



ANGLE

**Liquid biopsy from a simple blood test
enabling personalised cancer care**

**Interim Results for the six months
ended 31 October 2015**

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28 January 2016



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Parsortix™ commercialisation on track

- ❖ Significant progress against key commercial objectives
 - First sales secured
 - FDA authorisation
 - Ovarian cancer clinical application
- ❖ Key Opinion Leaders
 - Prostate cancer (Barts Cancer Institute)
 - Breast cancer (University of Southern California)
 - Lung cancer (Cancer Research UK Manchester)
- ❖ Peer-reviewed papers
- ❖ Patent portfolio strengthened
- ❖ Eminent scientific advisors added



“The Parsortix system has a unique combination of features making it suitable for routine clinical analysis of patient blood samples.”

Ged Brady, Cancer Research UK Manchester Institute

Cancer Research UK: "One in two people born after 1960 in the UK will be diagnosed with some form of cancer during their lifetime."

- ❖ Each patient's cancer is different
 - ❖ Patient's cancer changes over time
 - ❖ Effective treatment requires personalised care
 - ❖ Reducing healthcare costs
- ❖ Major pharma developing more selective drugs
 - Colorectal cancer KRAS- Erbitux (Merck Serono)
 - Lung cancer EGFR+ Iressa (AstraZeneca)
 - Breast cancer HER2+ Herceptin (Genentech)



Existing approach: solid tumour biopsy

- ❖ Clinicians cut out part of the tumour and analyse the cancer cells
 - Breast cancer mastectomy or lumpectomy
 - Colorectal cancer colonoscopy tumour biopsy
 - Prostate cancer fine needle biopsy and prostatectomy
- ❖ Difficulty in accessing some tumours
 - Pancreatic cancer, Lung cancer, Brain cancer
- ❖ Repeat tumour biopsy problematic

New approach: liquid biopsy

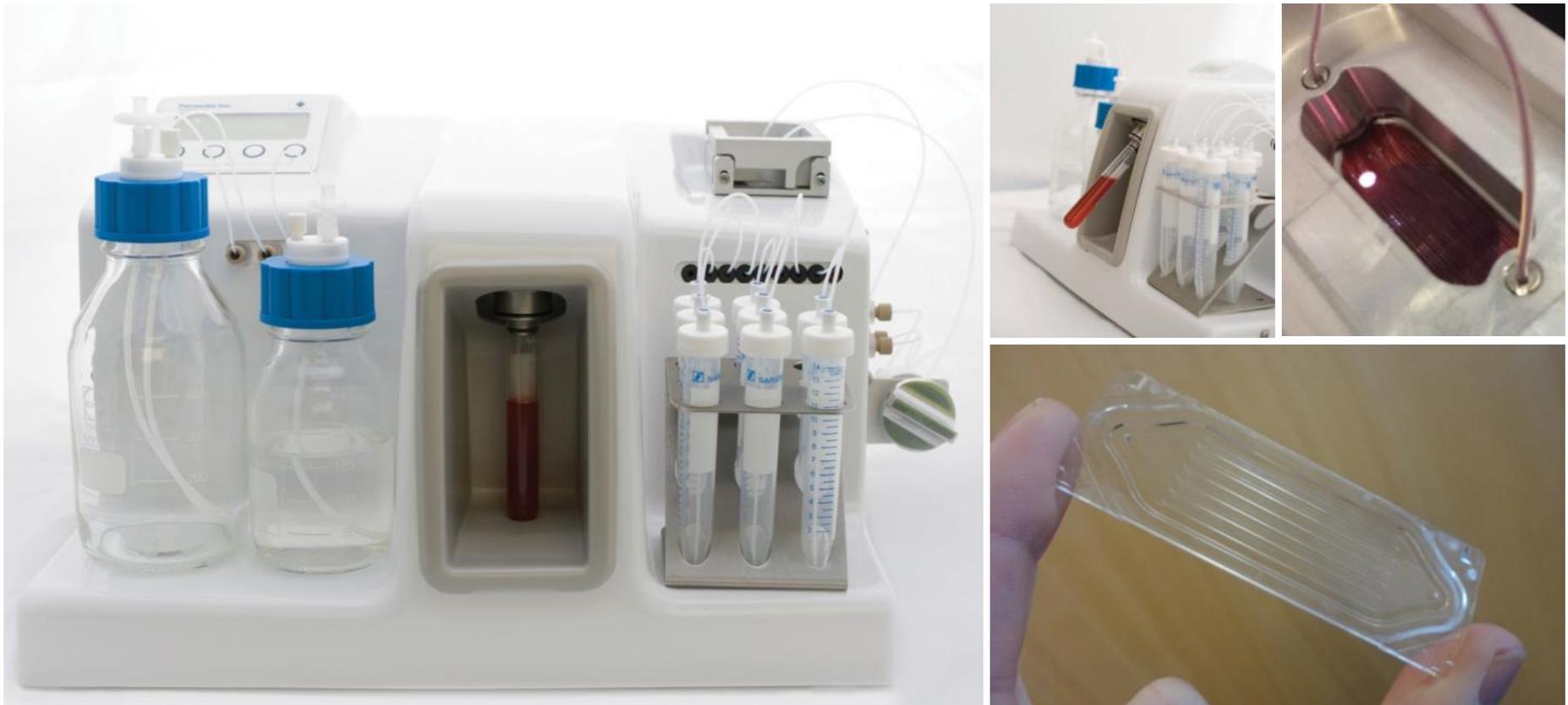
- ❖ Harvest intact cancer cells from blood
- ❖ Non-invasive, repeatable, real time, cost effective
- ❖ But only one CTC in one billion blood cells



