Genetic Signatures

Investor presentation

28 May 2020

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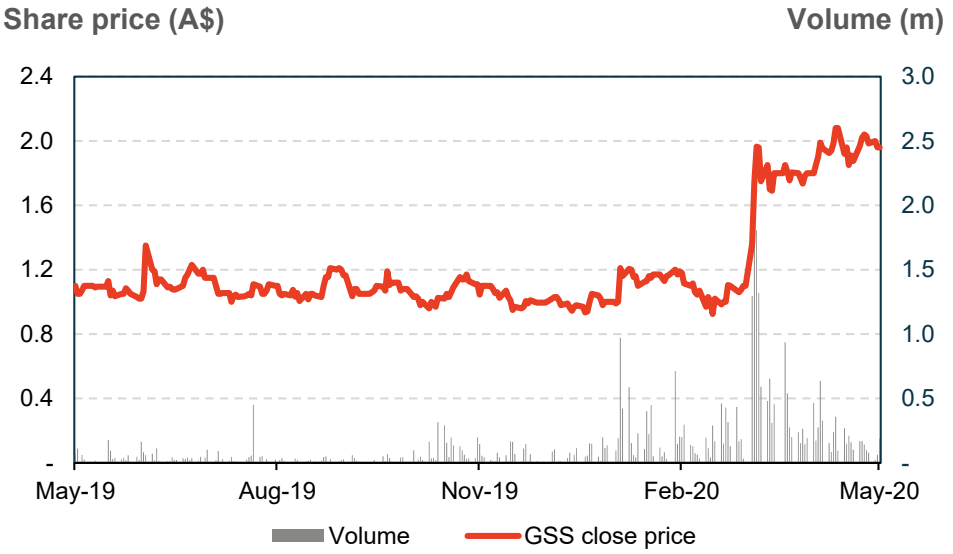
A global leader in the supply of molecular diagnostic solutions

A specialist molecular diagnostics company

- Focused on becoming a global leader in the supply of molecular diagnostic solutions
- Developing and commercialising its proprietary platform technology, ***3base™***
- Implementing its commercial strategy through teams in Australia, Europe and North America
- Scalable business which has achieved strong core revenue growth



Financial information

Share price (27-May-20)	A$1.96
Shares on issue	142.6m[1]
Market capitalisation	**A$279.0m**
Cash (31-Mar-20)	A$39.2m
Debt (31-Mar-20)	Nil
Enterprise value	**A$242.8m**

1: Excludes 3.28m unquoted options (various expiration dates and prices)

Top shareholders %

Asia Union (Chris Abbott private investment)	26.7%
Karst Peak (HK-based investment manager)	13.3%
Perennial Value Management	9.4%
Fidelity International	7.7%
Directors, management & advisors	3.6%

Investment highlights

- **Infectious diseases** continue to dominate global health threats
- **Competitive advantage** underpinned by novel 3base™ technology
- **Trusted and proven** technology with third party validation
- **COVID-19 pandemic** creating new opportunities for global expansion
- **Attractive and scalable** revenue model
- **On track to achieve** multiple commercial milestones in 2020

Significant global problem: infectious diseases continue to dominate the list of global health threats

Unprecedented impact of COVID-19 pandemic in 2020

Infectious diseases dominated WHO's List of 2019 Health Threats:

- Global Influenza pandemic
- Antimicrobial resistance
- Ebola and high-threat pathogens
- Dengue
- HIV
- Vaccine hesitancy

Infectious diseases continue to be one of the most serious threats to global health and the recent COVID-19 pandemic has highlighted the importance of diagnostic solutions

Trusted and proven technology: *EasyScreen™* products built on **3base™** technology

Our Products

Transforming **molecular diagnostics** via streamlined sample processing methods linked to highly **multiplexed real-time PCR screening assays.**

Our automated **sample preparation** method is suitable for **bacterial, protozoan and viral** (DNA & RNA) targets.

The *EasyScreen*™ Detection assays **simultaneously detect a larger number of pathogen targets** in a shorter time than conventional methods.

