PLUS Corporate Presentation

September 2020

PLUS™ THERAPEUTICS

Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Any statement in this document that is not a historical fact is a "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act and are usually identified by the use of words such as "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "seeks," "should," "will," and variations of such words or similar expressions. We intend these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended, and are making this statement for purposes of complying with those safe harbor provisions. These forward-looking statements reflect our current views about our plans, intentions, expectations, strategies and prospects, which are based on the information currently available to us and on assumptions we have made. Although we believe that our plans, intentions, expectations, strategies and prospects as reflected in or suggested by those forward-looking statements are reasonable, we can give no assurance that the plans, intentions, expectations or strategies will be attained or achieved. Furthermore, actual results may differ materially from those described in the forward-looking statements and will be affected by a variety of risks and factors that are beyond our control.

Risks and uncertainties for Plus include, but are not limited to: an inability or delay in obtaining required regulatory approvals for product candidates, which may result in unexpected cost expenditures; risks inherent in drug development in general; uncertainties in obtaining successful clinical results for product candidates and unexpected costs that may result therefrom; failure to realize any value of certain product candidates developed and being developed in light of inherent risks and difficulties involved in successfully bringing product candidates to market; inability to develop new product candidates and support existing products; the approval by the FDA and any other similar foreign regulatory authorities of other competing or superior products brought to market; risks resulting from unforeseen side effects; risk that the market for the combined company's products may not be as large as expected; inability to obtain, maintain and enforce patents and other intellectual property rights or the unexpected costs associated with such enforcement or litigation; inability to obtain and maintain commercial manufacturing arrangements with third-party manufacturers or establish commercial scale manufacturing capabilities; loss of or diminished demand from one or more key customers or distributors; unexpected cost increases and pricing pressures; economic recession and its negative impact on customers, vendors or suppliers; uncertainties of cash flows, expenses and inability to meet working capital needs; and other risks and uncertainties detailed in the risk factors section of Plus' Form 10-K and Forms 10-Q filed with the SEC, as well as other filings Plus makes with the SEC from time-to-time. Many of these factors that will determine actual results are beyond Plus' ability to control or predict. Plus disclaims any obligation to update information contained in these forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

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We believe in the critical importance of discovering, developing, and delivering complex and innovative treatments for patients battling rare cancers.

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Company Highlights

- Proprietary nanoparticle drug development platform
  - Three clinical-stage radiotherapeutic and chemotherapeutic drugs
  - Lead drug trial funded by US National Institutes of Health/National Cancer Institute
  - Multiple opportunities in preclinical development
- Capital efficient, virtual drug development model
  - Veteran core development team and low fixed overhead costs
  - Austin, Texas headquarters provides access to $6B in CPRIT cancer funding
  - 12-18 months cash
- Key 2020 milestones
  - U.S. Phase 1 clinical data for lead investigational drug in brain cancer
  - New radiotherapeutic drug pipeline clinical candidates
  - Deal pipeline

