



Developing the next-generation of radiopharmaceuticals to improve treatment outcomes for children and adults with cancer

Bell Potter Healthcare Conference 2022

Dr Alan Taylor, Executive Chairman
Dr Colin Biggin, Chief Executive Officer

9 November 2022

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Clarity in a nutshell (ASX:CU6)

Clarity Pharmaceuticals is a clinical stage radiopharmaceutical company developing next-generation products to address the growing need for better diagnostics and treatments in oncology

Proprietary SAR Technology: a true platform technology

Three best-in-class products in clinical development offering high accuracy and precision for both diagnosing and treating disease

Environmental advantages over current isotopes

No reliance on nuclear fuel cycle. TCTs do not generate long-lived waste products

Global leader in Targeted Copper Theranostics (TCTs)

Employs copper-64 for diagnosis and imaging and copper-67 for therapy

Targeted clinical development strategy

Diagnostic products will be the first to reach the market, generating revenue to fund late-stage therapeutic trials Significant supply, logistical, dependability and scalability benefits

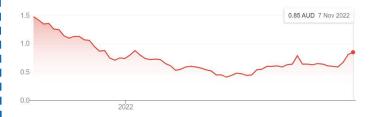
Mass production on cyclotrons and e-accelerators with finished products having an ideal product shelf life

> Highly experienced leadership team

Diverse and in-depth expertise spanning corporate finance, operations, commercialisation & industry

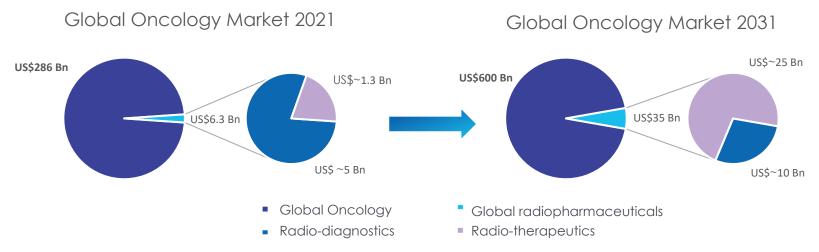
ASX Code: CU6

- Share Price: **\$0.85** as at 7 Nov 2022
- Cash at bank: \$84.7 million as at 30
 Sep 2022
- R&D tax incentive for FY22: ~\$6 million
- ~\$90 million to fund the existing trials and provide cash runway into 2024
- Shares on issue: 258.9 million
- Options on issue: 25.4 million
- Market capitalisation: \$220 million as at 7 Nov 2022





Radiopharmaceuticals: Market overview



	2021		2031
Global oncology market	US\$ 286 Billion		US\$ >600 Billion
Global radiopharmaceuticals	US\$ 6.3 Billion		US\$ 35 Billion
Radio-diagnostics	US\$ ~5 Billion		US\$ ~10 Billion
Radio-therapeutics	US\$ ~1.3 Billion	-	US\$ ~25 Billion



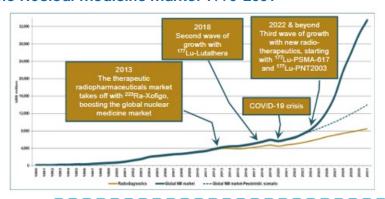
Growth drivers

Radiopharmaceuticals have shown significant growth potential both diagnostically and therapeutically and companies, similar to Clarity, have proven to be very profitable

Positive changes

- Re-imbursement
- Pricing (Pluvicto >U\$\$ 250k for 6 doses)
- Broader clinician uptake
- Positive Phase III results for Xofigo, Lutathera & Pluvicto

