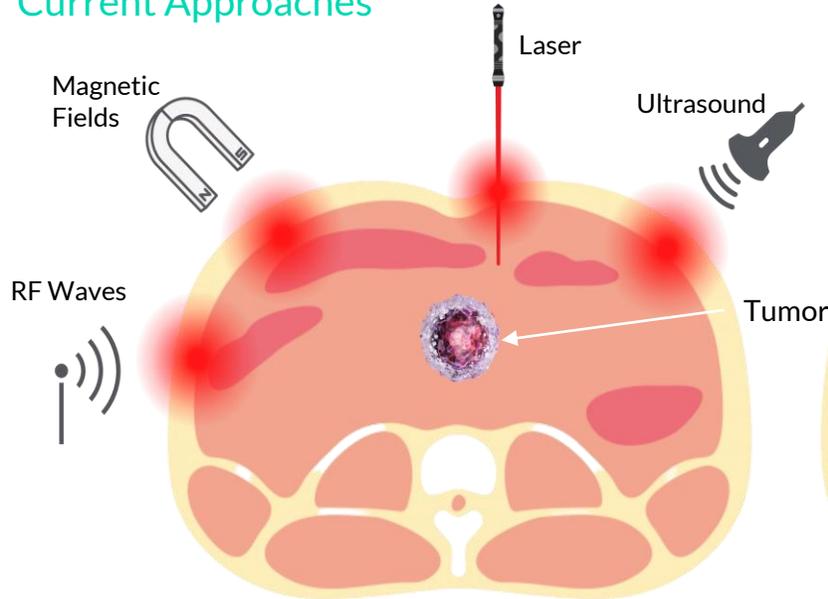
Cancer cells are more sensitive to heat

Destroying cancer cells while healthy cells can go undamaged

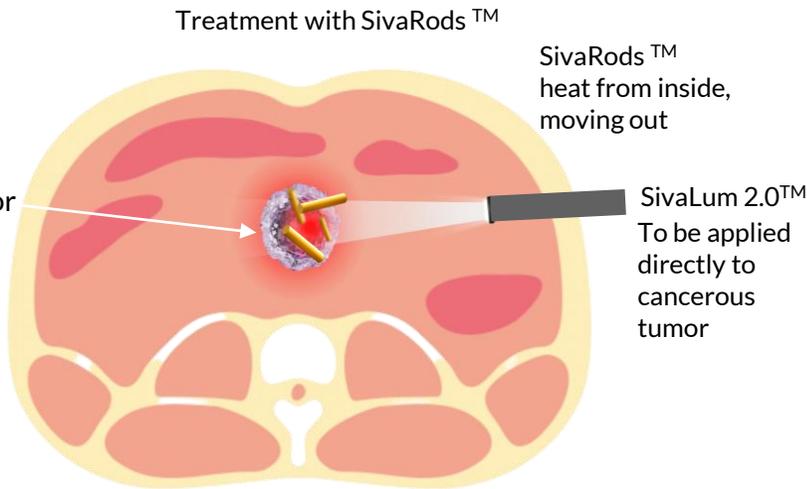
# THT photothermal cancer therapy using GNRs will address current treatment issues

## Siva's THT "inside-out" heating maximizes efficacy and minimizes collateral damage

### Current Approaches



### Siva THT Solution



### Key Issue

Using gold 'in vivo' is understood to be safe

Long-term effects of GNRs treated with toxic CTAB are unknown.



### Sona GNR Advantage

Sona's proprietary CTAB-free GNRs have shown no toxicity

Confirmed by third party and in-house testing<sup>2</sup>

### Studies

- Siva has had major success in reducing tumors in small animal studies.
- Eliminated tumors in mice in 4 weeks <sup>4</sup>
- Validated by Nanotechnology Characterization Laboratory study and report. <sup>5</sup>

SivaLum™ 2.0 coupled to a sigmoidoscope, emitting infrared light



\* Representative

## First THT Application: Colorectal Cancer Tumors

Why is THT uniquely suited for colorectal cancer treatment?