Whole blood from a simple peripheral blood draw contains approximately one cancer cell per ml of blood. The cancer cells are circulating tumor cells shed by the primary tumour in the process of metastasis. The CTCs travel in the blood and if they take root in another organ are the cause of a secondary cancer at a new location.



ANGLE's patented Parsortix system



◆ Stepped, microscale cell separators for fluid flow and cell separation

◆ Two granted US Patents
◆ Granted patents in China, Canada and Australia

◆ Patents pending worldwide
◆ European patent expected



Market size and drivers

- ❖ Total addressable market for liquid biopsy US\$14 billion in the United States market alone by 2025
- ❖ Four key market segments
 - Diagnostic screening
 - Therapeutic decision-making
 - Minimal residual disease
 - Post treatment monitoring
- ❖ Liquid biopsy comprises ctDNA and CTCs
 - “Whole cells (CTCs) offer the advantage of providing a clinician access to cellular morphology along with other genetic content such as RNA”
 - “CTCs are exceedingly rare ... and more difficult to isolate than ctDNA”

Source: The Goldman Sachs Group, Inc. Global Investment Research “Liquid Biopsy: Could a simple blood test revolutionize cancer care?” Equity Research 6 October 2015

ANGLE is changing the paradigm by making it easy to isolate CTCs from patient blood for a wide range of cancers



Parsortix™ and the advantages of CTCs for liquid biopsy

Solid Biopsy				Liquid Biopsy	
		Primary Tumor	Metastatic	cfDNA ¹	CTCs ²
Sample Type		Intact cells	Intact cells	Fragmented DNA	Intact cells
Accessibility		Invasive Not always accessible	Invasive Not always accessible	Non-invasive ³ Accessible	Non-invasive ³ Accessible using Parsortix⁴
Repeatability		Difficult	Difficult	Easy	Easy
Molecular analysis	DNA RNA Protein	Yes Yes Yes	Yes Yes Yes	Yes Difficult No	Yes Yes Yes
Live cells	Cell culture Xenograft	Yes Yes	Yes Yes	No No	Yes Yes

- ❖ ANGLE's Parsortix™ system is a patented product, competitively differentiated in a \$ multi-billion market
- ❖ Parsortix™ provides a unique product based solution where others are offering only a laboratory-service based approach

ANGLE is offering customers a Parsortix system for purchase comprising a desktop instrument and a one-time use consumable. Many competitor systems are so complicated that they have to offer a CLIA (certified laboratory) solution where the customer sends them the sample and they operate the system and provide a result. This approach is commercially less attractive as it requires large in-house investment, is less scalable and deprives the clinical customer of much needed revenue in processing the samples.