The Nuclear Medicine Market 1990-2031



have driven Big Pharma interest in the space

Novartis

Bayer



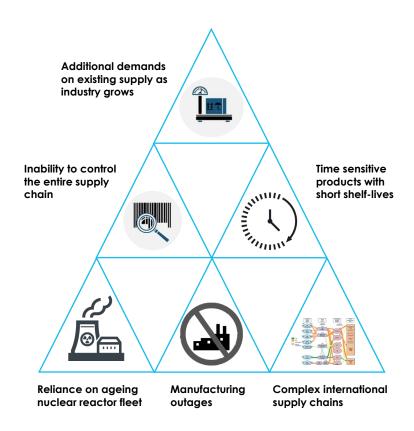
Recent approved diagnostics:

Recent approved therapy:
Pluvicto: Q3 22 US sales USD80M

Pylarify: Q3 22 US sales ~USD144M



Current industry challenges



Combined with a history of supply issues



Creates challenges for prescribers

Work to be done to convince oncologists that there is a safe, dependable and reliable source of radiopharmaceutical products.

Without this supply chain, radiopharma may struggle to become a pillar of oncology when its competing with long shelf life oral oncolytics.



Clarity's TCTs address the current industry challenges

Clarity Pharmaceuticals is a clinical stage radiopharmaceutical company with a mission to develop nextgeneration products that improve treatment outcomes for children and adults with cancer



Proprietary SAR Technology platform enables Targeted Copper Theranostics (TCTs)



TCTs employ copper-64 for diagnosis and imaging and copper-67 for therapy



Decoupled diagnostic and theranostic development strategy



High accuracy and precision theranostics by using the chemically identical product for both diagnosing and treating disease



Cu-64 and Cu-67 gives significant logistical benefits and a scalable, dependable supply



Environmental advantages over current isotopes with no reliance on nuclear fuel cycle or long-lived waste products



Multiple assets in US clinical development and R&D engine developing new leads



Unique IP protection around platform and products



Clarity - the perfect pairing to address current challenges

Copper-64 (half-life = 12.7 hours)

- Mass produced on cyclotrons
- Every US zip code covered from 1 location
- Patient flexibility with product shelf-life of up to 48 hours
- Operational flexibility with imaging timepoints from 1 to 72 hours
- Delivered as a ready-to-use cGMP product
- 9-22 times lower exposure than commonly used ¹⁸F products
- The ability to centralise capital investments and supply entire continents
- Similar half-life to iodine-123 which is routinely produced centrally

Cu · Exc · A s

Copper-67 (half life = 2.6 days)

- Optimal half-life for peptide-based therapy
- Commercially available high powered rhodotron for mass production with a small footprint
- Scalable with relatively small investments
- Purpose-built supply in the markets of focus, including a US domestic supply
- Only inputs are electricity and Zinc
- No long-lived impurities
- Exclusive supply agreement with NorthStar Medical Isotopes
- A single rhodotron can produce commercial quantities of ⁶⁷Cu
- Similar half-life to yttrium-90, used in SIR-spheres.

Clarity's solution to radiopharmaceutical supply threats

- No time sensitive international supply chains
- No local production requirements (reduced costs and patient safety risk; universal availability)
- Economies of scale from the same manufacturing process
- Ability to quickly integrate new products

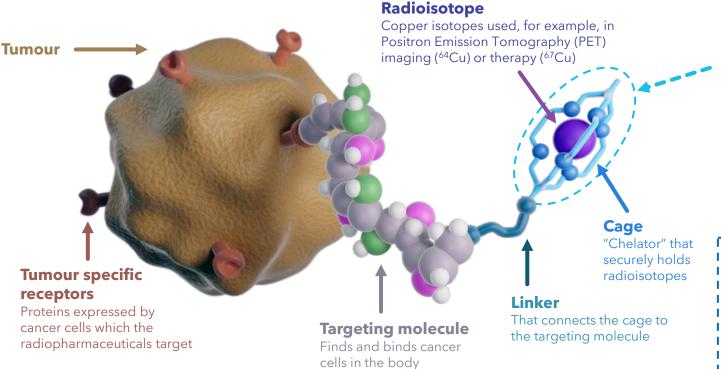
The environmental considerations*

- As the number of patient treatments increases, environmental factors will impact the selection of theranostic radiopharmaceuticals
- Production of ⁶⁴Cu and ⁶⁷Cu has favorable environmental characteristics, significantly reducing the environmental impact compared to the current generation theranostics based on ⁶⁸Ga or ¹⁷⁷Lu
- This is highly relevant considering the forecasted growth of theranostics over the next decade