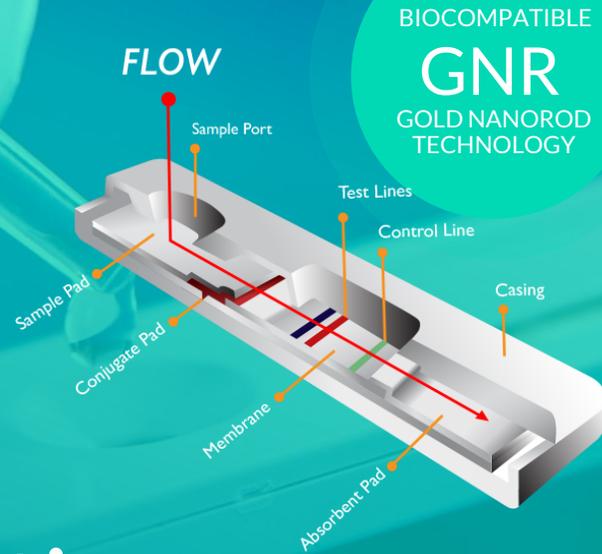
- Alternatives diminish **quality of life**
- Significant **market**
- **Outpatient procedure** within current workflow
- Effective for **solid tumors**
- Early detection is possible
  - THT can be integrated with “**watch and wait**” approach
- **Low metastatic index**

### Treatment Benefits

- Minimally invasive
- Targeted treatment
- Enhances success of other cancer therapies<sup>6</sup>
- Easy to use
- Affordable

# 02

## GNR- Based Diagnostics



BIOCOMPATIBLE  
**GNR**  
GOLD NANOROD  
TECHNOLOGY

Lateral Flow Assays (LFA's) as diagnostic tools are:

- Simple
- Fast
- Low-cost
- Rely on nanoparticles

Can provide rapid results (eg. at-home pregnancy tests) at point-of-care

**How could Sona's GNRs make a difference?**

- Multiple test lines per unit
- Easy-to-read results from one small sample
- Potentially greater sensitivity could detect trace amounts of biomarkers



# Sona's Concussion Screening Test Prototype



“We estimate that between 1.1 and 1.9 million sports and recreation related concussions occur annually in US children aged ≤ 18 years.”  
**American Academy of Pediatrics<sup>8</sup>**

## Current Problems

- Biomarkers**
  - ✗ Other concussion markers only elevate within hours or days
- Assessments**
  - ✗ Current tests rely on subjective cognitive assessment
- Time to result**
  - ✗ Currently no readerless, rapid concussion test commercially available

## Sona's Concussion Screening Solution

- ✓ GFAP (Glial Fibrillary Acidic Protein) Released into the blood stream within minutes of a concussion<sup>2</sup>
- ✓ GFAP to be multiplexed with other concussion biomarkers to create unique mTBI fingerprint
- ✓ Relies on definitive biomarker identified associated with concussions
- ✓ Rapid lateral flow test at the scene

Validated in-lab with contrived concussion blood samples

Sona's concussion screening test to be used at the scene of injury

## Next Steps

- Validate with clinical samples
- Clinical trials

# Sona's Bovine Tuberculosis Test Prototype



**17.7m**  
BOVINE TB TESTING EVENTS PY IN UK<sup>13</sup>

*"With help from the NRC IRAP program and the collaboration with our partners in the UK, we hope to offer farmers a more effective method for early detection of bovine TB than is currently used to mitigate the spread of this debilitating disease."*

David Regan  
CEO of Sona Nanotech

## Current Methods & Issues

**Time to results**



No cost-effective early detection methods currently available

- A diagnosis through a skin test, turnaround of 48-72 hours<sup>10</sup>
- Post-mortem examination and tissue culture, can take up to 12 weeks<sup>11</sup>

