



# The World's First 'Pocket Laboratory'

COVID-19 Premium Testing - Immediate Opportunity

August 2020



TV Interview: <https://www.attomarker.com/attomarker-tv-interview>

# COVID-19 Triple Antibody Test

- Since March 2020, Attomarker has been performing rapid serology testing in UK hospitals:
  - St Thomas' Hospital
  - Royal Devon and Exeter Hospital
- Unlike other technologies, Attomarker has peer reviewed publications and more to follow
- MHRA-approved COVID-19 Triple Antibody Test
  - (FDA EUA pending)
- COVID19-Flu20 Triple Antibody Test for the coming flu season.
- IMMEDIATE OPPORTUNITY to launch in a premium private clinic
- Launch Funding £1.5m
- Projected Income by July 2021 - £7m - £20m



Customer wants to launch the Triple Antibody Test as Premium Test

£129 Predicted 400-500 per month

200 Clinics in the UK

Access to 9000 ambulatory clinics in the US

# First COVID-19 scientific paper (peer-reviewed)

Real-world evaluation of a novel technology for quantitative simultaneous antibody detection against multiple SARS-CoV-2 antigens in a cohort of patients presenting with COVID-19 syndrome

Andrew M. Shaw<sup>1,2,\*</sup>, Christopher Hyde<sup>3\*</sup>, Blair Merrick<sup>4\*</sup>, Philip James-Pemberton<sup>1,2</sup>, Bethany Squires<sup>2</sup>, Rouslan V. Olkhov<sup>1,2</sup>, Rahul Batra<sup>4</sup>, Amita Patel<sup>4</sup>, Karen Bisnauthsing<sup>4</sup>, Gaia Nebbia<sup>4</sup>, Eithne MacMahon<sup>4</sup>, Sam Douthwaite<sup>5</sup>, Michael Malim<sup>5</sup>, Stuart Neil<sup>5</sup>, Rocio Martinez Nunez<sup>5</sup>, Katie Doores<sup>5</sup>, Tan Kia Ik Mark<sup>5</sup>, Adrian W. Signell<sup>5</sup>, Gilberto Betancor<sup>5</sup>, Harry D Wilson<sup>5</sup>, Rui Pedro Galão<sup>5</sup>, Suzanne Pickering<sup>5</sup> and Jonathan D. Edgeworth<sup>4,5</sup>

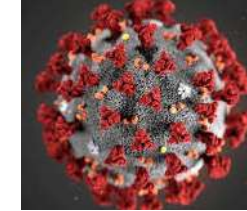


## Acknowledgements

We would like to thank the Head of Philanthropy at the University of Exeter, Dr Jonathan Snicker, the entire Global Advancement team, led by Dr Shaun Curtis, and our many supporters, without whom this work would not have been possible. The authors would like to

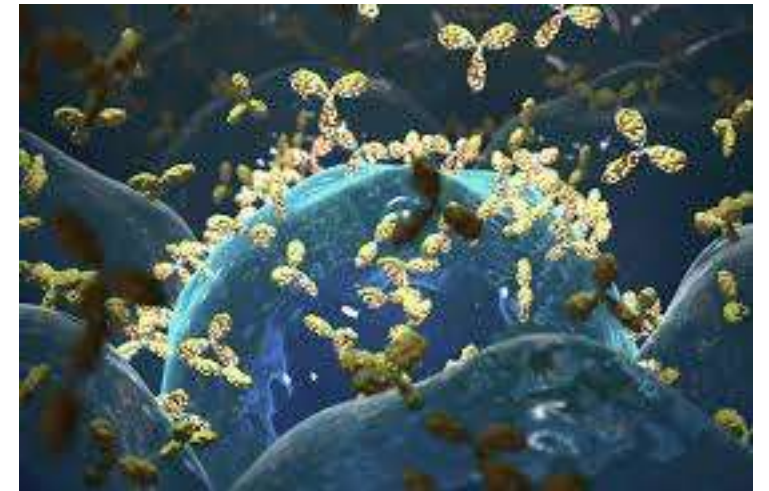
# BUT – Society needs a Gatekeeper Test

- Current best test – do you have the virus?
  - Nasal swab
  - 90 minutes– 2 days turn around
  - Not performed correctly away from hospital
  - 80% accurate
- Attomarker's Gatekeep Test
  - Saliva sample
  - Measures antigens from the virus in the throat
  - 7 minutes
  - Hand-held device is user friendly
  - Data can be geo-located through the iPhone
  - Preliminary data looks promising
  - Validation in 10 weeks - £150k