Proprietary SAR Technology platform

Theranostic radiopharmaceuticals have four main elements: a radioisotope, cage, linker and targeting ligand and are administered intravenously





SAR Technology platform

A proprietary, highly specific and highly stable bifunctional **cage** (chelator) with a superior ability to retain copper isotopes within it and **prevent their leakage** into the body

Unlike the current
generation of
radiopharmaceuticals,
SAR products do not
require heating in
order to bind copper
to the cage

9

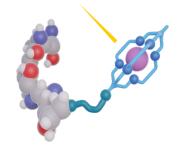
Global leader in Targeted Copper Theranostics

Clarity's SAR Technology is used to develop the next generation of radiopharmaceuticals that employ the "perfect pairing" of copper-64 (64Cu) for diagnosis and copper-67 (67Cu) for therapy

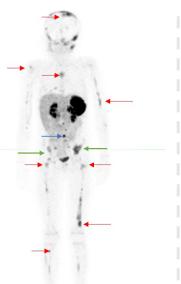
Diagnostic

Positron emission from 64Cu at the tumour site enables better diagnosis through PET imaging

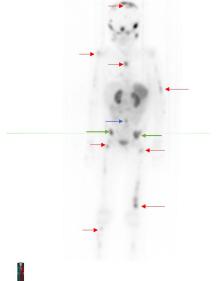
64Cu SARTATE™



64Cu SARTATE™ PET screening



4 hours

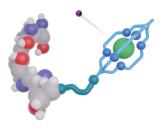


67Cu SARTATETM SPECT scan 24 hours

Therapeutic

Beta particle (β-) emission from ⁶⁷Cu delivers radiation directly to the cancer cells in order to kill them

⁶⁷Cu SARTATE™



Both diagnostics and therapeutics target the same cancer sites with high accuracy and precision, delivering a key platform advantage



Dual development strategy

SAR Technology enables a synergistic development of stand-alone diagnostics as well as paired theranostics

Dx revenue pays for late-stage

Tx clinical development

Diagnostics based on 64Cu

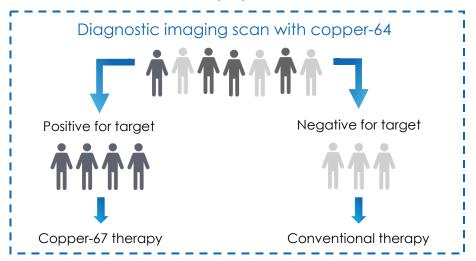
- Broad market opportunities
- Address the current supply and logistical constraints on the industry
- Provide universal access to diagnostic agents
- Short time to market, provides revenue for later stage therapy development
- Low production and distribution costs shield potential revenues from lost of pass-throughstatus after 3 years in the US



