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A high growth investment opportunity

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Using our unique gold nanorod technology, we are developing the next generation of lateral flow testing and point-of-care diagnostics

To partner with leading manufacturers and developers through licensing and supply agreements for our patented gold nanoparticles

OUR MISSION

To establish scaled in-house manufacturing at our own laboratory that requires no large capital costs to fully service the growing market

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Darren Rowles

President & CEO
Sona Nanotech Ltd.

A commercially minded scientist with a passion for business and 14 years experience in product manufacture and development in the area of noble metal nanoparticles and lateral flow diagnostics. Mr Rowles is relocating from the UK to lead Sona into its next stage of development.

Education

BSc Biomedical Science and Toxicology
Cardiff University, UK

MBA
Bath University, UK

Experience

14 years experience in diagnostic and nanoparticle industry working for BBI Solutions, a market leader

Managed BBI Solutions flagship product ranges – gold and lateral flow services

Grew nanoparticle sales from $200K to $5.5M with ~$4M profit

Introduced >15 new products to market

Key opinion leader at industry seminars & conferences

Written for publications including AZO Nano and Technology Networks

Advisory board member of World Gold Council

Organized multiple university collaboration projects

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Dr. KULBIR SINGH

CTO & Founder

Responsible for new product development

Named author on 35 research papers & 2 patents

Ph.D. GND University

Doctor of Philosophy (PhD)

Field Of Study Physical Chemistry

GND University

MSc (Hons) Organic Chemistry

Guru Nanak Dev University

BSc (HS) Chemistry

Dr. MIKE MCALDUFF

Director of R&D, Production & Founder

Manages GNR production and QA/QC

Named author on 6 research papers & 2 patents

Ph.D McGill University

Field Of Study Chemistry

Scientific Advisory Board

Dr. CATHERINE J. MURPHY

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

Scientific Advisory Board

Dr. XU ZHANG (Dr. Shine)

Dr. Shine is industrial research chair in applied nanotechnology at Cape Bretton University, Nova Scotia and a chemist with extensive experience in immunoassay and cancer research

Scientific Advisory Board

Dr. GERRY MARANGONI

Gerry is one of the 3 founders of Sona and is a tenured professor of chemistry at St. Francis Xavier University in Antigonish, Nova Scotia

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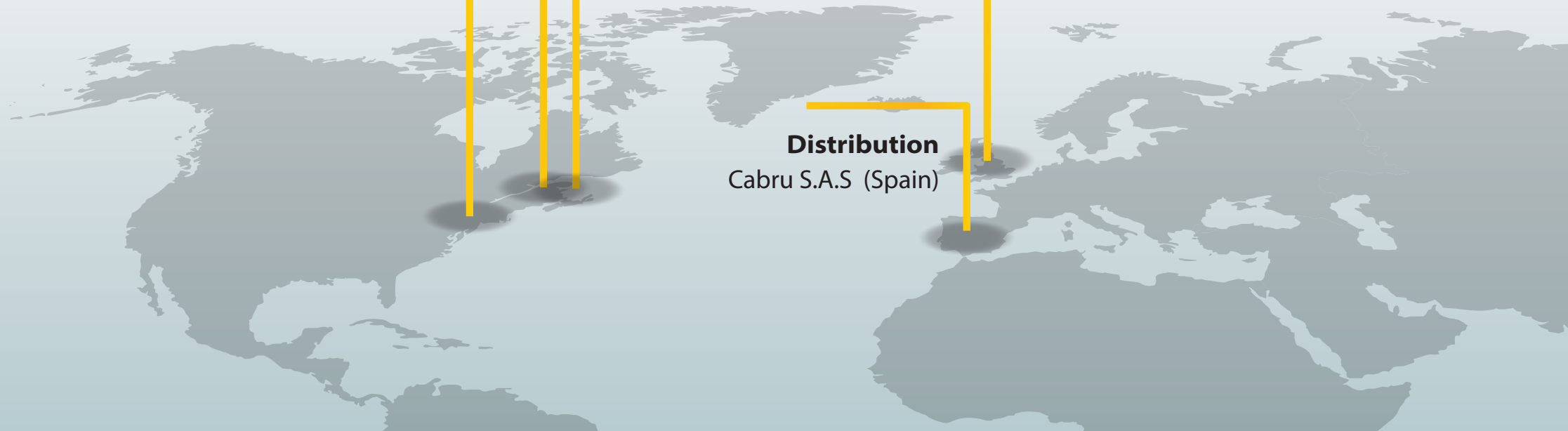
R&D & Production Laboratory
St Fx University Antigonish, Nova Scotia, Canada.
Relocating to advanced development & production centre in Halifax area in Q3 2018

Distribution
Strem Chemicals Inc (USA)

Corporate Office
Purdy's Wharf,
Halifax, NS. Canada.