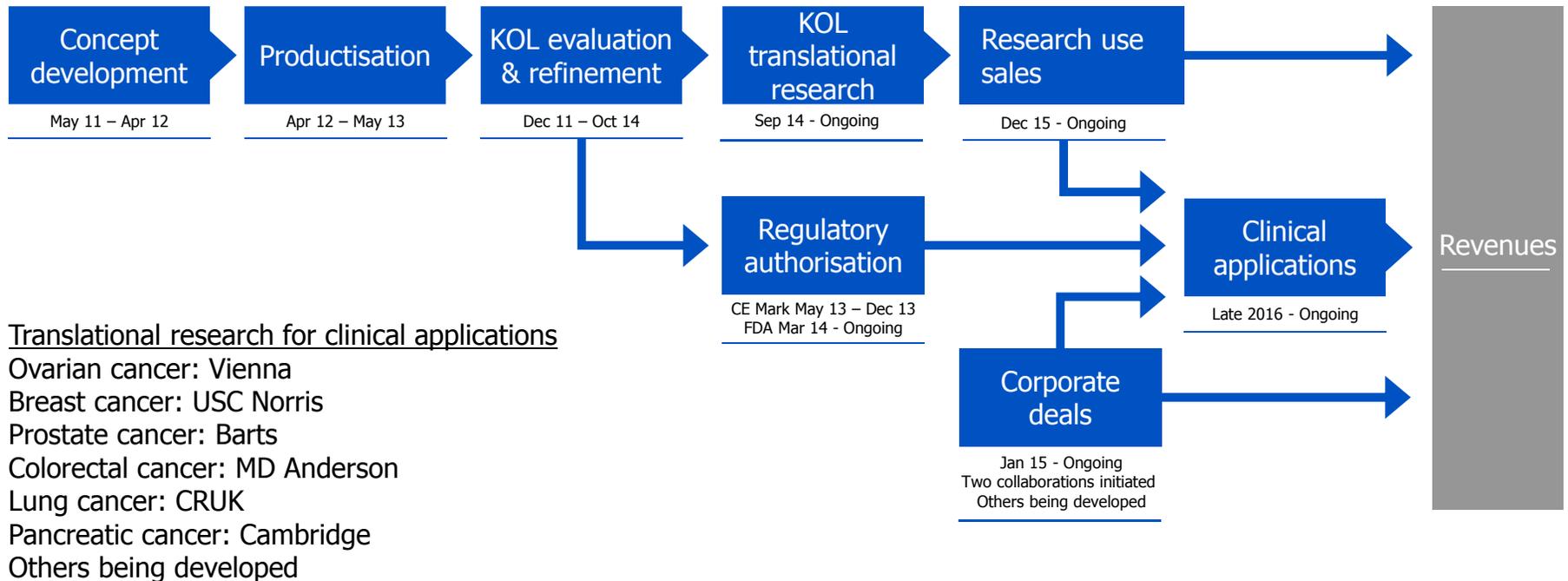
Competitive differentiation in a \$ multi-billion market