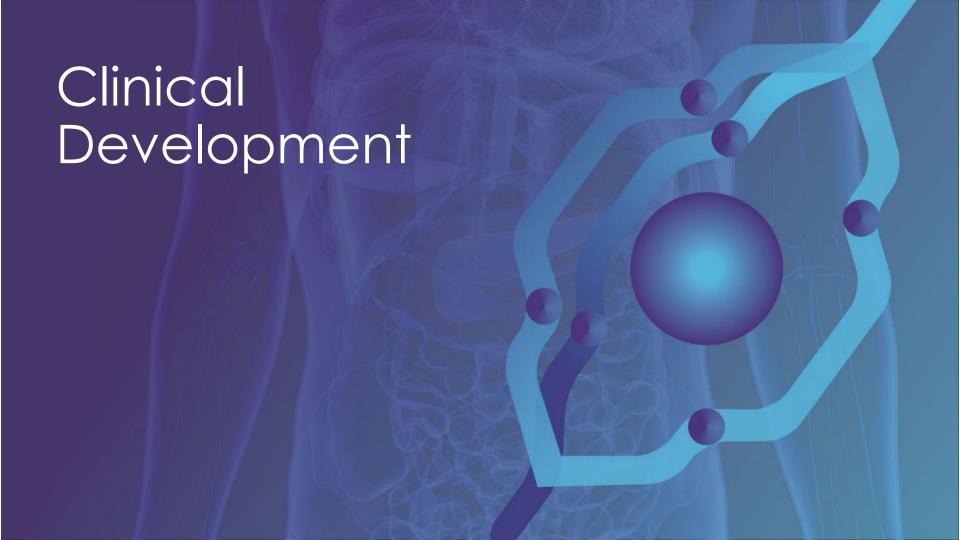
Marketed Dx reenforces Tx position

Theranostics based on 64Cu/67Cu

- High precision, high accuracy
- Blockbuster potential for a range of assets
- Easy to scale up
- Domestic US supply
- No reliance on aging nuclear reactors

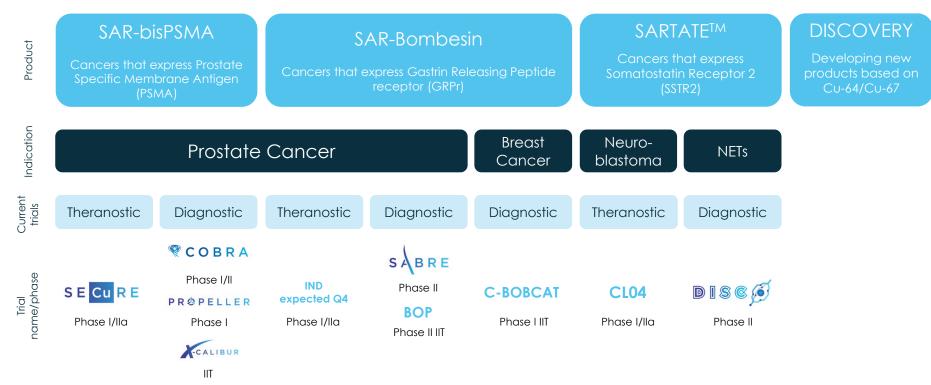






Three core product areas in clinical trials

Clarity has an active clinical development program in multiple oncology indications with unmet needs through a range of products and their applications. The SAR platform is also used in our SAR-DISCOVERY program which has significant synergies with the existing clinical program.

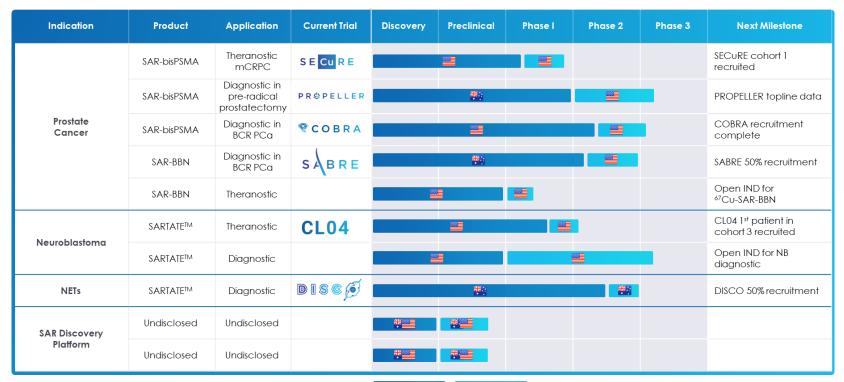




Clinical development in multiple cancers

Clarity's products are progressing through sponsored clinical trials in the US and Australia