# Private Clinic - Why Measure Antibodies?

- Immunity
  - If you have had COVID-19 can you get it again?
  - 1<sup>st</sup> response signature is IgM followed by IgG
  - 1<sup>st</sup> infection may be protective (new, early evidence)
  - 2<sup>nd</sup> infection Memory B-cell response is IgG – immunity signature
- COVID-19 co-morbidities – ‘Long COVID’
  - Hyper inflammatory events
  - Lung fibrosis
  - Flu
  - Vaccine choices
- Second Infection may be much worse than the first
- Do you have the COVID and Flu vaccine? Did it work for you?
- Serum Certificates allow a person to carry their infection record
  - Measuring a change against a personalised background is more precise
  - Teachers in a school or colleagues in a workplace



# Size of the Opportunity

Monthly Income per Clinic				October	November	December	January	February	March	April	May	June	July
Test													
Consumer Price		129		129	129	129	129	129	129	129	129	129	129
Clinic Margin		60%		60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
Transfer Price		51.6		51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6
Income per test		77.4		77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4
Cost of Nurse and Consultation Room per test		8		8	8	8	8	8	8	8	8	8	8
Net income per test		69.4		69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4
Total Tests per day		10		10	10	20	20	20	20	10	5	5	5
Testing days		15		15	15	20	20	20	20	15	15	15	15
Total Tests per month		150		100	150	150	180	200	250	300	350	400	300
<b>Monthly Net Chip Income</b>		<b>10410</b>		<b>6940</b>	<b>10410</b>	<b>10410</b>	<b>12492</b>	<b>13880</b>	<b>17350</b>	<b>20820</b>	<b>24290</b>	<b>27760</b>	<b>20820</b>
Montly Instrument Rental		1400		1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
<b>Monthly Net Income</b>		<b>9010</b>		<b>5540</b>	<b>9010</b>	<b>9010</b>	<b>11092</b>	<b>12480</b>	<b>15950</b>	<b>19420</b>	<b>22890</b>	<b>26360</b>	<b>19420</b>
Attomarker Income per Clinic													
COGS (chip and reagents)		125		125	125	125	125	125	125	125	125	125	125
Monthly COGS		1875		1875	1875	2500	2500	2500	2500	1875	1875	1875	1875
Transfer price		51.6		51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6
<b>Attomarker Monthly Income per clinic</b>		<b>7740</b>		<b>5160</b>	<b>7740</b>	<b>7740</b>	<b>9288</b>	<b>10320</b>	<b>12900</b>	<b>15480</b>	<b>18060</b>	<b>20640</b>	<b>15480</b>
<b>Total Numbers of Clinics</b>		<b>1</b>		<b>20</b>	<b>40</b>	<b>100</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>	<b>200</b>
Attomarker Total Income				1032	310632	1084632	2942232	5006232	7586232	10682232	14294232	18422232	21518232
<b>Attomarker Total Income (£m)</b>				<b>0.001032</b>	<b>0.310632</b>	<b>1.084632</b>	<b>2.942232</b>	<b>5.006232</b>	<b>7.586232</b>	<b>10.68223</b>	<b>14.29423</b>	<b>18.42223</b>	<b>21.51823</b>

# Size of the Opportunity

- Roll-out to 200+ Private Clinics in the UK
- Bench-top device will be deployed with CE mark
- Must Move quickly to catch flu season
- Capacity up to 1000 instruments by end of 2020
- IMMEDIATE SHORT-TERM Capital
  - £1.5m to manufacture and provide 1 year run-way
- PRIOR to COVID19 Attomarker had a 5-year £250m opportunity