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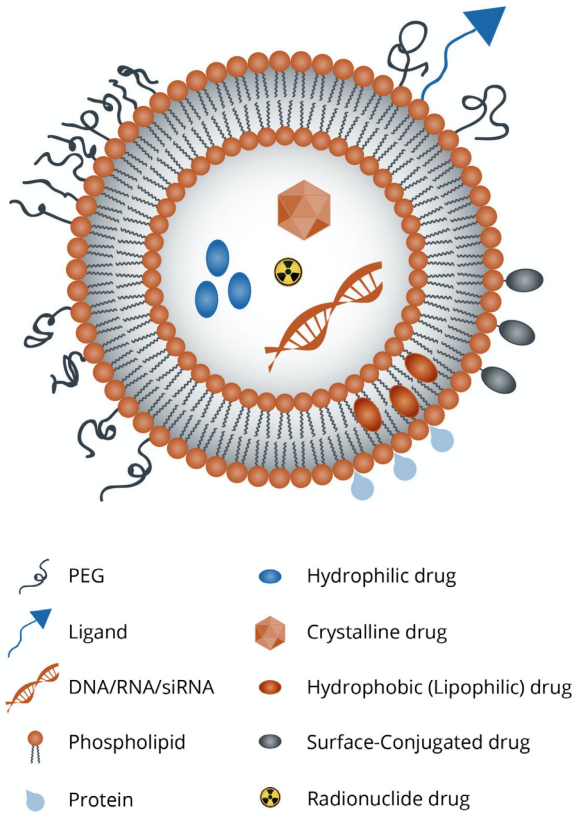
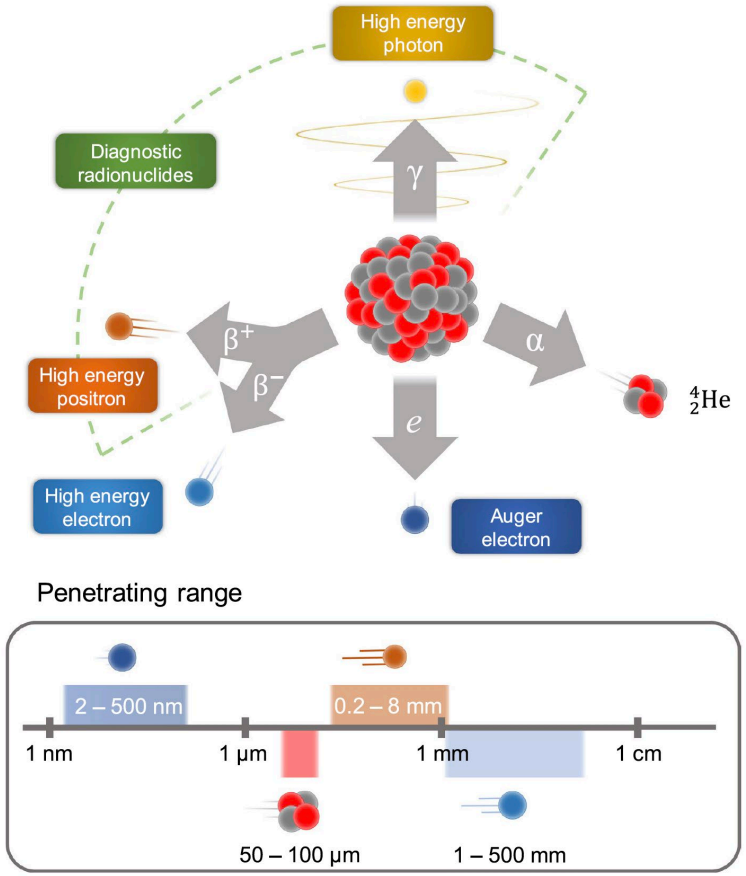
Technology Platform

Nanoparticle Design & Manufacturing



Radionucleotide Encapsulation & Delivery



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Drug Development Pipeline

RADIOTHERAPEUTIC PROGRAM	INDICATION	DELIVERY	DESIGNATION	FUNDING	DEVELOPMENT STAGE
RNL™ BMEDA-Chelated Rhenium NanoLiposome*	Recurrent Glioblastoma	Intratumoral	FDA Orphan Drug	NIH/NCI	U.S. Phase 1 Clinical Enrolling
	Leptomeningeal Carcinomatosis	Intrathecal or Intracerebroventricular	-	-	Late-stage Preclinical
	Peritoneal Carcinomatosis	Intraperitoneal	-	-	Late-stage Preclinical
	Head & Neck Squamous Cell Carcinoma	Intratumoral	-	-	Late-stage Preclinical

CHEMOTHERAPEUTIC PROGRAM	INDICATION	DELIVERY	DESIGNATION	FUNDING	DEVELOPMENT STAGE
DocePLUS™ Albumin-Stabilized PEGylated Liposomal Docetaxel*	Solid Tumor; Small Cell Lung Cancer	Intravenous	FDA Orphan Drug	-	U.S. Phase 1 Clinical Published
DoxoPLUS™ PEGylated Liposomal Doxorubicin**	Breast Cancer; Ovarian Cancer	Intravenous	-	-	Clinical Bioequivalence Published

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* proprietary, innovative ** complex generic

Radiotherapeutics

Radiotherapeutics: Deals & Pricing Economics

Recent FDA Approvals

Radiotherapy	Description	Indication	U.S. Launch	Annual Cost
Progenics AZEDRA®	iobenguane I-131	pheochromocytoma or paraganglioma (ultra rare)	2018	$294K
Novartis LUTATHERA®	lutetium Lu-177	gastroenteropancreatic neuroendocrine tumor (rare)	2018	$190K
Bayer XOFIGO®	radium Ra-223	prostate cancer	2013	$69K
Acrotech ZEVALIN®	Rituxan + yttrium Y-90	follicular B-cell Non-Hodgkin's lymphoma	2002	$28K