**Cost of Intervention**



Once bTB is confirmed, all exposed animals in a herd are destroyed  
Estimated costs of bovine TB control in UK to top £1 billion over the next decade<sup>12</sup>

**Accuracy**



Skin test cannot distinguish between infected and vaccinated cattle

## Sona's Bovine Tuberculosis Solution



Early detection at low cost without the need for test-and-slaughter

- Blood sample taken for rapid lateral flow test
- Associated app for tracking and reporting in minutes



Rapid screening of individual animals, no need to destroy healthy cattle



Discern TB positive from TB inoculated cattle

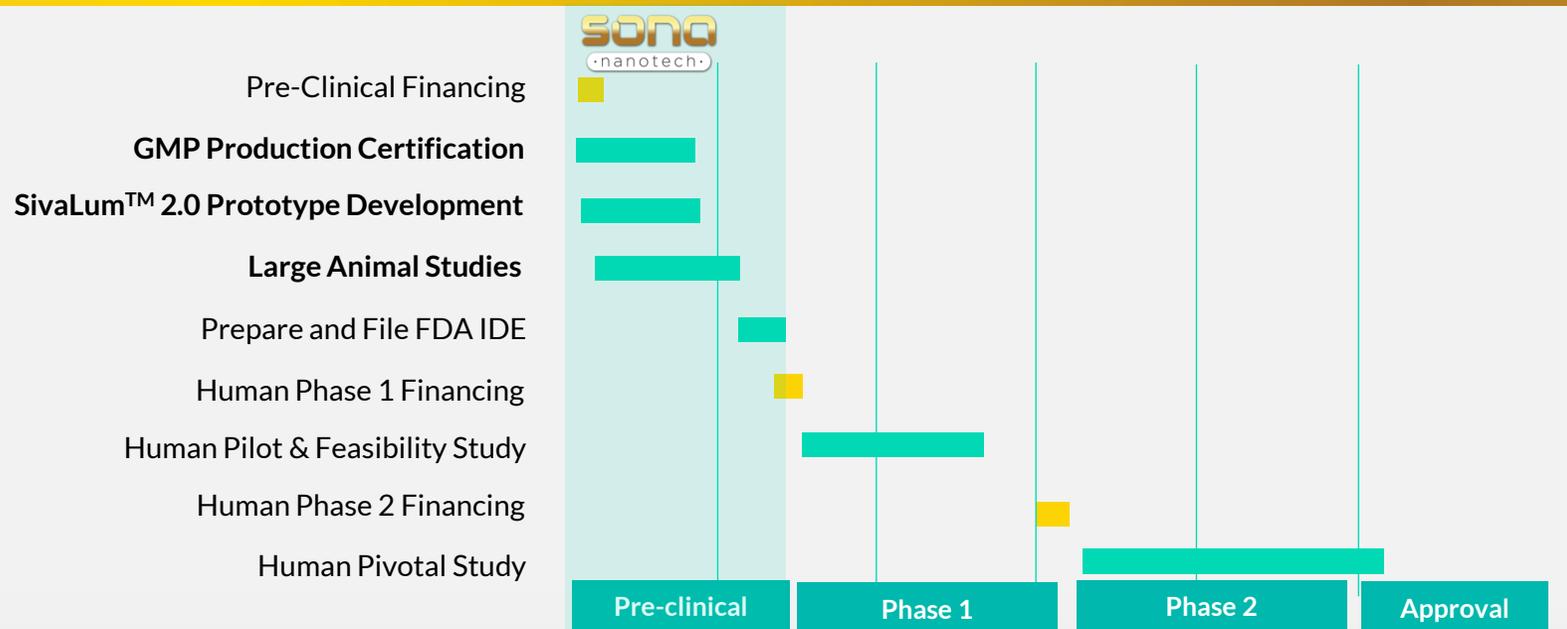
Validated in-lab with contrived blood samples