Clinical development pipeline as of 9 November 2022

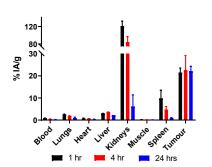




SAR-bisPSMA: Pre-clinical data

SAR-bisPSMA is ideally suited for a theranostic radiopharmaceutical

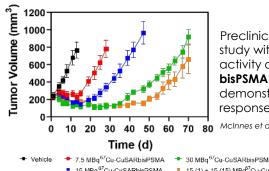
High uptake and retention in tumour



Preclinical biodistribution study demonstrating high uptake and retention of 64Cu SAR-bisPSMA in tumours with rapid clearance from non-target organs

Zia et al., 2019. Ang.Chem

Significant anti-tumour effect

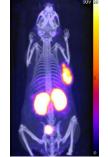


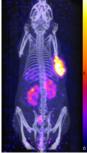
Preclinical efficacy study with increasing activity of 67Cu SARbisPSMA (colours) demonstrating dose response

McInnes et al., 2020. JNM

15 (1) + 15 (15) MBd^{β7}Cu-CuSARbisPSMA

Rapid kidney clearance of non-bound activity





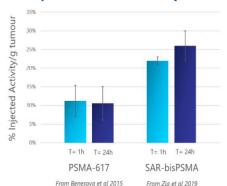
24 hr Tumour targeting and superior retention over 24 hours

PET images showing 64Cu SARbisPSMA targeting to tumours over time and rapid kidney clearance

'bisPSMA'

The term "bis" is used to denote the presence of two identical but separate complex groups in one molecule

High uptake and retention in tumour compared to PluvictoTM (PSMA-617)

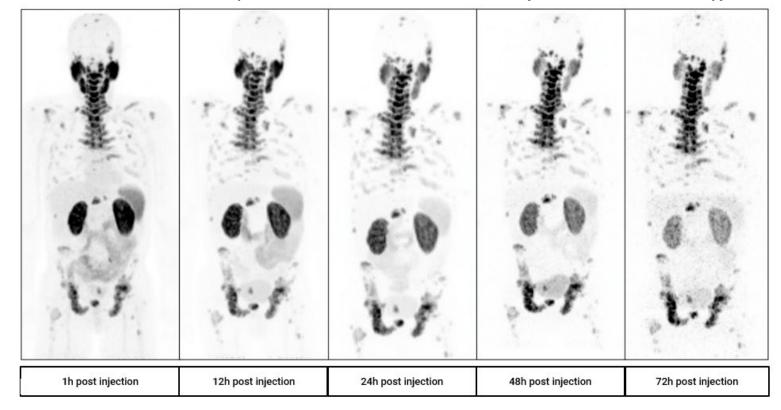




SAR-bisPSMA therapy in prostate cancer



PET scans in a patient with metastatic castrate-resistant prostate cancer imaged over multiple timepoints between 1 and 72 hours post administration of 64Cu SAR-bisPSMA (Normalised Voxel Intensity)

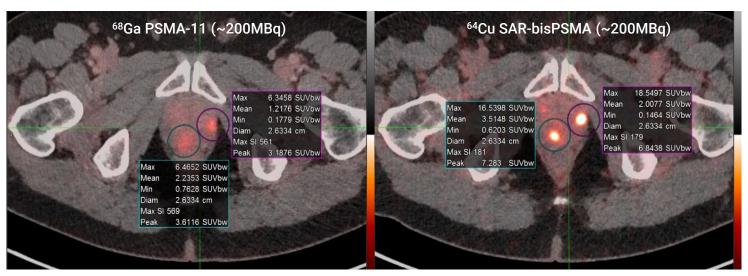




SAR-bisPSMA diagnostic in untreated, confirmed prostate cancer

PR必PELLER

Comparison of 68Ga PSMA-11 (image left) to Clarity's 64Cu SAR-bisPSMA (image right) in the same patient



⁶⁸Ga PSMA-11 (~200MBq, left) vs. ⁶⁴Cu SAR-bisPSMA (~200MBq, right) in the same patient; time between serial imaging was 8 days. Standardised Uptake Value (SUVmax)* of the lesions were 6.5 and 6.3 for ⁶⁸Ga PSMA-11 and 16.5 and 18.5 for ⁶⁴Cu SAR-bisPSMA.