Technology	Name	Simple process	Low cost	Captures all types of cancer	Captures mesenchymal CTCs involved in metastasis	Able to easily harvest cells for analysis	High purity of harvested cells	Cell viability (alive)
Microfluidic step	Parsortix	✓	✓	✓	✓	✓	✓	✓
Antibody-based system	CellSearch (only FDA authorised system)	✗	✗	✗	✗	✗	✗	✗
	CTC iChip Magsweeper Cynvenio Biocept Isoflux Gilupi AdnaTest	✗	✗	✗	✗ ✓	✗ ✓	✗	✗
Membrane-based	ISET Screencell CellSieve	✓	✓	✓	✓	✗	✗	✗ ✓
Centrifugation	Dean Flow Fractionation	✓	✓	✓	✓	✗	✗	✗ ✓
Cell-free DNA ⁽¹⁾	Alternative process using plasma from blood	✓	✗	✓	✗	N/A	✗	✗

(1) Cell-free DNA (known as cfDNA or ctDNA) are DNA fragments of dead cells and can only be analysed for DNA using expensive NGS sequencing techniques. RNA analysis is very difficult and limited and protein analysis is not possible with ctDNA. ctDNA fragments thus contain less information than fully intact viable cancer cells and, as they originate from dead cells, may provide less relevant information and miss information on treatment resistant cancer. Viable (live) CTCs can also be used for cell culture and xenografts.



Path to commercialisation



- ❖ Extensive product development and system optimisation successfully completed
 - address operational requirements of a wide range of KOLs and beta customers
- ❖ Product development work completed to develop, test, optimise and document key operating protocols
 - enable customers to undertake analysis in specific areas of interest
 - protocol for a single blood sample to be utilised for both CTC and ctDNA analysis
 - opens potential to sell into a large number of research sites using ctDNA
- ❖ Parsortix system reliable, easy to use and produces robust reproducible results
 - over 80 Parsortix instruments in active use and this number is growing rapidly
 - over 12,000 blood separations have already been performed on the Parsortix system
 - 6,000 in the current financial year alone to date
- ❖ Evidence building of system's potential to meet the requirements of a wide range of cancer types and forms of analysis



Research use sales progress

- ❖ First sales for research use secured after the period end
 - sales to multiple customers of both Parsortix instruments and cassettes
 - customers include both new research users and existing KOLs
 - growing sales pipeline
- ❖ Supported by multiple third party cancer centre publications
 - ANGLE's Parsortix system "... offers a unique combination of features making it suitable for routine clinical analysis of patient blood samples"
- ❖ Estimated research use sales market £250m p.a.
 - initial revenues expected to be modest
 - seeking significant contributions from sales to this market over time
- ❖ Targeting sales to leading cancer research centres
 - revenues
 - broaden range of users of the system investigating new clinical applications
 - additional posters, publications and clinical evidence
 - new clinical applications and companion diagnostics



FDA authorisation progress

- ❖ Seeking to be first FDA authorised system for harvesting cancer cells from blood
 - appointed full-time FDA experienced clinical studies director
 - detailed study plans have been developed and reviewed with the FDA
- ❖ Strategic decision to pursue FDA authorisation of the system first for metastatic breast cancer with ovarian cancer and other cancer types to follow
 - breadth of authorisation to provide flexibility in clinical deployment, allowing a range of downstream analytical procedures
 - base authorisation to which (i) additional cancer types and (ii) specific clinical uses can be added facilitating roll out across a wide range of applications
- ❖ Three world-leading US cancer centres selected
 - patient accrual and clinical evidence to secure the FDA authorisation
 - major customers in the future
 - Key Opinion Leaders in securing uptake of the Parsortix system once FDA secured
- ❖ Approach adopted provides a strong competitive advantage

Medical University of Vienna

- ❖ Highly successful patient study
 - 100% specificity in primary epithelial ovarian cancer (no false positives)
 - 78/80% sensitivity with 7 RNA markers
 - 100% sensitivity with 30 RNA markers
- ❖ Parsortix results “sensational”
 - best CTC alternative only 24.5% sensitivity
- ❖ Clinical application in triaging patients with abnormal pelvic mass
 - to identify those at high risk of ovarian cancer
 - in US, 200,000 women p.a. have surgery on abnormal pelvic masses c. 10% have cancer
 - Medicare reimbursement of \$516/test
- ❖ Ovarian sales potential >£300m p.a.