GS-mini | GS1-HT | GS-1000

Competitive advantage: Genetic Signatures' **3base™** technology creates benefits for multiple key stakeholders

Patients

- ✓ **qPCR[1] detection methodology** used, the gold standard for infectious disease diagnosis
- ✓ **Rapid time to results**, with results processed from 4 hours, for up to 188 specimens
- ✓ Screening for **more targets** per patient specimen **increases accuracy of diagnosis**
- ✓ **Accelerates treatment path** and **reduces mortality and morbidity**

Laboratories

- ✓ **Clear competitive advantage** for target customer base of **high throughput labs**
- ✓ **Reduces customer costs** through accurate detection and minimising hands on time
- ✓ **Reduced complexity** in molecular testing

Governments

- ✓ **Reduced hospital stays** with **broad and accurate** detection of infectious disease
- ✓ Fast turnaround and accurate detection **reduces the spread of disease**
- ✓ Testing for **more targets per specimen reduces repeat doctor visits**
- ✓ **Reduces overuse and misuse of antibiotics**

1. Real-time polymerase chain reaction (real-time PCR), also known as quantitative polymerase chain reaction (qPCR)

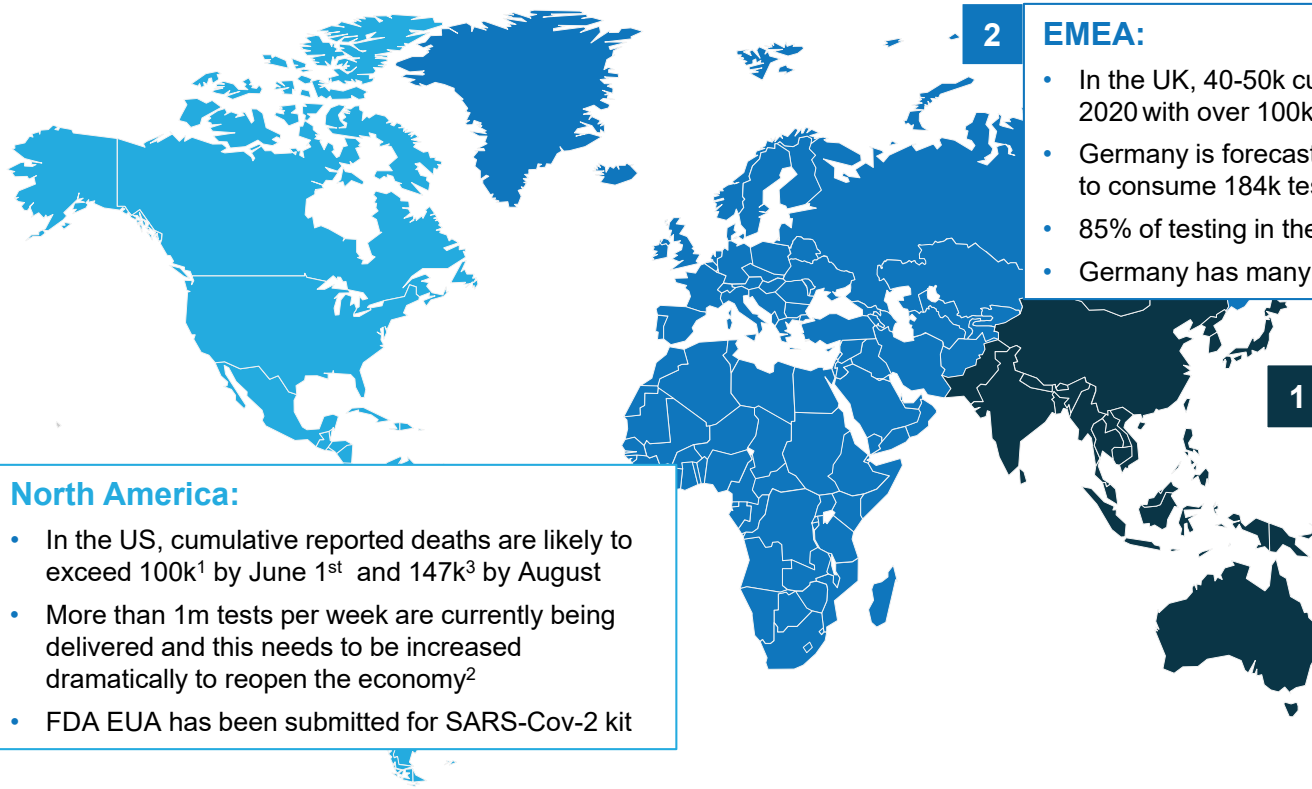
Large addressable market: new regulatory registrations and product launches imminent in APAC, EMEA and North America