Distribution
Strem Chemicals (UK)

Distribution
Cabru S.A.S (Spain)

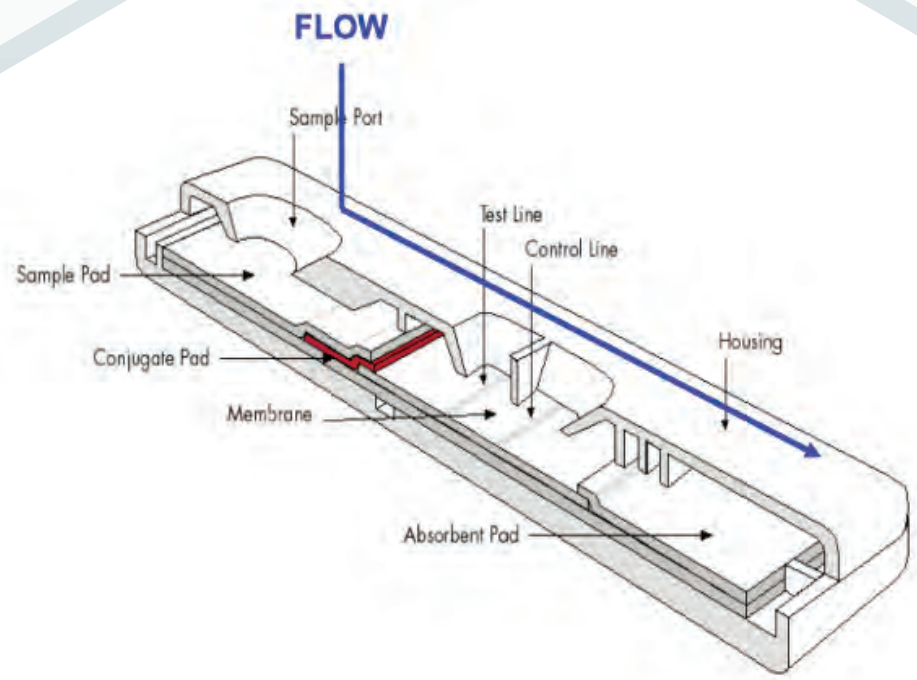


Lateral Flow Overview

Lateral flow tests use a nitrocellulose membrane, coloured nanoparticles such as Sona nanorods, and typically antibodies, to produce results.

When a sample (blood, saliva, milk etc) is added, the sample will flow along the test device passing through the conjugate pad into the nitrocellulose membrane and then onto the absorbent pad.

As the sample moves along the device the binding reagents situated on the nitrocellulose membrane will bind to the target at the test line. A coloured line will form indicating a positive result.



The SONA advantage in multiplexed lateral flow assays testing

SONA'S UNIQUE VISUAL & READER COMPATIBLE GOLD NANORODS

- Distinct optical properties
- Each test line will appear a different colour
- Can be interpreted visually
- Can be quantitatively read by a reader system

LATERAL FLOW ASSAYS UTILIZING SONA'S TECHNOLOGY

- Easy established base technology
- Provide results in minutes
- Simple to interpret
- Accepted and understood by end users
- Regulatory approved across all markets
- Low manufacture costs
- Scalable to millions of units
- Multiple field uses - hospitals, clinics, home, rural settings

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SONA'S ADVANCEMENTS IN GOLD NANOROD TECHNOLOGY

- Microscopic rod-shape particles
- CTAB free
- Multiple distinct sizes allow for a wider range of testing options
- Customizable
- Provides contrasting colours
- Ideal for multiplexing

SONA POWERED MULTIPLEXED LATERAL FLOW DEVICES CAN:

- Detect more than one biomarker for a disease
- Increase clinical relevance of results
- Detect multiple diseases in one test
- Distinguish between diseases with similar symptoms

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Lateral Flow Diagnostic Applications

Lateral Flow Diagnostic testing continues to be a high growth industry: >1Bn tests produced in 2017*

Medical diagnostics includes tests for infectious diseases such as HIV, Malaria, Zika, Ebola as well as STD's and cardiac markers

Consumer health segments which include home pregnancy, fertility, allergies and drugs of abuse tests

Bacterial and fungal tests used in food industry supply chain to monitor quality of products and potential contamination

Veterinary diagnostics includes disease testing in agricultural animals and pets

Military and first responders use tests to detect presence of pathogens (ricin, anthrax etc) and explosive components

*Lateral Flow Assay Market by Product (Reader, Kit), Application (Clinical (Pregnancy, Infectious Disease, Lipid, Cardiac Marker), Veterinary, Drug Development, Food Safety), Technique (Competitive, Multiplex, Sandwich), End User - Global Forecast to 2022

Traditional Method

Symptoms
Make a doctor's appointment

Waiting...

Doctor
See a physician who prescribes bloodwork

Waiting...

Clinic
Give blood for tests, possible mistakes

Waiting...

Laboratory
Sent for processing, possible mistakes

Waiting...

Results
Doctor's office or a phone call for diagnoses

Current procedures for symptom diagnoses

Long wait times for diagonses

Increased stress awaiting results

Delayed treatment of symptoms

The current process can take weeks with costs over $1,250

Immediate Feedback

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Lateral flow Test = Immediate patient feedback

With Sona's gold nanorods, lateral flow testing can give results within minutes

Sona's multi-colour nano technology allows for multiple testing for diseases per unit, with easy-to-read results from one small sample.

Advantages of Sona nanorod technology

- Allows one test to detect multiple conditions
- Allows one test to detect multiple analyses for specific conditions
- Allows one test to maximize use from small a sample
- Individual, distinct colours for quantification measurement
- Generates amplified visual signals for simpler interpretation
- Generates increased sensitivity, specificity & time to results
- Sona nanorods have a longer shelf life and greater resistance to hot temperatures then current technology
- Non toxic - **CTAB free**

Sona's Production Accomplishments

- Market ready products established - No further R&D required
- Manufacture patent pending for international coverage
- Government funded (ACOA) to establish production facility in Halifax
- Current capacity is 100L per week, 5000L per year
  - will serve 50M lateral flow tests
- Process scalable to 10,000L per year in Halifax facility
- Market volume est. 100,000L of gold nanorods produced per year
- ~500M gold based lateral flow tests produced per year
- ~10% accessible target market for Sona
- Sustainable revenue with 24-36 months

*Cost price - $0.35 - $0.50 per ml

*Sale price - $2 - $10 per ml

*Margins – 65 - 95%

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Competitive Advantage

Long-term stability
Extended shelf life, little change when subjected to heat

Functionalized
Easy surface modification for qualitative & quantitative testing

Excellent sensitivity & specificity
Superior testing results

Cost effective
Our unique gold nanorod production saves time & money

Visible results
Easily distinguishable colours for verification

Scalable & reproducible
Our technology is fully developed

Flexible
Can be used for qualitative or quantitaive assays

Well known in market
Leaders in the development of gold nanorod production

User friendly
Non-toxic & CTAB free

We supply our gold nanorods to and partner with market leaders

We Partner — Reducing time to maket while excelling research & development for new products

Low Overhead — Focusing on production of gold nanorods, not test products needing distribution

Focused Sales — We distribute our gold nanorods to key partners and sell to re-sellers

Efficient Marketing — We market our gold nanorods & partners provide sales and distribution channels

Distribution — We leverage the distribution channels our partners already have established

Technical Partners

bond DIGITAL HEALTH SOLUTIONS
China Agricultural University 1905
expedeon
lateralDx
Cape Breton University
optricon

Commercial Partners

MOLOGIC BIG IN TINY SCIENCE
hydrosense
operon immuno & molecular diagnostics
1872 PRIFYSGOL ABERYSTWYTH UNIVERSITY
ProTEM
Clemson University South Carolina 1889
DynaMic Extraction

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Collaborators

Sona customers working together to bring Sona powered lateral flow tests to market