SAR-bisPSMA therapy in prostate cancer



SECuRE: Systemic Copper theranostics in prostate cancer

- Phase I/IIa study of 64Cu/67Cu SAR-bisPSMA for identification and treatment of PSMA-expressing metastatic castrate resistant prostate cancer (mCRPC)
- Dose escalation phase aims to find the highest dose of 67Cu SAR-bisPSMA that can be given safely and expand patient numbers at that dose in dose expansion

Trial design

Theranostic multi-centre, single arm, dose escalation study with a cohort expansion planned for up to 44 patients



Status

- Dosimetry phase with 64Cu SAR-bisPSMA in mCRPC completed
- First patient treated in the dose escalation phase

Next milestone

Advance to next dose cohort

Preliminary imaging results from the dosimetry phase Comparison of 1h 64Cu SAR-bisPSMA 64Cu SAR-bisPSMA PET with 99mTc-MDP Bone Scan PET/CT 12hr 64Cu SAR-1h 64Cu SAR-99mTc-MDP WB bisPSMA PET/CT bisPSMA PFT Bone Scan Fused Sagittal

SAR-bisPSMA diagnostics

PSMA diagnostics are set to become a blockbuster market with >\$1.1B in the US

Pre-definitive treatment setting

PR公PELLER

Compares ⁶⁴Cu SAR-bisPSMA to ⁶⁸Ga PSMA-11in participants with untreated prostate cancer who are planned for radical prostatectomy

Trial design

Phase I multi-centre, blinded review, dose ranging, non-randomised study in 30 patients across Australia

Status

Fully recruited, analysis underway

Next milestones

- Topline data in Q4 2022
- Discussions with US FDA on Phase III diagnostic trial design; trial planned to commence in 2023

PROPELLER clinicaltrials.gov identifier: (NCT04839367)

Biochemical recurrence (BCR) setting



Investigates the safety and tolerability of ⁶⁴Cu SAR-bisPSMA as well as its ability to correctly detect recurrence of prostate cancer in participants with BCR of prostate cancer following definitive therapy

Trial design

Phase I/II multi-centre, single arm, non-randomised study in up to 50 patients across the US

Status

>50% recruited

Next milestones

- 100% recruitment in Q1 2023
- Top-line data expected Q3 2023

COBRA clinicaltrials.gov identifier: (NCT05249127)

Two Phase III trials required for registration in prostate cancer: one in the pre-definitive treatment and one in the BCR setting. Clarity is expecting to commence registrational trials in 2023.



SAR-Bombesin – a pan cancer product

©CLARITY

64Cu SAR-

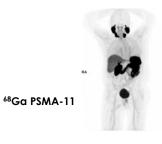
Bombesin

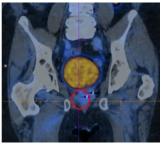
GRPr is a receptor that is overexpressed in a number of cancers including prostate, breast, colon, gastric, glioma, pancreatic, small cell lung and non-small cell lung cancer, as well as renal cell cancer

- 75%-100% of prostate cancers express GRPr
- 83% of estrogen receptor (ER) positive breast cancers express **GRPr**
- ~10% of prostate cancer patients do not express PSMA
- PSMA negative prostate cancer patients will not respond to PSMA imaging or therapy
- SAR-Bombesin is now under investigation as a diagnostic imaging agent for PSMA-negative prostate cancer



SAR-Bombesin was able to locate tumours in PSMA-negative prostate cancers that are not visible with approved PSMA diagnostics