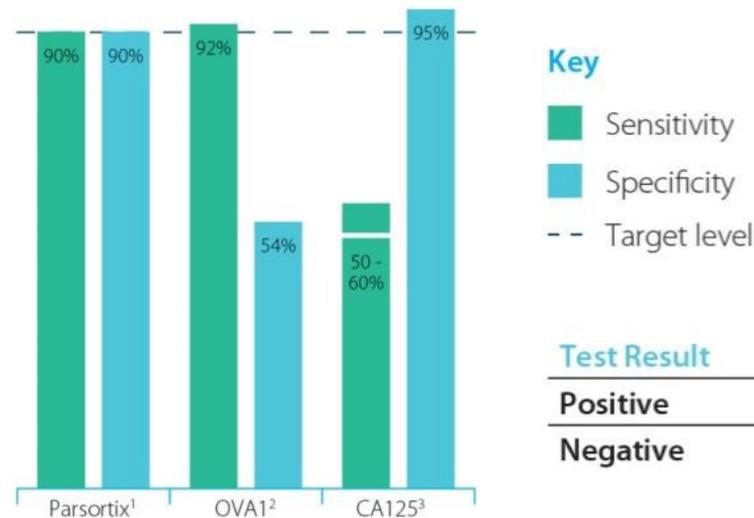
Parsortix effectiveness compared to other tests

Sensitivity

The test correctly identifies those with the disease (true positive). A low sensitivity means the test may miss many people who have cancer (false negative).

Specificity

The test correctly identifies those without the disease (true negative). A low specificity means patients are told they may have the disease when they do not (false positive).



	Cancer	No cancer
Test Result	Sensitivity	Specificity
Positive	True Positive	False Positive
Negative	False Negative	True Negative

1 Target for clinical studies
 2 Vermillion Inc
 3 Patient.co.uk / Fritsche HA, et al. (1998). CA-125 in ovarian cancer: advances and controversy. Clinical Chemistry. 44(7):1379-1380



Ovarian cancer clinical application progress

- ❖ Simple blood test to identify ovarian cancer prior to surgery for pelvic mass
- ❖ Successful pilot study expanded
 - Medical University of Vienna 65-patient study presented at ESMO
 - unprecedented sensitivity and specificity in identifying ovarian cancer
- ❖ Developed detailed study plans to provide clinical evidence
- ❖ Product development completed
 - optimise the methods to maximise CTC capture and purity
 - optimise PCR-based gene expression analysis techniques
- ❖ Three major European cancer centres selected to undertake clinical studies
 - in process of ethics approval
- ❖ Parallel studies planned for the United States
 - leading US cancer centre selected
 - currently completing internal ethics and research board approval

Barts Cancer Institute

- ❖ CTCs harvested in 100% of patients (n=52)
- ❖ Barts study demonstrates Parsortix harvested cells are clinically relevant in prostate cancer
- ❖ Mesenchymal cells (involved in metastasis) as well as epithelial cells
- ❖ Clinically relevant cells harvested

- ❖ Barts researchers now investigating molecular biomarkers on the harvested cells to guide effective treatment

2. Different populations of CK+/Vimentin-/CD45-, CK+/Vimentin+/CD45-, and CK-/Vimentin+/CD45- cells were identified in clinical samples using 4-colour immunofluorescence (Figure 3).