8 businesses developing proof of concept multiplexed next generation assays using Sona gold nanorod technology

12 projects underway for various infectious diseases, cardiac markers, female sexual health, water contamination and food contamination

~0.5M new tests estimated to be sold to market in 1st year of launch

~2M in market tests estimated to be replaced by next generation model in first year of launch

Partners

Scientific institutions and businesses providing services to Sona to build a greater offering to the market

3rd party verification of in-house development data

Lateral Dx are co-creating model lateral flow systems for wider market access

Universities providing troubleshooting / development for complex biological components and toxicity studies

Multiple 3rd parties provide test manufacture service

REVENUE CHANNELS

GNR reagent sales

Revenue from direct sales of gold nanorods and conjugates to lateral flow developers and researchers

Utilizing supply agreements, purchase orders and distribution network

Contract development services

Customer pays monthly fee for Sona to develop lateral flow test

Typical 3 month proof of concept projects or full development project between 12-18 months

Licence and Royalty

Annual or onetime licence fee to use technology in lateral flow test

Royalty based on in-market sales of tests

Creates continuous sales of nanorods to licensee

Test manufacture

We sell our gold nanorods for tests

Outsource test manufacture to 3rd parties

Typical 50% – 100% mark-up

Minimum 3 batches for verification

Average batch size 50k – 100k tests

Continuous high compound growth market over past decade and predicted to continue to grow *CAGR 7.76% (2010 - 2022)

High prevalence of infectious diseases worldwide and rise in anti-microbial resistance all require better diagnosis at point-of-care

Aging global population requires increased monitoring of chronic and acute conditions

Global healthcare economics demands reduction in cost and better patient care, incresing leading demand in point-of-care diagnostics

Patent expiries on lateral flow technology allowed multiple new entries to market

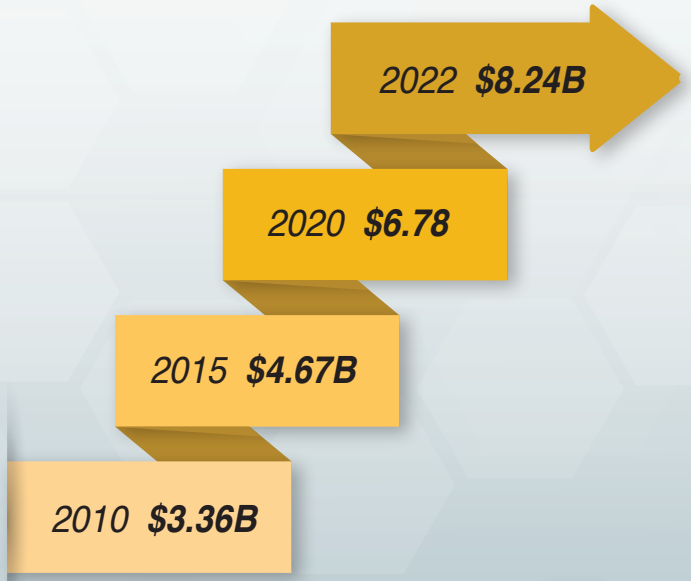
Market expanding beyond current 4-5 main providers

Rising use of home-based diagnostic assays as individuals take control of their own health

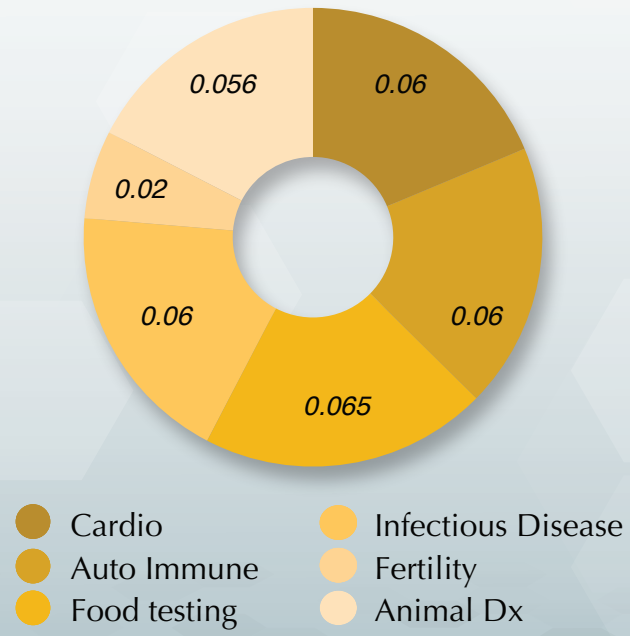
*Sources: Lateral Flow Assay Market by Product (Reader, Kits) Application (Clinical Testing (Pregnancy, Infectious Disease, Cholestrol, Cardiac Marker), Veterinary, Drug Development) Technique (Sandwich, Competitive, Multiplex) End User - Global Forecast to 2020 Kalorma 2013 – LF diagnostic market, Kalorma 2016 – IVD market growth