68Ga PSMA-11



⁶⁸Ga PSMA-11 (top) images of a PSMA-negative patient with clinical signs of prostate cancer (a rising PSA score of 0.16 ng/mL) and 64Cu SAR-Bombesin PET/CT images of the same patient (bottom)

⁶⁸Ga PSMA-11 (top) image of a PSMA-negative patient with history of prostate cancer (a rising PSA score of 25 ng/mL) and 64Cu SAR-Bombesin PET/CT image of the same patient (bottom)



SAR-Bombesin in PSMA-negative prostate cancer



SABRE: Copper-64 SAR-BBN in Biochemical Recurrence of prostate cancer

The primary objectives of the trial are to investigate the safety and tolerability of the product as well as its ability to correctly detect recurrence of PSMA-negative prostate cancer.

Trial design

- Phase II Positron Emission Tomography (PET) imaging trial of participants with PSMA-negative biochemical recurrence (BCR) of prostate cancer following definitive therapy.
- Multi-centre, single arm, non-randomised, open-label trial of ⁶⁴Cu-labelled SAR-Bombesin in 50 participants.

Status

Recruitment ongoing in the US

Next Milestone

- 50% recruitment in Q1 2023
- Clarity is preparing for a US-based theranostic trial with 64Cu/67Cu SAR-Bombesin
- Open IND expected Q4 2022

BOP

BOP IIT: Copper-64 SAR Bombesin in Prostate Specific Membrane Antigen (PSMA) negative Prostate Cancer

Assesses the safety of ⁶⁴Cu-SAR-Bombesin and looks at the diagnostic potential across two different groups of men:

- Participants with suspected biochemical recurrence (BCR) of their prostate cancer who have negative PSMA positron emission tomography (PET) imaging scans or low PSMA expression disease
- Participants with metastatic castrate resistant prostate cancer (mCRPC) who are not eligible for PSMA therapy

Trial design

 Phase II investigator-initiated trial (IIT) in up to 30 patients led by Prof Louise Emmett at St Vincent's Hospital, Sydney

Status

• 50% recruited as of 02/11/22

Next Milestone

100% recruitment in Q3 2023



SARTATETM

CL04

SARTATE™ CL04: ⁶⁷Cu-SARTATE™ Peptide Receptor Radionuclide Therapy Administered to Pediatric Patients With High-Risk, Relapsed, Refractory Neuroblastoma

 $^{64}\text{Cu}/^{67}\text{Cu}$ SARTATETM Phase I/IIa trial in high-risk neuroblastoma in the US with up to 34 patients

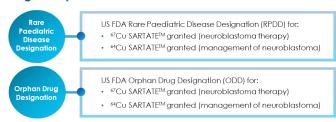
Trial design

 Multi-centre, dose-escalation, open label, non-randomised, theranostic clinical trial

Status

- Cohort 1 complete, no safety issues
- Cohort 2 complete, no safety issues
- Cohort 3 commenced recruitment

Regulatory milestones



 RPDDs may potentially allow to access 2 Priority Review Vouchers, which are tradeable and have recently transacted at US\$110M



DISCO: Diagnostic Imaging Study of Copper-64 SARTATE using PET on patients with known or suspected NETs

Assesses the performance of imaging agent ⁶⁴Cu SARTATETM in participants with known or suspected gastroenteropancreatic NETs as a potential new way to help diagnose and manage NETs

 Aims to capture and highlight the significant advantages of the longer half-life (12.7 hours) of copper-64, related to imaging and product supply which are relevant to Clarity's entire pipeline of products in development