# The World's First 'Pocket Laboratory'

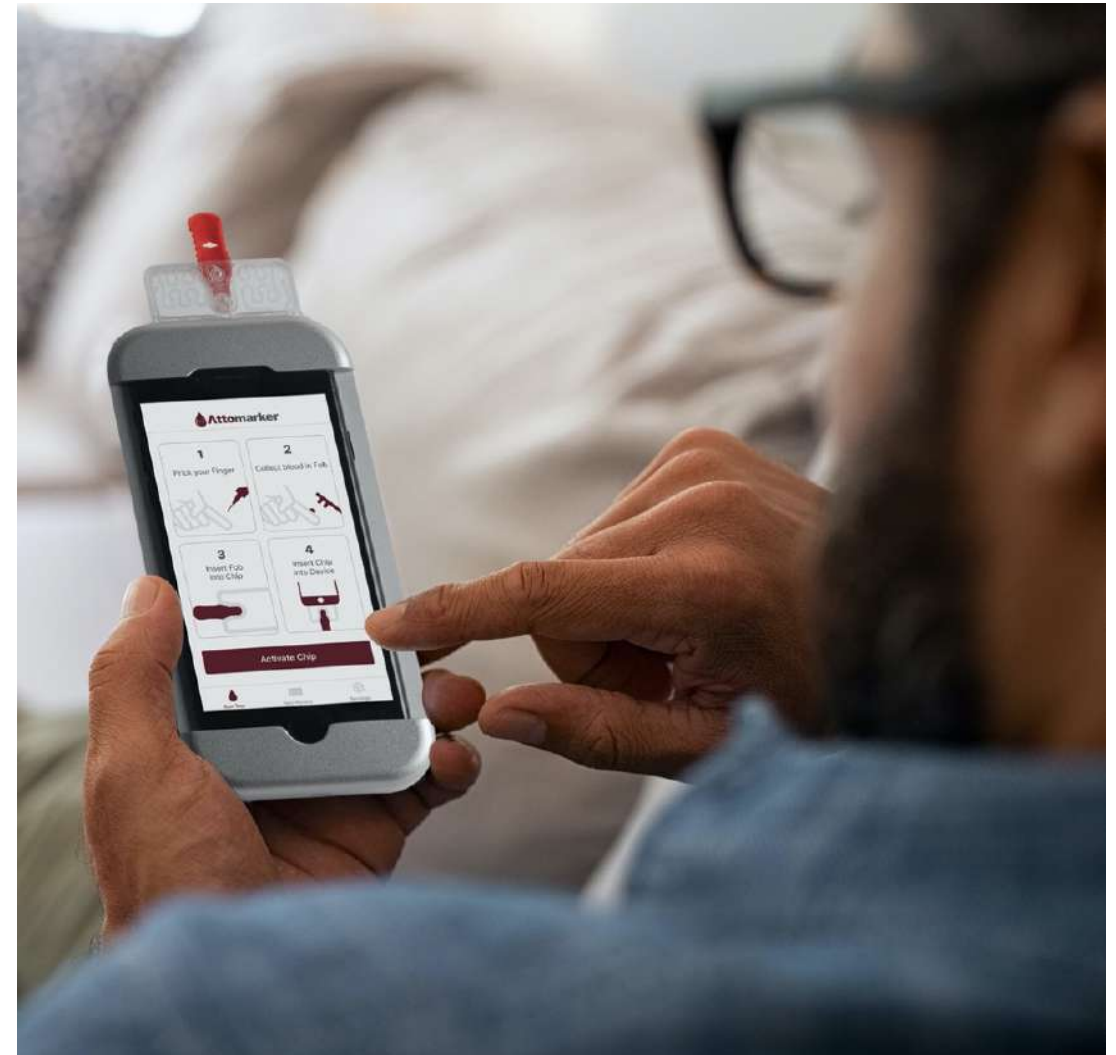
Pre-COVID Attomarker Opportunity





# The world's first pocket blood-testing laboratory

- Docked to an iPhone, performs ten tests at once from a pin-prick of blood with results in five minutes
- Simple to operate for nurses, pharmacists & consumers
- Connected to the Cloud to provide a series of Big Data-driven Care Pathways
- Helping users manage their condition, connect with others, receive personalised advice & then check progress
- 'The working Theranos' - before you ask!