	Enteric	Respiratory	ESBL & CPO	STI / Genital	Alphavirus / Flavivirus	Meningitis	Atypical Respiratory
Asia Pacific	TGA	TGA	TGA				
EMEA	CE IVD	CE IVD	CE IVD	*Submissions scheduled for filing this quarter*	*Deferred by GSS*	*Currently in development*	*Currently in development*
Americas	*Clinical trials delayed due to COVID-19*	*ASRs available for sales*					
Global market size[1] *(A$m p.a.)*	**$573m**	**$627m**	*Emerging market, ripe for molecular disruption*	**$1,891m**	**$69m**	**$156m**	*See Respiratory*

Excludes market size attributable to COVID-19

1. World Market for Molecular Diagnostics, 5th. Edition (Infectious Disease, Oncology, Blood Screening, Pre-Natal and Other Areas) Kalorama Information, Published: 1/9/2013 & company estimates

COVID-19 global pandemic: as countries move towards re-opening, the burden on testing will significantly increase



2 EMEA:

- In the UK, 40-50k cumulative deaths are likely to occur by August 2020 with over 100k tests required per day[3]
- Germany is forecast to see 10k deaths by August and is expecting to consume 184k tests each day[3]
- 85% of testing in the UK is managed under NHS
- Germany has many mid-sized pathology labs spread geographically

1 APAC:

- In Australia, 7k cases have been confirmed, resulting in 102 deaths[4]
- 943k tests have been conducted to date (35% in NSW, 31% in Victoria)[4]
- Australian government has established a dedicated Medicare funded and bulk billed pathology test for COVID-19 worth $170m[5]
- Market dominated by large private pathology groups and state government labs

3 North America:

- In the US, cumulative reported deaths are likely to exceed 100k[1] by June 1st and 147k[3] by August
- More than 1m tests per week are currently being delivered and this needs to be increased dramatically to reopen the economy[2]
- FDA EUA has been submitted for SARS-Cov-2 kit

The COVID-19 pandemic has created an opportunity for Genetic Signatures to accelerate international expansion and increase customer acquisitions

1.) The National Ensemble Forecast, Centers for Disease Control and Prevention (14 May, 2020) https://www.cdc.gov/coronavirus/2019-ncov/covid-data/forecasting-us.html; 2.) The Mechanics of the COVID-19 Testing Suppl Chain: Version 2.0, Harvard University https://ethics.harvard.edu/covid-supply-chain; 3.) Institution of Health Metrics and Evaluation, University of Washington 12 May, 2020) (http://www.healthdata.org/) 4.) Australian Government Department of Health (24 May, 2020); 5.) '$2.4 billion plan to fight COVID-19', Prime Minister of Australia media release 11 March, 2020 (https://www.pm.gov.au/media/24-billion-health-plan-fight-covid-19)

COVID-19: while potential customers have been distracted by the recent outbreak, a significant near-term opportunity exists

Introducing the *EasyScreen™* SARS-CoV-2 Detection Kit

- In January 2020, GSS announced that the *EasyScreen™* Respiratory Pathogen targets included an assay for all known coronaviruses, **including the new strain that originated from China** (now known as SARS-CoV-2)
- The *EasyScreen™* SARS-CoV-2 Detection Kit has been designed to provide **rapid and accurate detection of SARS-CoV-2**
- SARS-CoV-2 kit **may be used alone or in conjunction with** the current *EasyScreen™* Respiratory Pathogen Detection Kit
- The kit is a **PCR-based test**, which detects the virus's genetic material – this is **increasingly being recognised as the 'gold standard' for COVID-19 testing**[1]

Vaccine development is likely to take >12 months creating challenges for labs around the world

Accurate and reliable diagnostic kits are vital for identifying and containing the spread of disease

Labs require tests from multiple suppliers to meet increasing demand and ensure they have access to a diversified supply

Labs are running thousands of tests per day - a high throughput solution is required with minimal hands-on time

1. The Royal College of Pathologists of Australasia (RCPA) supports the use of molecular tests or SARS-COV-2 and advises against the use of serological COVID-19 IgG/IgM rapid tests, such as a pin prick blood test, to detect early COVID disease.