Recent Deals

+ 2019: Fusion Pharma raises $105M to support development of targeted radiotherapeutics for cancer
+ 2018: Novartis acquires Endocyte for $2.1B, gaining drug conjugation technology to develop targeted therapies with companion imaging agents including 177Lu-PSMA-617 for prostate cancer
+ 2018: Novartis acquires Advanced Accelerator Applications for $3.9B, gaining access to LUTATHERA® (lutetium Lu 177 dotatate) for neuroendocrine tumors; LUTATHERA® achieved global sales of $120M in the U.S. and Europe with an ongoing launch in Europe
+ 2013: Bayer acquires Algeta for $2.9B, gaining access to XOFIGO® (radium Ra 223 dichloride) for prostate cancer; XOFIGO® achieves global sales of $414M in 2018

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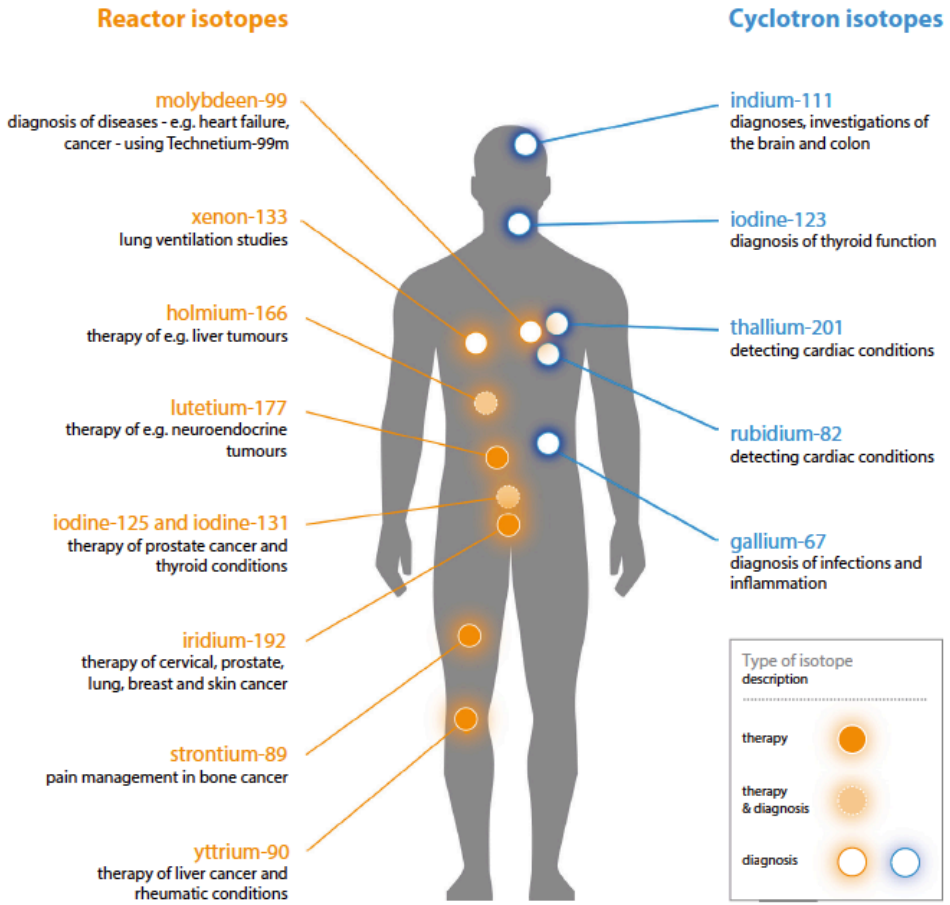
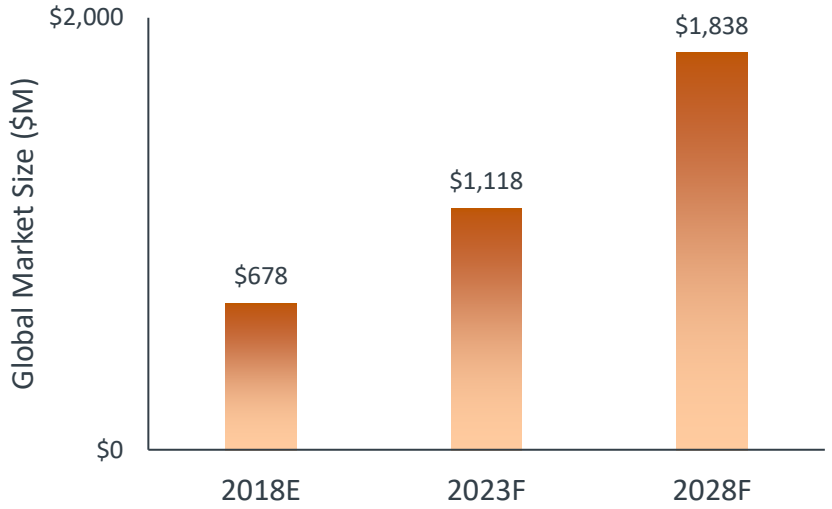
Sources: company websites, FiercePharma, LiveScience, Reuters, WSJ