# From the clinic to your pocket



**SAME QUALITY  
RESULT**

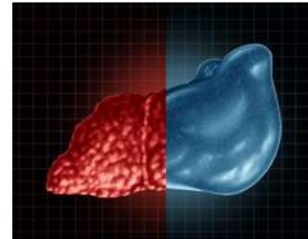


- Collect blood sample - result in four hours
- Approximate Price £1.2m
- £5 per test
- Weekly maintenance
- Operated by a highly skilled technician
- Up to 8,000 tests per hour

- Collect blood sample – result in five minutes
- Approximate Price £600
- £0.75 - £3.50 per test
- Maintenance-free
- Consumer operated
- Results vertically integrated to the Cloud

# Public health gets personal

Diabetes is at an all-time global high  
30m Americans, 4.7m British  
90-95% type-2  
70% suffering fatty liver disease



Attomarker will help customers reverse their type-2 diabetes with regular liver tests in pharmacies, surgeries or at home, then with an app-based care pathway as health

Food allergies are at an all-time global high  
32m Americans. 6-8% British < 15s  
Health services can't cope  
Private testing very expensive



Attomarker will give customers a food allergy diagnosis in a pharmacy, surgery or at home, then help them manage their condition via an app-based care pathway

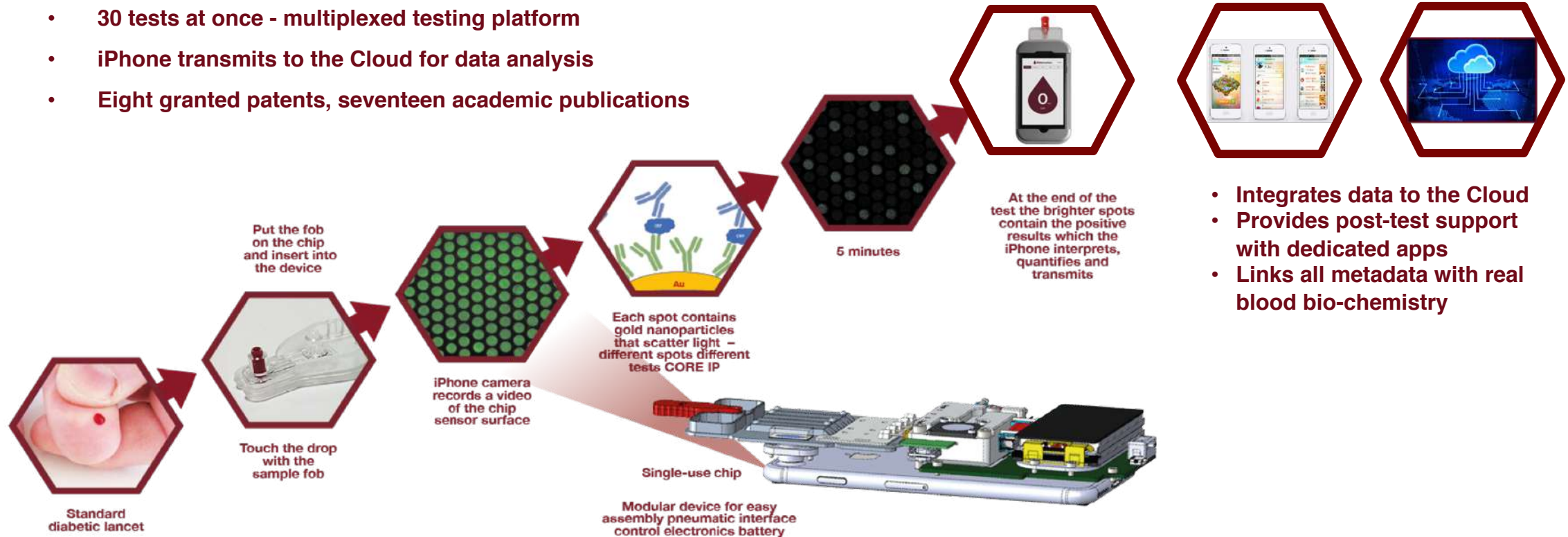
Excessive antibiotics usage is creating superbugs. The WHO rate AMR (antimicrobial resistance) as a bigger global threat than climate change