Rapid response to COVID-19: Genetic Signatures has made rapid progress in bringing test kit to international market

Strongly positioned to test for SARS-CoV-2

Genetic Signatures' existing *EasyScreen*™ Respiratory Pathogen Detection Kit **already included an assay for pan-coronaviruses, highlighting utility of 3base™**

3base™ technology provides **resistance to genetic drift** or mutations of pathogens over time allowing **preservation of clinical specificity**

High throughput allows **testing** of up to 1,500 samples in a 24-hour period in batches of 94 to 188 samples per run

EasyScreen™ SARS-CoV-2 Detection Kit update

- **CE-IVD and TGA received** – kits can now be sold in Europe and Australia
- **FDA EUA[1] application -** application submitted and clearance expected this quarter
- **Domestic testing underway –** multiple customers are using the kits for routine testing
- **Site initiations underway for new customers in EMEA –** in the final stages of validation
- **Driving global sales -** international sales team and distributors in place in key regions
- **Expanded sales force -** new appointments made to promote kits globally

Notes:
1. Emergency Use Authorisation

Growth underpinned by scalable revenue model: attractive unit economics

Attractive revenue model

High throughput with predictable orders

- Target customers are **high throughput** pathology groups, hospitals or government run programs
- Customers **secure long-standing contracts** with set prices and **relatively predictable volumes**
- **Regular orders** (bi-monthly) with **fast payment terms** – relatively low working capital needs

Sticky annuity revenue:

- **"Printer & cartridge"** model - tests become **embedded in workflow**
- Customers may **adopt new tests** once workflow established

Attractive return on investment:

- Potential to fund new customer installations to **speed up customer acquisition**, particularly offshore
- **Consumable revenue model** - customers pay per test

Contributing to attractive economics

100% *customer retention since 2016*

47% *core revenue CAGR (FY15-19)*

65% *gross margins on diagnostic kits*

3-5 *year contracts typically secured*

Scalability supported by expanding pipeline of new customers / tenders

Track record of success: year-on-year revenue growth with the potential to achieve record revenue in FY20