Medical Radionuclide Market

Broad Diagnostic/Therapeutic Applications



Radiotherapeutics: Double-Digit Growth



- Produced in nuclear reactor
- Dual particle emitter: therapeutic & imaging
- Approved in Europe for the treatment of bone metastases
- Seamless integration in current hospital nuclear medicine workflows

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Sources: Nuclear Netherlands; Future Market Insights December 2018

Glioblastoma: A Death Sentence

Overall Survival

3.65

Annual New Cases Per 100,000 People

11,936	10,846	4,636
United States	EU5	Japan

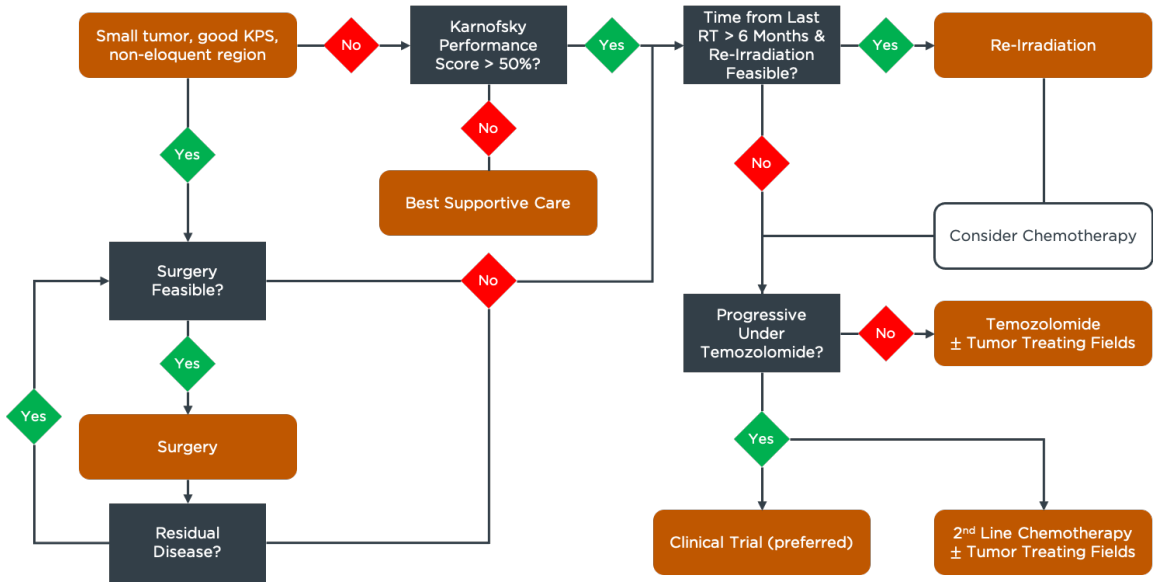
Nearly 100%

Recurrence

5.6-9.8

Overall Survival* (Months)

Treatment Algorithm for Recurrent Cancer



+ Tumor recurrence after primary therapy is the norm
+ Standard of care in recurrent setting is ill-defined
+ Only 1 new therapy FDA approved since 2011
+ Patients and providers are seeking new treatment options