Attomarker will provide doctors with a fast, point of care way distinguishing between bacterial & viral infections, thus eliminating the over-prescription of antibiotics

# How Attomarker's Technology Works

- The sensor is patented nanotechnology, videoed via iPhone
- A blood test is printed on each spot – standard sandwich assay
- 30 tests at once - multiplexed testing platform
- iPhone transmits to the Cloud for data analysis
- Eight granted patents, seventeen academic publications



## Post-test

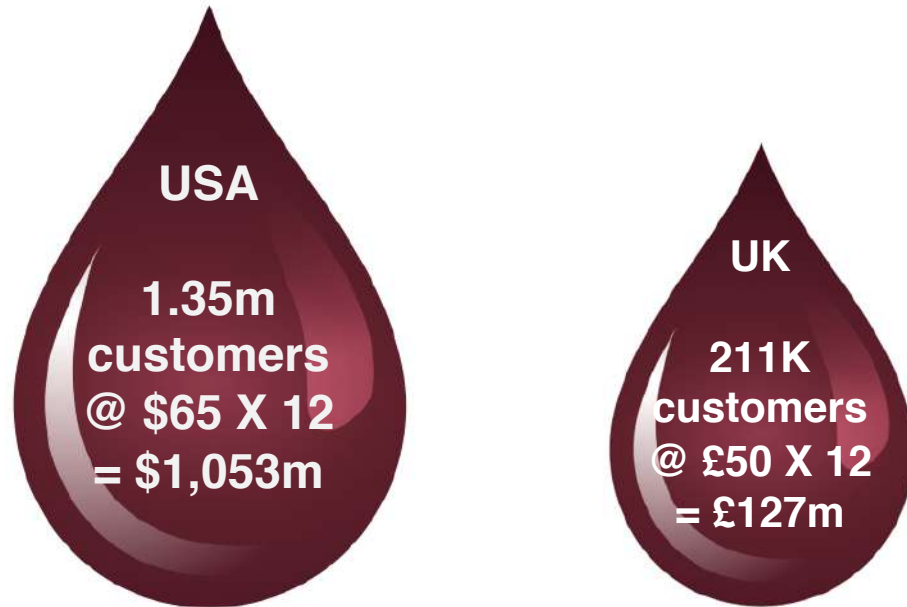


- Integrates data to the Cloud
- Provides post-test support with dedicated apps
- Links all metadata with real blood bio-chemistry

7 granted patents covering the test surface and cloud alert system + 17 academic publications

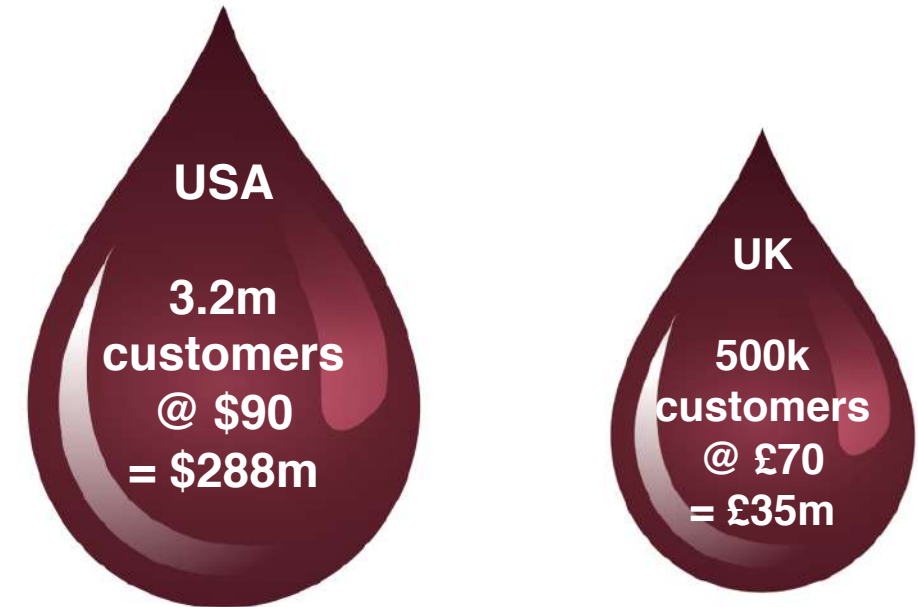
# Addressable Markets

## Fatty Liver / Type 2 Diabetes



Assumes 5% penetration of type-2 diabetes sufferers, tested monthly. Test income @ retail only – not including app income.