Trial design

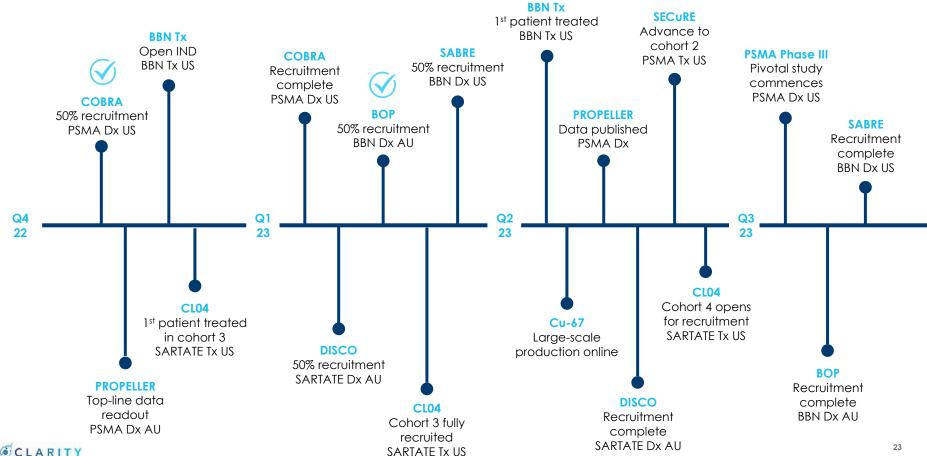
- Phase II multi-centre, single arm, non-randomised, blinded-review study in up to 63 participants
- Compares diagnostic performance of ⁶⁴Cu SARTATETM at 4 and 20 hours to the current standard of care, ⁶⁸Ga DOTATATE, at 1 hour

Status

 Currently recruiting at four sites with ⁶⁴Cu SARTATE™ manufactured centrally in Australia



Inflection points over next 12 months



Robust IP driving the Discovery program

Clarity's proprietary SAR Technology platform can be used in conjunction with any number of targeting ligands to create new products and new IP

Broad Patent Portfolio

Platform Protection

 Granted and new chelator patents used in further developing lead and back-up products

Product Protection

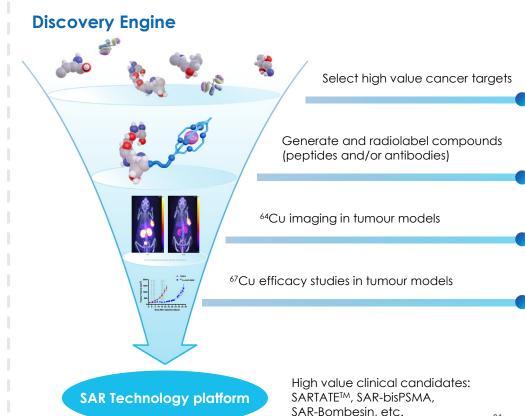
- Maintenance of pending applications for potential continuation or divisional filings on existing important patents
- New patents filed on lead and back-up compounds

Pipeline Protection

- New chelator patents used in future discovery products
- New patents filed on novel treatment regimes for radiopharmaceutical applications

Manufacturing & Process Protection

- Manufacturing and formulation patents
- New patents filed on manufacturing processes





Highly experienced team



Dr Alan Taylor Executive Chairman

Shaemus Gleason

EVP - Operations



Dr Colin Biggin CEO



Michelle Parker EVP – Global Clinical Operations



Dr Jennifer Rosenthal Director of Quality & Regulatory Affairs



Dr Matt Harris Director of Technology



Robert Vickery Company Secretary



David Green Chief Financial Officer

Clarity's management team has a diverse and in-depth level of expertise spanning corporate finance, management, operations, commercialisation and industry

- Development, approval and launch of 1st approved radiopharmaceutical therapy product for prostate cancer (Xofigo)
- Decades of experience spanning across science, nuclear medicine/PET, and pharmaceutical industries
- Investment banking experience focused on the life sciences sector















Thank you

Contact details

Dr Alan Taylor

Executive Chairman E: alan.taylor@claritypharm.com

Dr Colin Biggin

Managing Director

E: colin.biggin@claritypharm.com