Market Share

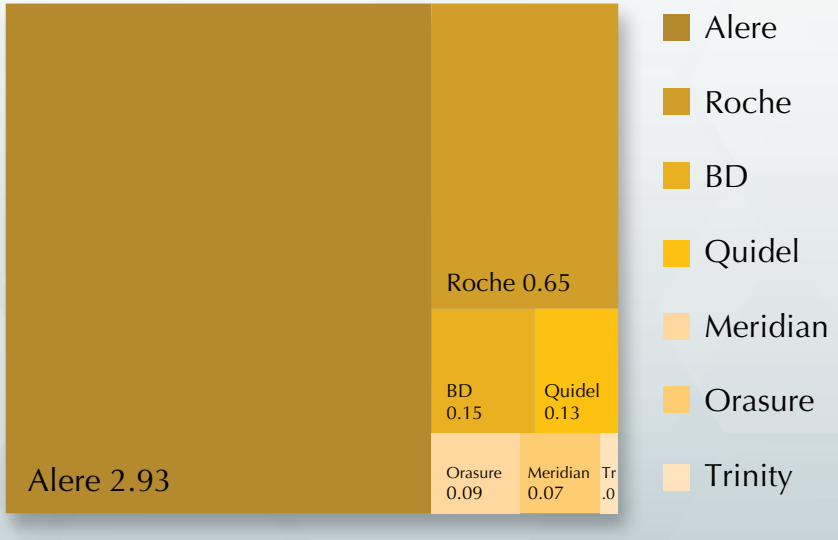
CAGR 7.76%



Market Segment split – Est % growth



Market Share by Value ($Bn)



Sources *Lateral Flow Assay Market by Product (Reader, Kits) Application (Clinical Testing (Pregnancy, Infectious Disease, Cholestrol, Cardiac Marker), Veterinary, Drug Development) Technique (Sandwich, Competitive, Multiplex) End User - Global Forecast to 2020