## Next Steps

- Validate with clinical samples
- Clinical trials

# Sona's next steps: Road to THT Commercialization

- Potential future clinical studies to provide multiple valuation catalysts
- Near-term catalyst in large animal studies (Preclinical)
- Success would initiate human pilot (Phase I)
- De Novo pathway for medical device expected

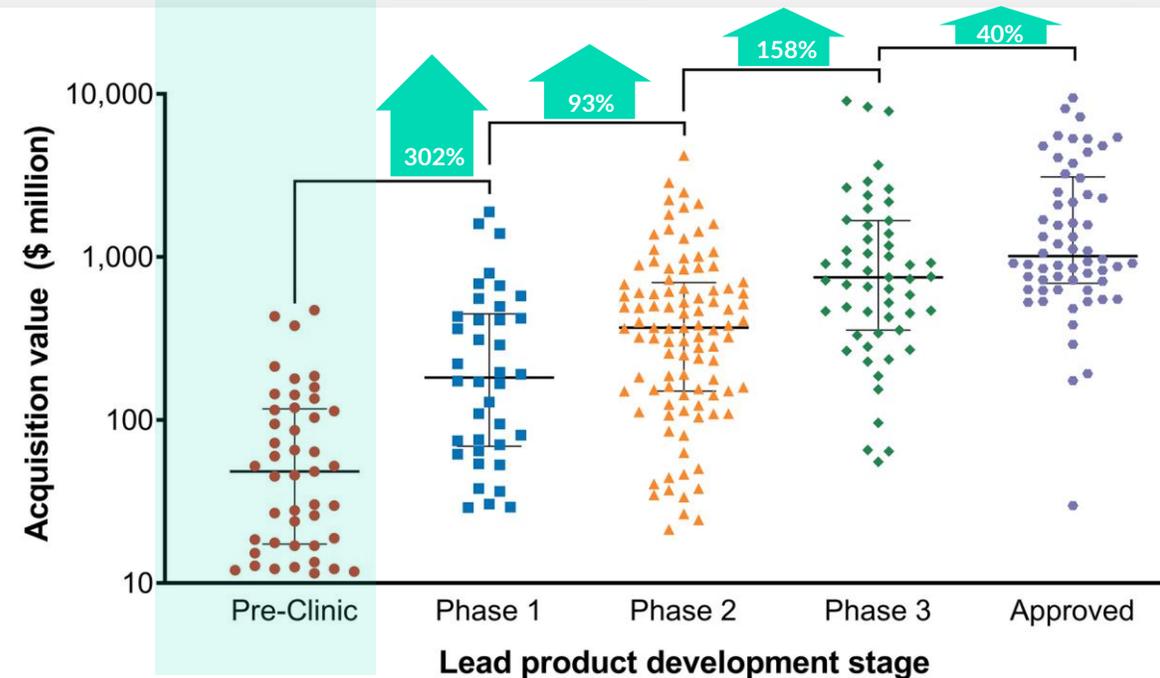


## Study of biopharma company acquisition valuation lifts by lead product development phase<sup>14</sup>

Mean acquisition valuation increase:

- Pre-clinical to Phase I **302%**
- Phase I to Phase II **93%**
- Phase II to Phase III **158%**
- Phase III to approval **40%**

Study data cited is not for medical devices or therapies and may not relate directly to other companies or non-biopharma products or therapies.



# Product Development Portfolio



## Therapies

### Targeted Hyperthermia Therapy with Siva Technologies\*

The opportunity in Siva's THT is lucrative due to the **clinical catalysts**

- The biggest increase in valuation occurs from pre-clinical to Phase 1<sup>13</sup>
- Valuations have been identified to be **higher** for US and oncology companies <sup>15, 16</sup>.