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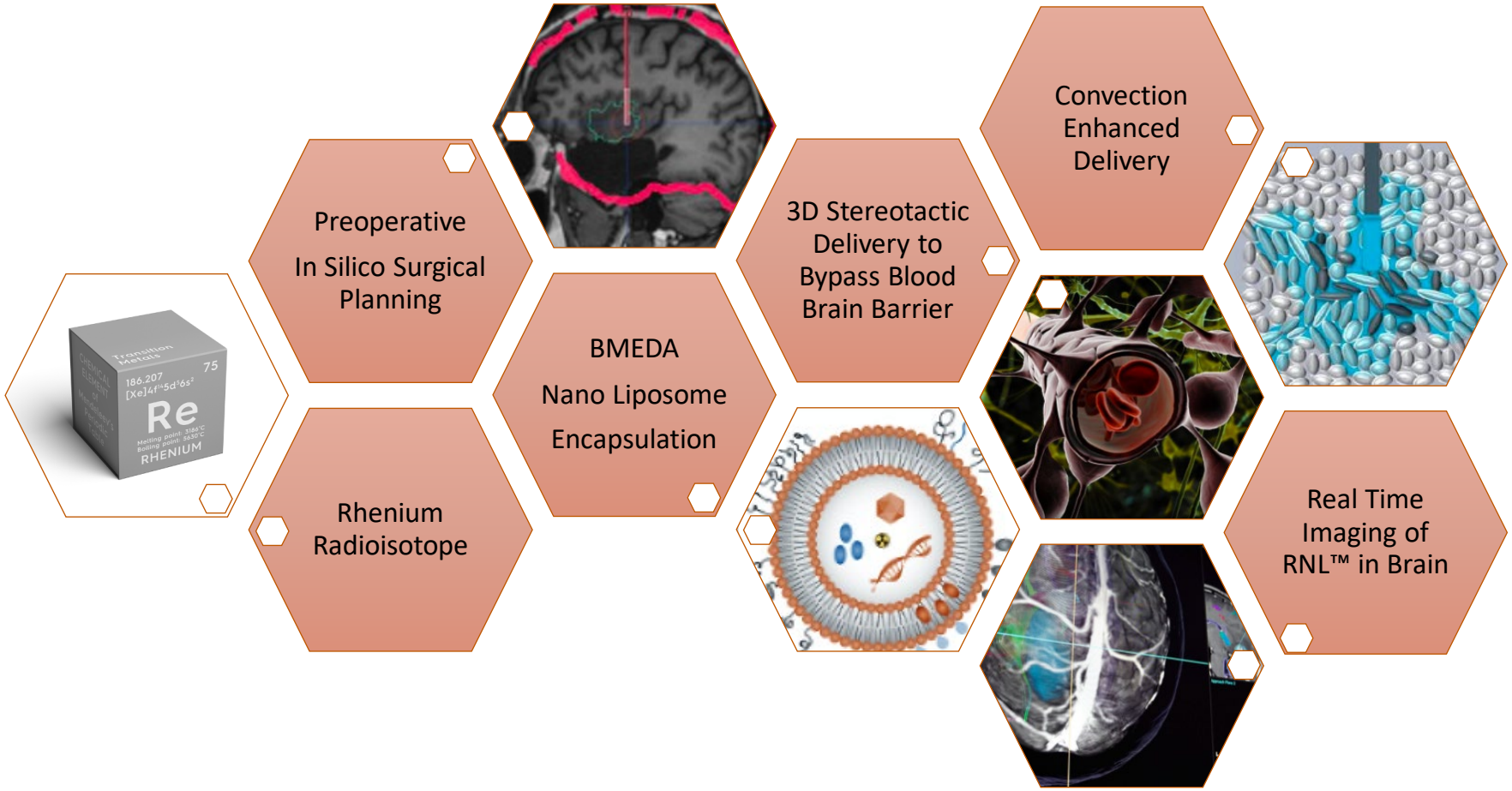
Sources: CBTRUS; Glas M. *Ther Adv Med Oncol* 2019

*From time of first recurrence

Solving the Therapeutic Puzzle for Brain Cancer

Multimodal Therapy with Rhenium NanoLiposome (RNL™)



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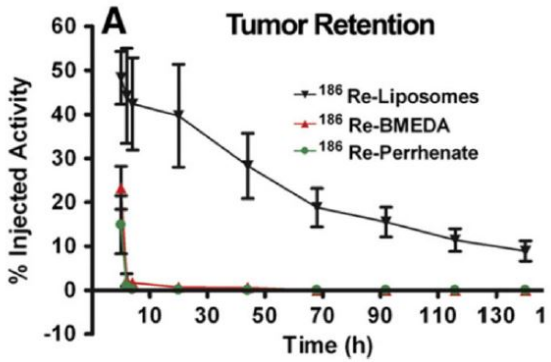
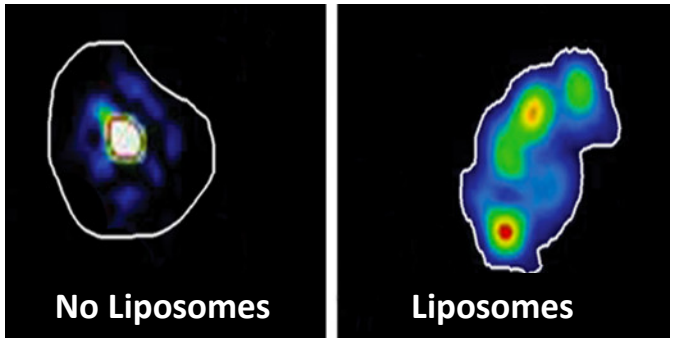
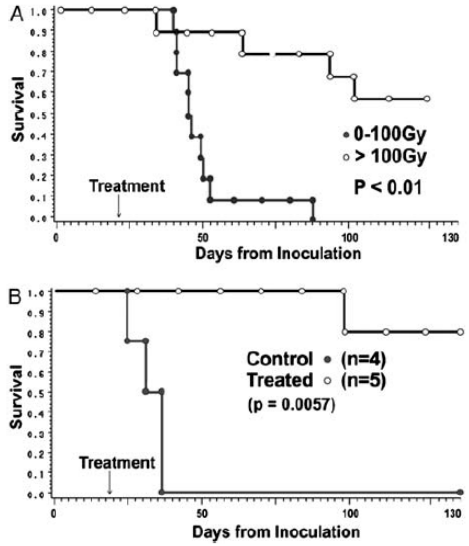
RNL™ Preclinical Science: Retention, Tumor Coverage & Safety