Key Highlights

1 Strong revenue growth

Achieved **47%** core revenue CAGR from FY15-19

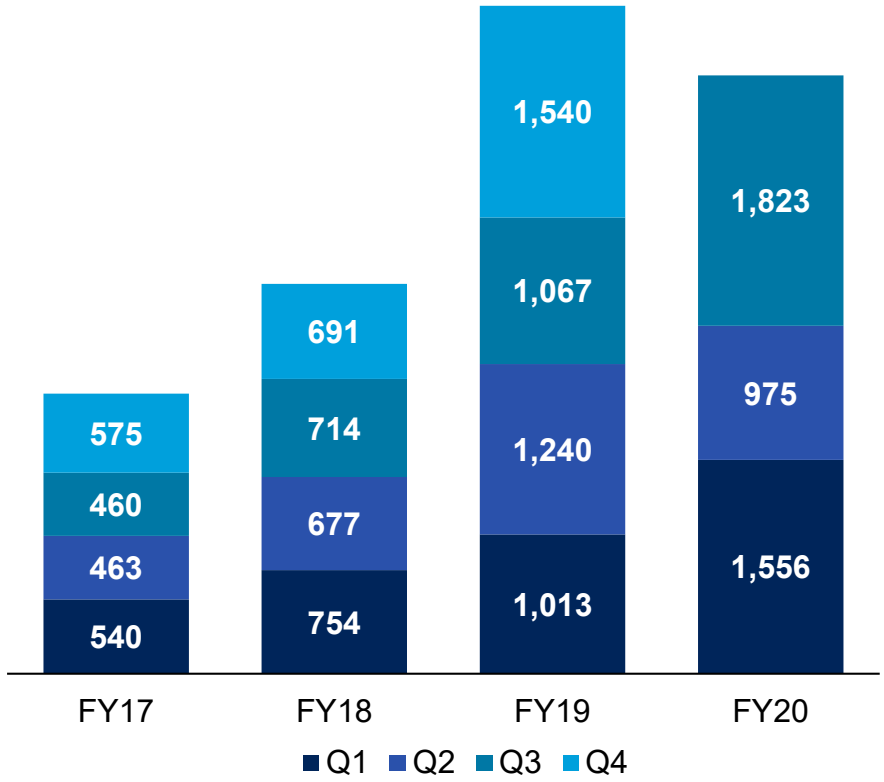
2 International sales

Focus on **international expansion** targeting new US and EU customers in 2H FY20

3 Continued growth

Focused on growing core revenues where recent coronavirus outbreak has created both obstacles and new opportunities

Revenue (FY17 to Current)



On track to achieve multiple commercial milestones in 2020 that could accelerate revenue growth and international expansion

Near term opportunities for SARS-CoV-2 commercialisation	– FDA EUA has been submitted for SARS-Cov-2 kit and ***clearance expected this quarter*** – First US customer contract for SARS-CoV-2 product - ***targeting mid-2020***

Launching *EasyScreen™* products in new markets	– TGA / CE-IVD submission for the STI / Genital kit ***scheduled to file this quarter***
	– Work set to recommence once COVID-19 restrictions are lifted:
	  – FDA submission for the Enteric Protozoan kit
	  – TGA / CE-IVD submissions for the Flavivirus / Alphavirus kit

Leverage growing international exposure to drive new contract wins	– Interest in the SARS-CoV-2 products likely to drive interest in Genetic Signatures' broader range of *EasyScreen™* multiplex kits and facilitate ***new contracts in US and Europe***

Active M&A space: a history of consolidation in the molecular diagnostics space with M&A activity expected to continue

Date	2020	2018	2018	2018	2017	2016
Target Company	QIAGEN *(NYSE:QGEN)*	STATdx *Private*	Cepheid *(NASDAQ:CPHD)*	Fast Track DIAGNOSTICS *(Private)*	EUROIMMUN *(Private)*	FOCUS Diagnostics *(NYSE:DGX)*
Acquired by	ThermoFisher SCIENTIFIC *(NYSE:TMO)*	QIAGEN *(NYSE:QGEN)*	DANAHER *(NYSE:DHR)*	SIEMENS *(ETR:SIE)*	PerkinElmer *(NYSE: PKI)*	DiaSorin *(BIT:DIA)*
Transaction	Takeover	Takeover	Takeover	Takeover	Takeover	Acquired molecular and immunoassay business
Size	US$11.5bn	US$147m upfront US$44m milestone	US$4bn	Not disclosed	US$1.3bn	US$300m

Strong strategic interest in multiplex panels such as 3base™ technology

Source: company announcements

Investment highlights

Infectious diseases continue to dominate global health threats: major contributor to global mortality and morbidity dominating WHO's[1] 2019 list of health threats and amplified by recent coronavirus outbreak

Competitive advantage underpinned by novel 3base™ technology: resistant to genetic mutations in the micro-organisms, and implemented in a simplified workflow processes, increasing throughput capacity, reducing time to results and creating cost saving benefits

Trusted and proven technology with third party validation: Genetic Signatures have achieved 100% customer retention since 2016 and the accuracy of the technology has been clinically validated

COVID-19 pandemic creating new opportunities for global expansion: increasing international recognition through the *EasyScreen™* SARS-CoV-2 launch creates new avenues to expand customer base

Attractive and scalable revenue model: highly scalable business model with favourable unit economics expected to underpin growth through FY20 and beyond

On track to achieve multiple commercial milestones in 2020: international interest bolstered by the SARS-CoV-2 product release creates a platform for new contract wins for broader *EasyScreen™* products

1. World health organisation

Appendices

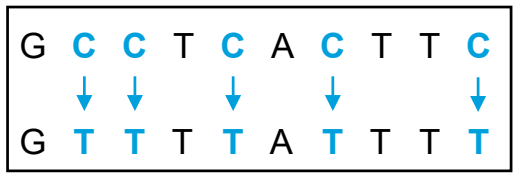
Genetic Signatures

Transforming Molecular Diagnostics

Novel proprietary technology: proprietary 3base™ platform technology underpins the *EasyScreen™* product range