### Additional potential therapies

- Drug Delivery
- Photothermal Cosmetic
- Further in-vivo therapies:
  - Esophageal cancer
  - Bladder cancer
  - Prostate cancer
  - Pancreatic cancer
  - Uterine cancer

## Diagnostics

Licensing for:

- Concussion test
- Bovine TB test

### Additional potential diagnostics

- Lateral Flow Tests
  - Alzheimer's
  - Strep throat
  - Prostate
  - Depression/Anxiety
- Diagnostic Uses
  - Cell Imaging

\*Assumes the proposed acquisition of Siva Therapeutics

## Sona Therapeutics & Diagnostics Portfolio

Therapy/Diagnostic	Patent filed	Pre-clinical	Phase I	Phase II	Phase III	Total Addressable Market
Targeted Hyperthermia Therapy	→					135 000 # of colorectal cases per year in US
Concussion test	Licensing →					10 million # incidents per year
Bovine TB test	Licensing →					17.7 million # of bovine TB testing events in UK

**A recent study has shown biopharma company valuations increased by 15.2% for each additional product under development.<sup>14</sup>**

Study data cited is not for medical devices or therapies and may not relate directly to other companies or non-biopharma products or therapies.

# Management Team



David Regan  
CEO

- Business and commercial operations oversight
- Strategy consultant and corporate director
- 15 years public company experience in strategy, IR and corporate development
- MBA from INSEAD and BBA (Hons) from St. FXU



Len Pagliaro, PhD  
President, Siva Therapeutics, to be CSO, Sona Nanotech\*

- Prof. of Bioengineering & Laboratory Medicine at University of Washington
- 24yrs exp with biotechnology products, services, & technology licensing
- Developed commercialization at BioImage from concept to a \$26M P&L in 4 yrs, leading to acquisition & integration by ThermoFisher Scientific
- As CEO of Dynamic Light, Inc. led the spinout of an academic team from concept to first revenues in under 3 years



Darren Rowles  
Head of Diagnostics

- 17 years' experience with nanoparticle diagnostics
- Grew nanoparticle sales from \$200K to \$5.5M with ~\$4M profit
- Advisory board member to Gold Conference and multiple university collaboration projects
- MBA from Bath University and BSc in Biomedical Science and Toxicology from UWIC



Kulbir Singh PhD  
Co-Founder & Head of GNR R&D

- Responsible for GNR development
- Named author on 35 research papers and 2 patents
- PhD in chemistry from Guru Nanak Dev University
- Co-founder of a science-based, consumer product company



Robert Randall, CPA  
Chief Financial Officer

- Extensive public company experience as CFO  
Torrent Capital, Antler Gold and eXeBlock Technology
- B.Comm. from St. Mary's University with CA designation in 1987 with Coopers and Lybrand Chartered Accountants

# Board of Directors



**James Megann**  
Chair

- 25 years of experience in venture capital, capital markets and marketing
- Managing Director of Numus Financial which has completed over \$1.5B in transactions
- He also serves on the board of Torrent Capital (TSX-V: TORR).



**Walter Strapps**  
Director

- CEO and co-founder, Carver Biosciences Inc., a Khosla Ventures CRISPR/Cas13 antivirals development company
- Previously Chief Scientific Officer of Gemini Therapeutics, head of Discovery at Intellia Therapeutics, and working with RNA therapeutics
- M.A., M.Phil., Ph.D



**Neil Fraser**  
Director

- Past-president of Medtronic Canada
- Life Sciences Strategy Council Member, Canadian Chamber of Commerce
- Health Canada's Advisory Panel on Health Innovation chaired by Dr. David Naylor
- Director of CloudMD
- B.A., Sc., MBA



**Mark Lievonen**  
Director

- Past-president of Sanofi Pasteur Limited
- Co-Chair of the Government of Canada's COVID-19 Vaccine Task Force
- Director of OncoQuest Pharmaceuticals, Biome Grow, and the Gairdner Foundation
- MBA, FCPA



**Dr. Michael Gross**  
Director

- Professor of Orthopedic surgery
- Medical director of the Regional Tissue Bank
- Current director of Fortune Bay, Chair Boomersplus
- MBBS FRCS, ICD.D

# Advisory Board



**Dr. Catherine J. Murphy**

- Peter C. and Gretchen Miller Markunas Professor of Chemistry at the University of Illinois at Urbana-Champaign (UIUC)



**Dr. Xu Zhang**

- Industrial research chair in applied nanotechnology at Cape Breton University, NS
- Chemist with extensive experience in immunoassay and cancer research.