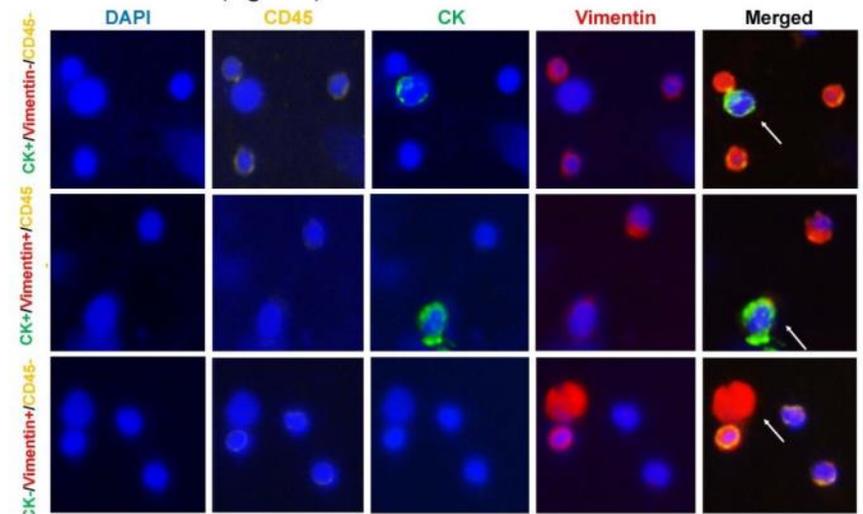
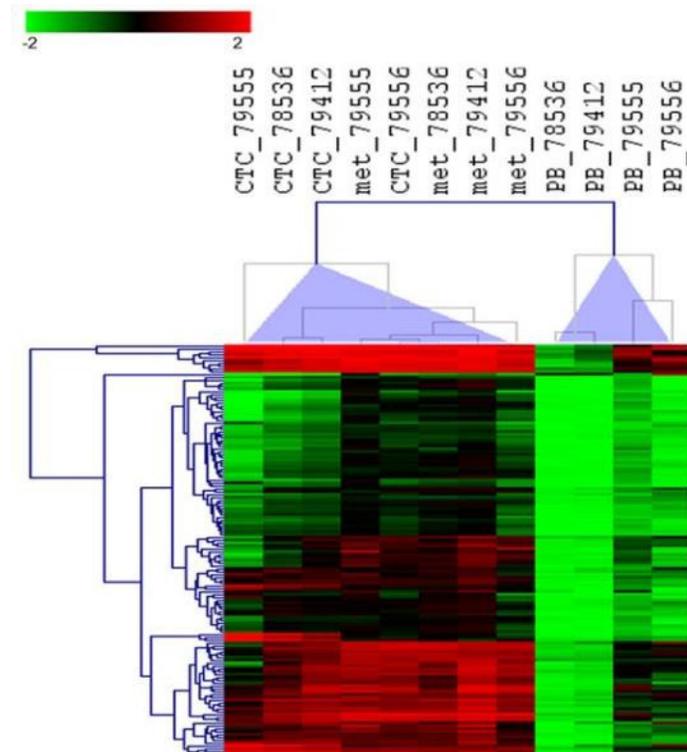


Figure 3. Representative images for different populations of detected cells in prostate cancer patients. The upper row: a CK+/Vimentin-/CD45- cell surrounded by CD45+ lymphocytes. The middle row: a CK+/Vimentin+/CD45- cell next to a CD45+ lymphocyte. The lower row: a CK-/Vimentin+/CD45- cell surrounded by CD45+ lymphocytes.