Our proprietary 3base™ solution…

1. ***3base™*** platform technology converts original 4-base microbial genome to 3-base
2. Conversion occurs during standard procedures with no additional steps for the technician
3. ***3base™*** MDx can identify a wider array of pathogens and provide greater testing accuracy by reducing complexity in a multiplex environment



1,048,576
combinations for a 10 digit number with 4-base

59,049
combinations for a 10 digit number with 3-base

…improves workflow and increases throughput

EasyScreen™ kits **are compatible with most existing** automated nucleic acid extraction and real-time PCR instruments and **streamline the preparation process**

High throughput labs can achieve **further workflow automation** with compatible hardware. Creates **workflow efficiencies and reduce costs**

Currently offering over 100 pathogen targets across enteric, respiratory, anti-microbial resistance, sexual health and tropical diseases

Board of Directors: proven track records of commercialisation success across key geographic regions

Nick Samaras

Non-Executive Chairman

- Significant experience in leading international sales expansions of biotech companies
- Former Managing Director of **Applied Biosystems** (acquired by ThermoFisher, US$76.8bn market cap)
- Held senior roles with **Perkin Elmer** and **AMRAD Corporation** (now part of CSL)

John Melki

Managing Director & Chief Executive Office

- **Led global commercialisation efforts of GSS since 2011** and the product development team since 2003
- Successfully **commercialised seven products globally**
- Authored 20 peer-reviewed articles and listed as an inventor on eight patent applications

Michael Aicher

Executive Director

- Founder and former CEO of **National Genetics Institute** (subsidiary of LabCorp, US$15.3bn market cap)
- Led Lab-Corp's Esoteric Business Units which generated over US$1b revenue p.a.
- Former executive roles at **Central Diagnostics Laboratory**
- Recipient of Ernst & Young "**Entrepreneur of the Year**" award for emerging technologies

Tony Radford AO

Non-Executive Director

- Former Co-Founder and CEO of **Cellestis** (ASX:CST, acquired by QIAGEN for c.A$350m in 2011)
- Former member of CSIRO team that invented QuantiFERON
- Former Head of Development at **AMRAD** (later acquired by CSL)

International management team: highly skilled researchers and executives bring a broad array of experience and knowledge

	**Dr. Doug Millar** **Chief Scientific Officer**	• One of the pioneers of the bisulphite genomic sequencing protocol with a PhD in Molecular Genetics • Key inventor on over **30 patents** or pending patent applications held by the company • Authored **23 peer reviewed scientific papers** and presented at 20+ international conferences
	**Peter Manley** **Chief Financial Officer & Company Secretary**	• Led the recent Genetic Signatures capital raise, successfully securing $37.5m • Served as CFO and Company Secretary for **AtCor Medical** (now Cardiex) and **Sirtex Medical** • Senior financial positions including 8 years with **Dow Chemical** and 4 years at **Goodman Fielder**
	**Jackson Jones** **Director of Global Sales & Marketing**	• **20+ years experience** in clinical diagnostics, blood banking, and life sciences sector • Joined Genetic Signatures in 2017 and brings significant commercial experience from working with **several large US multinationals** and roles across **Australasia, Europe, and North America**
	**Derek Joesting** **Director of Sales - North America**	• **20+ years of medical sales experience** with broad sector experience • Previously held **leadership roles in molecular diagnostics** and pathology sales in North America • Holds a Bachelor of Science degree in Biology from Syracuse University
	**John Buckels** **Director of Sales & Support - Europe**	• **20+ years' experience** in molecular biology and sales across the EMEA • Former **Senior Director and Head of Infectious Diseases sales at QIAGEN** and 13 years experience in sales and marketing
	**Neralie Coulston** **Regulatory Affairs Manager**	• Supported Genetic Signatures since 2002 and **brings significant experiences in Quality System and Regulatory Affairs** • Former roles at the **CSIRO and UNSW** on both **therapeutic development** and **research** programs

Contact us

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