Liposomal encapsulation fundamentally changes both the **retention** within the tumor and the **dispersion** of the drug product.

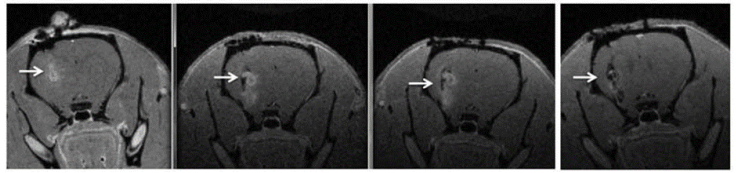


Tumor Dispersion

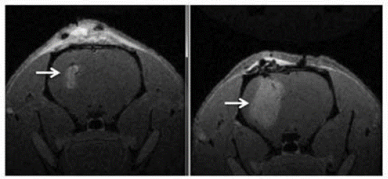


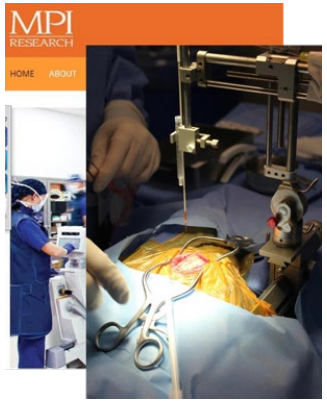


^{186}Re-Liposome Treatment



Control





- Intracranial administration of 1, 3.5 or 6 mCi RNL™ produced no significant pathologic changes at 24 hours or 14 days
- Highest absorbed dose was 360 Gy
- Based on these data, the no adverse effect limit (NOAEL), as related to brain pathology, was determined to be an absorbed dose of 360 Gy

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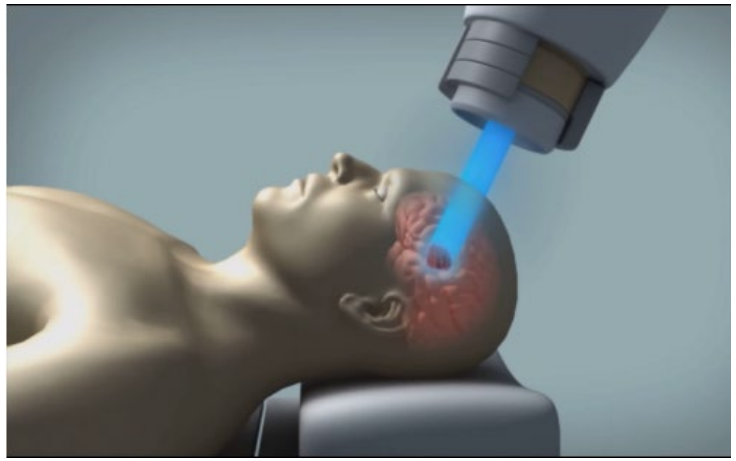
Source: Phillips, W. et al Advanced Drug Delivery Reviews 2014