## Food Allergy



Assumes 10% penetration of Food Allergy sufferers. Test income @ retail only – no App income included

# Business Model

## Routes to Market

Attomarker will launch into pharmacy first where market penetration is fast in a B2B strategy. Simultaneously a slower launch into primary and acute care. The largest market opportunity is Consumer testing @Home – fatty liver testing for lifestyle monitoring, Type 2 diabetes “cure” – the ideal self-management market

### Pharmacy

Negotiating a distribution deal to launch with a UK into 500, 300 of which are in supermarkets. Second deal with a pharmacy franchise of 5,000 stores in the UK and access to 27 EU countries. Extension to 25k US pharmacies

### Primary Care

Exclusive discussions with leading European Medical distributor with access to over 30,000 GPs in the UK in Ireland. All private GP practices and hospitals in the UK.

### Consumers

Apple Healthcare Europe have agreed launch in iStore and Apple Stores throughout the UK.

# Financial Forecasts

£'000

Year		FY1	FY2	FY3	FY4	FY5
<b>Income</b>						
	Allergy Sales	5905	27910	51602.5	75552.4	235565.5
	CRP Sales	214.5	5148	7462.5	9650.4	17329.5
	Liver Sales	0	8580	28331	38465.8	94137
	Other Sales	630	3870	10483.5	13890	32056.5
<b>Total Income</b>		<b>0</b>	<b>6749.5</b>	<b>45508</b>	<b>97879.5</b>	<b>137558.6</b>
<b>Total Expenditure</b>		<b>6740</b>	<b>10813</b>	<b>24509</b>	<b>38406</b>	<b>111952</b>
<b>EBITDA</b>		<b>-6740</b>	<b>-4063</b>	<b>20999</b>	<b>59474</b>	<b>79797</b>
<b>Penetration</b>						
	Allergy Tests	0.60%	3%	0.80%	1.20%	2%
	Liver Tests	0%	0.20%	0.25%	0.25%	0.40%
	CRP Tests	0.10%	1.30%	0.20%	0.25%	0.15%
	Markets	UK	UK	EU+UK	EU+UK	EU+UK+US

## Allergy Assumptions

- 20% of Population want to be tested, £75 per test
- Roll out to through Pharmacies, UK, EU and US
- 500 stores in Y1 – at Lloyd’s request
- 1,000 stores in Y3, 5,000 stores in Y5 – EU and US
- Total Test Market

## Liver Assumptions

- Y1 500 Stores, Y5 5,000 stores
- Roll-out to Consumers Y4 and Y5
- Fatty Liver testing £55 per test

## AMR – CRP Assumptions

- Low-margin tests for CRP £15
- Roll out to 500 GPs practices in Y2 rising to 975 in Y5

# Competition



## Abbott i-STAT Allinity

- £6,000
- Blood drawn from arm
- One test per chip – not a lab
- Test price: £10 - £15
- Has to be operated by a healthcare professional
- Connectivity to patient record only via £1000 add-on

## Attomarker

- £800
- Blood from finger-prick
- **Multiple tests per chip**
- Test price £15 - £75
- **Can be operated by anyone**
- Consumer focused
- **Global connectivity via iPhone**



**Full analysis of over 40 companies completed. There is no FDA predicate device.**



# The Team



**Roger Killen**  
NED



**David Miller**  
CMO



**Andrew Shaw**  
CEO



**Nigel Clarke**  
Chairman



**Griff Williams**  
Investment Director

**Scientific team with 50+ years experience**

**Production Consortium – peer review embedded**

**40+ British and German engineers, scientists and software engineers: 300+ years experience at ISO 13485 Medical Device Manufacture**