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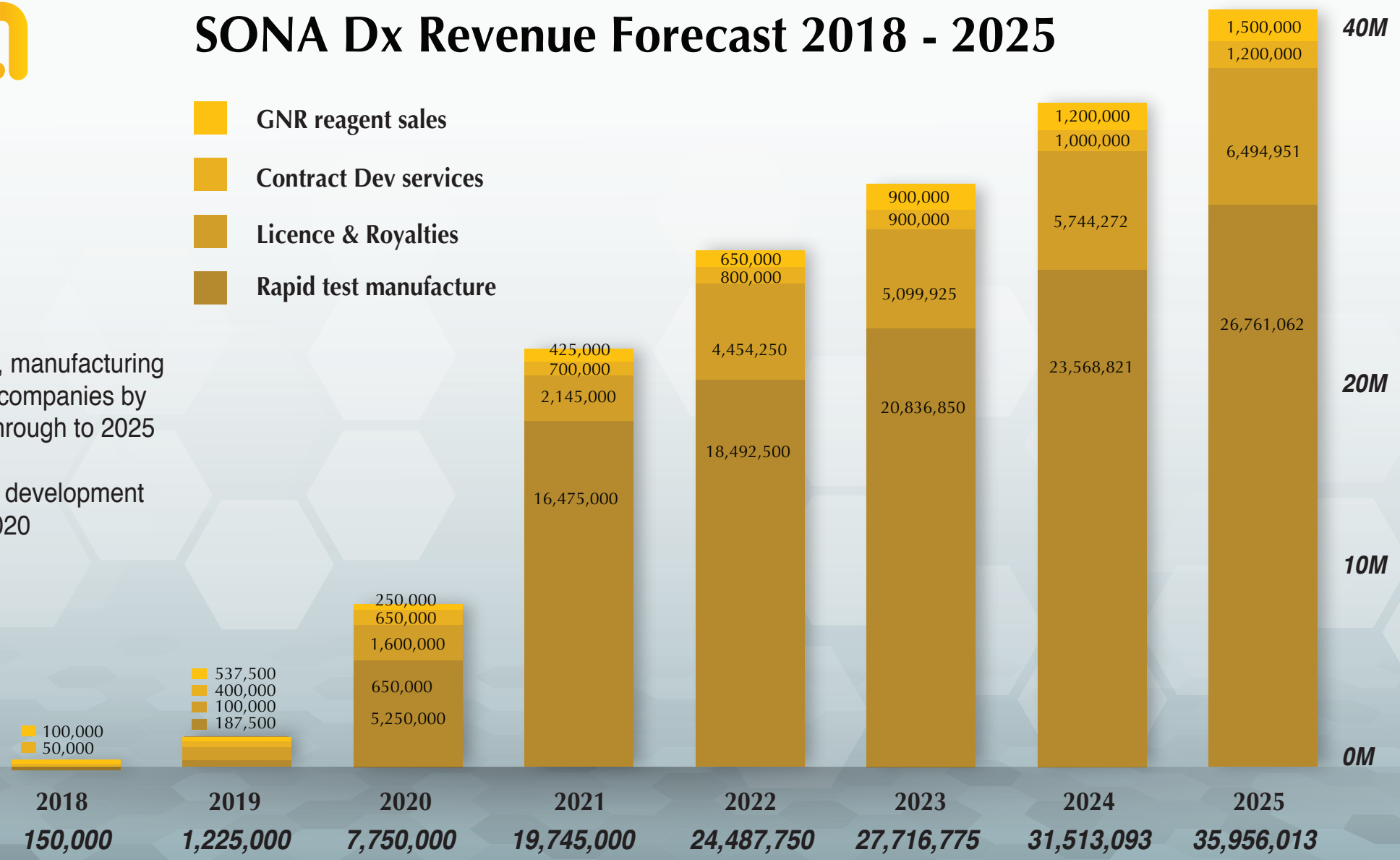
SONA Dx Revenue Forecast 2018 - 2025



Sales Forcast

Forecasts based on developing, manufacturing and licensing 3 tests with tier 1 companies by end 2020 with continual sales through to 2025

Addition of 3 proof of concept & development projects added per year from 2020

A strong network of distributors
– 3 added per year 2018 - 2020

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Sona Nanotech Inc. Capital Structure

Sona Nanotech has been conditionally accepted on the Canadian Securities Exchange and expects to complete a reverse takeover (RTO) in August of 2018

Stockport Shareholders	22,163,282
Sona Shareholders	22,036,238
	44,199,520*
$2M Financing @.25¢	8,000,000
	52,199,520

*23,184,297 Shares will be held under a three year escrow release

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"I am very optimistic about the future of Sona; the gold nanorods they make are]very versatile, with huge application potential in various fields."

Dr Shine Xu Zhang,

Industrial research chair in applied nanotechnology

Cape Breton University

"Over the last 30 years, there has been incredible progress within the research community working with gold nanoparticles in the areas of photothermal cancer treatment, diagnostic imaging, drug delivery and other areas. CTAB is a major concern in advancing the existing research into human use. We are excited to be the first to bring to market gold nanoparticles that can help bring decades of research closer to the reality of life-changing procedures."

Ephraim Honig, COO,

Strem Chemicals Inc Applied nanotechnology

"Gold nanorods that have been synthesized and stabilized without CTAB are obviously a safer alternative. The fact that such a particle is commercially available today is astonishing. This could be a very important step forward for a number of promising clinical methods."

Dr Catherine J. Murphy,
Gold nanorod pioneer, professor of chemistry,
Department of Chemistry,

University of Illinois

"Hydrosense and Sona are the perfect fit; with our innovative and reliable solutions and Sona's unique gold nanorods, I am certain we can develop something special together."

Richard Campbell,

Technical Director of Hydrosense, a Scotland-based rapid water testing company

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