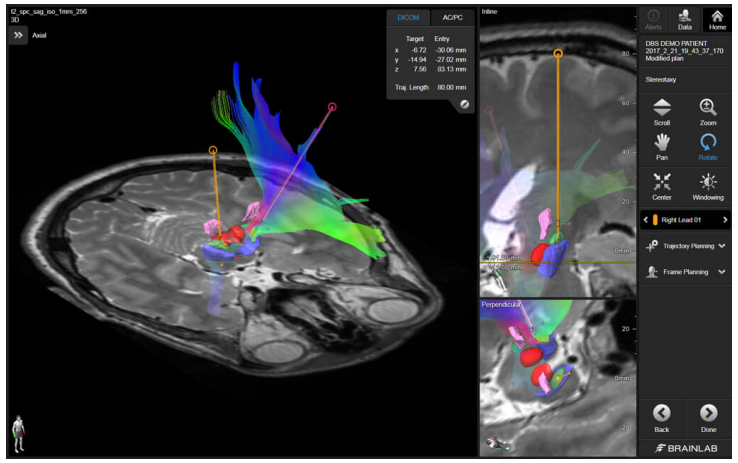
External Beam Radiation Therapy vs. RNL™

External Beam Radiation



- Significant radiation exposure to external tissues
- Safe dosing limited to 80/40 Gy
- Limited to ‘enhancing’ tumors
- Delivered over 4 weeks, 5x per week

RNL™ - Rhenium NanoLiposome



- No exposure to external tissues
- Maximum safe dose not reached, >500Gy
- Micro fields cover non enhancing tumor
- ‘One-shot’ treatment via convection enhanced delivery

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ReSPECT™ U.S. Phase 1 Clinical Trial

Multi-center, sequential cohort, open-label, volume and dose finding study of the safety, tolerability, and distribution of ^{186}RNL given by convection enhanced delivery to patients with recurrent or progressive malignant glioma after standard surgical, radiation, and/or chemotherapy treatment

- 5th dose escalation cohort complete and 15 patients treated thus far with RNL™
- Estimated treatment volume in 6th cohort will accommodate tumors up to 4.5 cm
- No treatment-related SAEs observed
- Thus far, 2 patients survived >30 months
- Early signals of efficacy in patients with adequate dosing and tumor coverage
- Supported by a NIH/NCI grant through Phase 2

ClinicalTrials.gov: NCT01906385

ReSPECT™ Dose Escalation Status

Cohort	Infused Volume (mL)	Total RNL Activity (mCi)	Concentration (mCi/mL)	Status
1	0.66	1.0	1.5	First 5 cohorts completed (n = 15 patients)
2	1.32	2.0	1.5	
3	2.64	4.0	1.5	
4	5.28	8.0	2.5	
5	5.28	13.4	2.5	
6	**8.80**	**22.3**	**2.5**	**Enrolling**

- Mean volume of distribution (Vd) from cohorts 4 and 5 is 28.5 mL, sufficient to treat tumors up to 3.5 cm
- Estimate that Vd will increase to 40 – 45 mL, which will treat tumors up to 4.5 cm
- Cohort 6 anticipated to be last cohort in the dose-escalation trial

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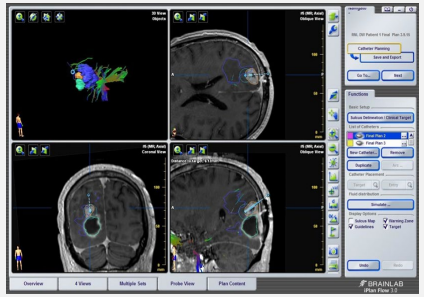
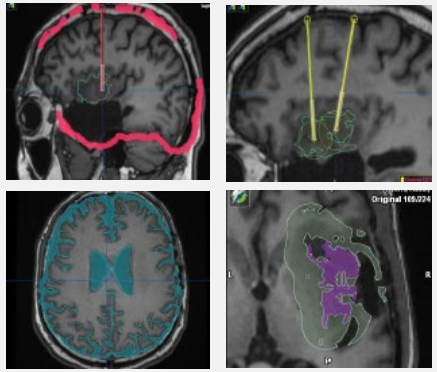
ReSPECT™ Therapeutic Planning & Treatment

PreOp	Day 1	Day 2	Day 3/4
In Silico Treatment Planning	Operating Room	RNL™ Infusion	Patient Discharge