**Dr. Gerry Marangoni**

- Co-Founder of Sona
- Tenured professor of chemistry at St. Francis Xavier University in Antigonish, NS



**Fiona Marshall**

- Extensive experience in the lateral flow industry.
- Responsible for establishing a US based R&D and production facility for various lateral flow tests, including tests for class 3 deadly pathogens that served US military contracts





info@sonanano.com



Purdy's Wharf Tower II  
Suite 2001 - 1969 Upper Water Street  
Halifax, Nova Scotia, Canada B3J 3R7



+1 902 442 0653



# Thank you

David Regan

CEO

Sona Nanotech Inc.



# Appendix A

## Sources in document

1. [Mousavi SM, Hashemi SA, Mazraedoost S, Yousefi K, Gholami A, Behbudi G, Ramakrishna S, Omidifar N, Alizadeh A, Chiang WH. Multifunctional Gold Nanorod for Therapeutic Applications and Pharmaceutical Delivery Considering Cellular Metabolic Responses, Oxidative Stress and Cellular Longevity. \*Nanomaterials \(Basel\)\*. 2021 Jul 20;11\(7\):1868. doi: 10.3390/nano11071868. PMID: 34361251; PMCID: PMC8308363.](#)
2. [Sona Gold Nanorods: The Ideal Nanoparticle for Photothermal Cancer Therapies? - Exploring the Context for Sona Nanotech's Toxin-free, Bio-compatible Gold Nanorods](#)
3. [Sharma S, Zapatero-Rodríguez J, Estrela P, O'Kennedy R. Point-of-Care Diagnostics in Low Resource Settings: Present Status and Future Role of Microfluidics. \*Biosensors \(Basel\)\*. 2015 Aug 13;5\(3\):577-601. doi: 10.3390/bios5030577. PMID: 26287254; PMCID: PMC4600173.](#)
4. [Popp, Mary; Oubou, Imane; Shepherd, Colin; Nager, Zachary; Anderson, Courtney; Pagliaro, Len; 2014/08/21; Photothermal Therapy Using Gold Nanorods and Near-Infrared Light in a Murine Melanoma Model Increases Survival and Decreases Tumor Volume; VL - 2014; DO 10.1155/2014/450670; \*Journal of Nanomaterials\*](#)
5. [Gold Nanorods for Localized Treatment of Solid Tumors, NCL201902A, prepared by Nanocharacterization Laboratory. Available on request.](#)
6. [Cheng Y, Weng S, Yu L, Zhu N, Yang M, Yuan Y. The Role of Hyperthermia in the Multidisciplinary Treatment of Malignant Tumors. \*Integr Cancer Ther\*. 2019 Jan-Dec;18:1534735419876345. doi: 10.1177/1534735419876345. PMID: 31522574; PMCID: PMC7242805.](#)
7. [Hyder AA, Wunderlich CA, Puvanachandra P, Gururaj G, Kobusingye OC. The impact of traumatic brain injuries: a global perspective. \*NeuroRehabilitation\*. 2007;22\(5\):341-53. PMID: 18162698](#)
8. [Mersine A, Bryan, Ali Rowhani-Rahbar, R. Dawn Comstock, Frederick Rivara, on behalf of the Seattle Sports Concussion Research Collaborative; Sports- and Recreation-Related Concussions in US Youth. \*Pediatrics\* July 2016; 138 \(1\): e20154635. 10.1542/peds.2015-4635](#)
9. [Association between plasma GFAP concentrations and MRI abnormalities in patients with CT-negative traumatic brain injury in the TRACK-TBI cohort: a prospective multicentre study](#)
10. [Agriculture and Horticulture Development Board 2020](#)
11. [Ontario Ministry of Agriculture, Food and Rural Affairs](#)
12. [National Farmers' Union \(NFU\) of England and Wales](#)
13. [Bovine TB summary for England over the 12 months up to September 2022](#)
14. [Michaeli, D. T., Yagmur, H. B., Achmadeev, T., & Michaeli, T. \(2022\). Value drivers of development stage biopharma companies. \*The European Journal of Health Economics\*, 23, 1287-1296](#)
15. [Rooswinkel, R.W., Berbers, D.S.W., Claassen, E.H.J.H.M., van Deventer, S.: Venturing across the Atlantic. \*Nat Biotechnol\* 34, 1095-1098 \(2016\)](#)
16. [Giniatullina, A., Boorsma, M., Mulder, G.-J., van Deventer, S.: Building for big pharma. \*Nat Biotechnol\* 31, 284-287 \(2013\)](#)