Data Security



Software



Software



CE and FDA  
Regulatory  
Consultant



Core IP – JV  
established



Cartridge  
manufacturers



Device Manufacturer

# Funding & Use of Funds

- Received £500K Seed (2017) and £2.5M Series A (2017) (£25m valuation).
- £20M required to £5m (extended Series A) + £15m (Series B):
  - Complete design for manufacture on handheld device to eliminate scale-up risk
  - Recruit the Commercial Team
  - Establish a launch scale production capacity, paying for non-recurring engineering costs
  - Approve device, all tests and production capacity to European regulatory standards (ISO13485 for CE Marking, following FDA acceptance criteria)
  - Satisfy all operational expenditure
- Profits in early years re-purposed into future tests and expansion into EU and US.
- Consumer launch in EU and US will require larger funds ~£50m including acceleration capital

# Accolades



Attomarker ranked among the top five companies globally for fighting antimicrobial resistance: WHO/ FINDdx

Identified as a Top Three biomarker @home by Johnson & Johnson



Winner of the OBN Life Sciences Industry 'One to Watch' award, 2019



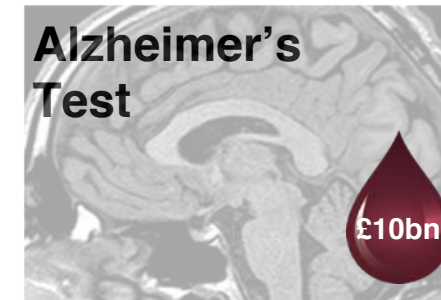
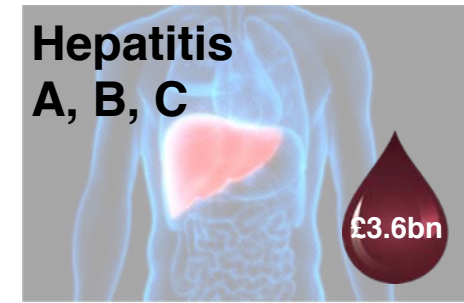
Attomarker has been short-listed as one of the top four global contenders for the £10 million Longitude Prize, for the best invention designed to combat antimicrobial resistance



Attomarker currently touring India & China in the Science Museum's Superbugs exhibition.

And being exhibited in their brand-new £24 million 'Medicine: Wellcome Galleries' in London

# Future Pipeline



Launching two new tests every year

## Milltrust International Group

---

**Milltrust International LLP**  
6 Stratton Street  
London W1J 8LD  
United Kingdom  
+44 20 8123 8316  
info@milltrust.com

**Milltrust International (Singapore) Pte Ltd**  
77B Tras Street  
Singapore 079016  
+65 6225 3052  
info@milltrust.com

**Milltrust Agricultural Investments Ltd**  
6 Stratton Street  
London W1J 8LD  
United Kingdom  
+44 20 8123 8316  
info@milltrust.com



For professional investors only. This document is strictly private and confidential and is meant as guidance and information only. It is issued by Milltrust International Group (Singapore) Pte Ltd, incorporated in Singapore. Milltrust International LLP is incorporated in the United Kingdom, which is authorised and regulated by the Financial Conduct Authority. Milltrust International LLP has its registered office at 5 Market Yard Mews, 194-204 Bermondsey Street, London, SE1 3TQ, United Kingdom and is a subsidiary of Milltrust International Group (Singapore) Pte Ltd. Milltrust Agricultural Investments Ltd is an affiliate of Milltrust International LLP. The content in this document is for informational purposes only and does not constitute legal, tax, investment, financial, or other advice. Nothing contained in this document constitutes a solicitation, recommendation, endorsement, or offer by Milltrust International Group (Singapore) Pte Ltd or any of its affiliates to buy or sell any securities or other financial instruments. No such solicitation or offer is made in this or in any other jurisdiction in which such solicitation or offer would be unlawful under the securities laws of such jurisdiction. All content in this document is information of a general nature and does not address the circumstances of any particular individual or entity. Nothing in the document constitutes professional and/or financial advice, nor does any information on the document constitute a comprehensive or complete statement of the matters discussed or the law relating thereto. It should therefore not be used as the sole basis for any investment or other decision. The use of or access to this document or content by any person does not create a fiduciary relationship between such person and Milltrust International Group (Singapore) Pte Ltd. The sole responsibility of evaluating the merits and risks associated with the use of any information or other content on this document before making any decisions based on such information or other content rests with the user and their professional advisers.