University of Southern California Norris Comprehensive Cancer Center

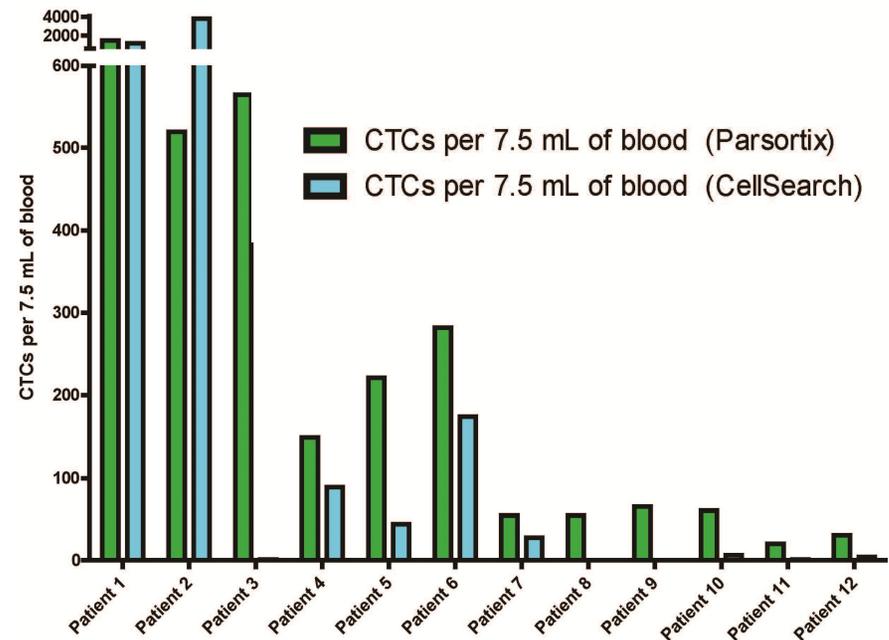
- ❖ CTCs harvested for RNA Seq analysis in 100% of patients
- ❖ CTCs from Parsortix liquid biopsy had similar patterns of gene expression to the traditional biopsy of cancer cells from metastatic sites in all cases (n=4)
- ❖ Parsortix liquid biopsy also provides additional clinical information beyond the biopsy of a single metastatic site
- ❖ Metastatic biopsies invasive, often requiring surgery, expensive and may delay treatment



Hierarchical two dimensional heat map of 214 genes differentially expressed in CTC and met vs peripheral blood.

Cancer Research UK Manchester Institute and Christie Hospital

- ❖ CTCs harvested 100% patients (n=12)
 - Parsortix harvested >5 cells from 100% of patients compared to 58% by leading competitive system
- ❖ Suitable for at least four days at room temperature
- ❖ Simple plug and play device
- ❖ Enables analysis of CTCs not detected by epitope dependent technologies
- ❖ Parsortix enables processing a single blood sample for both CTCs and cfDNA



Ged Brady, Cancer Research UK Manchester Institute

“The Parsortix system has a unique combination of features making it suitable for routine clinical analysis of patient blood samples. We have now incorporated the Parsortix workflow into multiple clinical trials and have been accumulating many hundreds of stored enriched samples that will be of immense value in our future CTC studies.”

Financial Results for the six months ended 31 October 2015

Six months ended 31 October	2015	2014
Statement of Comprehensive Income	£'000	£'000
Operating costs	(2,399)	(1,578)
Other income	12	7
Loss before tax from continuing operations	(2,387)	(1,571)
<hr/>		
Statement of Financial Position	31Oct15	30Apr15
Trade and other receivables and taxation	890	1,008
Inventories	271	197
Cash	5,828	8,443
Property, plant and equipment	476	423
Intangible assets	1,168	1,149
Total assets	8,663	11,220

Comments

- ❖ Planned investment in product development and commercialisation
- ❖ Planned spend
 - Research use sales
 - FDA studies
 - Ovarian clinical studies
- ❖ Geomerics £0.7m received post period end



Anticipated Newsflow

- ❖ Sales growth
 - cancer drug trials leading to companion diagnostics

- ❖ Results from KOL patient studies
 - scientific publications
 - new clinical applications
 - growth in sales potential

- ❖ Ovarian cancer clinical study

- ❖ FDA authorisation

- ❖ Commercial collaborations
 - medtech
 - pharma

Parsortix™ patented system provides cells for precision medicine changing the paradigm in a \$ billion emerging market

- ❖ High performance in ovarian, prostate, breast and lung cancers
- ❖ Growing research use sales with a clear competitive advantage
- ❖ CE Mark authorised. FDA authorisation in process
- ❖ Ovarian cancer first clinical application in development

~~MD Anderson
Cancer Center~~





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