# Appendix B

## Additional Reading

### Gold Nanorods

[Gold nanorods as contrast agents for biological imaging: optical properties, surface conjugation and photothermal effects](#)

[Fabrication of Gold Nanorods with Tunable Longitudinal Surface Plasmon Resonance Peaks by Reductive Dopamine](#)

[Gold Nanorods: The Most Versatile Plasmonic Nanoparticles | Chemical Reviews](#)

[Functionalized gold nanorods for nanomedicine: Past, present and future](#)

[Nanomaterials: An Overview of Nanorods Synthesis and Optimization |](#)

[Spheres vs. rods: The shape of gold nanoparticles influences aggregation and deposition behavior –](#)

### Targeted Therapies

[Functionalized Gold Nanorods for Tumor Imaging and Targeted Therapy – PMC](#)

[Nanomaterials | Free Full-Text | Potential of Polymeric Films Loaded with Gold Nanorods for Local Hyperthermia Applications](#)

[Effects of differently shaped TiO<sub>2</sub>NPs \(nanospheres, nanorods and nanowires\) on the in vitro model \(Caco-2/HT29\) of the intestinal barrier | Particle and Fibre Toxicology | Full Text](#)

[Gold nanospheres and nanorods for anti-cancer therapy: comparative studies of fabrication, surface-decoration, and anti-cancer treatments - Nanoscale \(RSC Publishing\)](#)

### Traumatic Brain Injury

[Injury in review, 2020 edition: Spotlight on \*\*traumatic\*\* brain injuries across the life course - \*\*Traumatic Brain Injury-Related Emergency Department Visits, Hospitalizations, and Deaths – United States, 2007 and 2013 – PMC\*\*](#)

[Epidemiology of severe \*\*traumatic\*\* brain injury - Surveillance Report of \*\*Traumatic Brain Injury-related Emergency Department Visits, Hospitalizations, and Deaths\*\*](#)

[The impact of \*\*traumatic\*\* brain injuries: a global perspective – PubMed](#)

[Publications & Reports | Concussion | \*\*Traumatic Brain Injury\*\* | CDC Injury Center](#)

[\*\*Traumatic Brain Injury-Related Deaths by Race/Ethnicity, Sex, Intent, and Mechanism of Injury – United States, 2000-2017 | MMWR\*\*](#)

[\*\*Traumatic Brain Injury: An Overview of Epidemiology, Pathophysiology, and Medical Management – ScienceDirect\*\*](#)

[Estimating the global incidence of \*\*traumatic\*\* brain injury – PubMed](#)

[Epidemiology of \*\*Traumatic Brain Injury\*\* in Europe: A Living Systematic Review | Journal of Neurotrauma](#)

[Surveillance Report of \*\*Traumatic Brain Injury-related Emergency Department Visits, Hospitalizations, and Deaths\*\*](#)