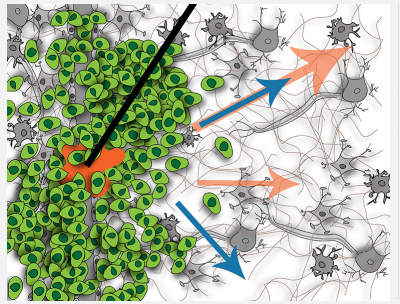
Tumor Targeting & Coordinates



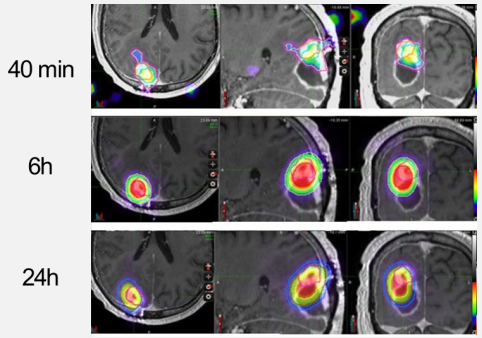
Optimal Catheter Trajectory

Planning Data Input to OR Computer

Stereotactic Catheter Placement



Convection Enhanced Delivery



Real Time Imaging of RNL™ Therapy

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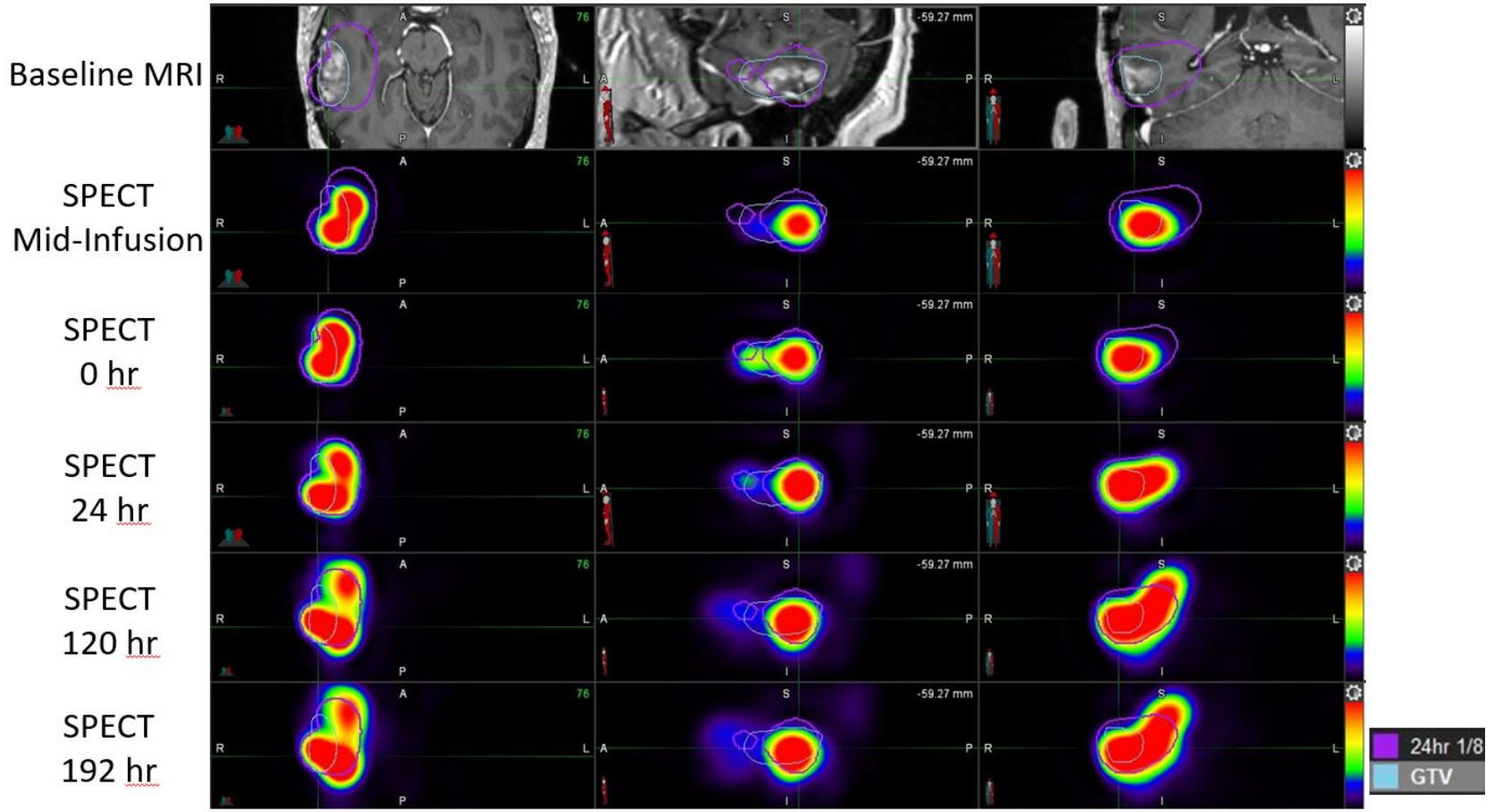
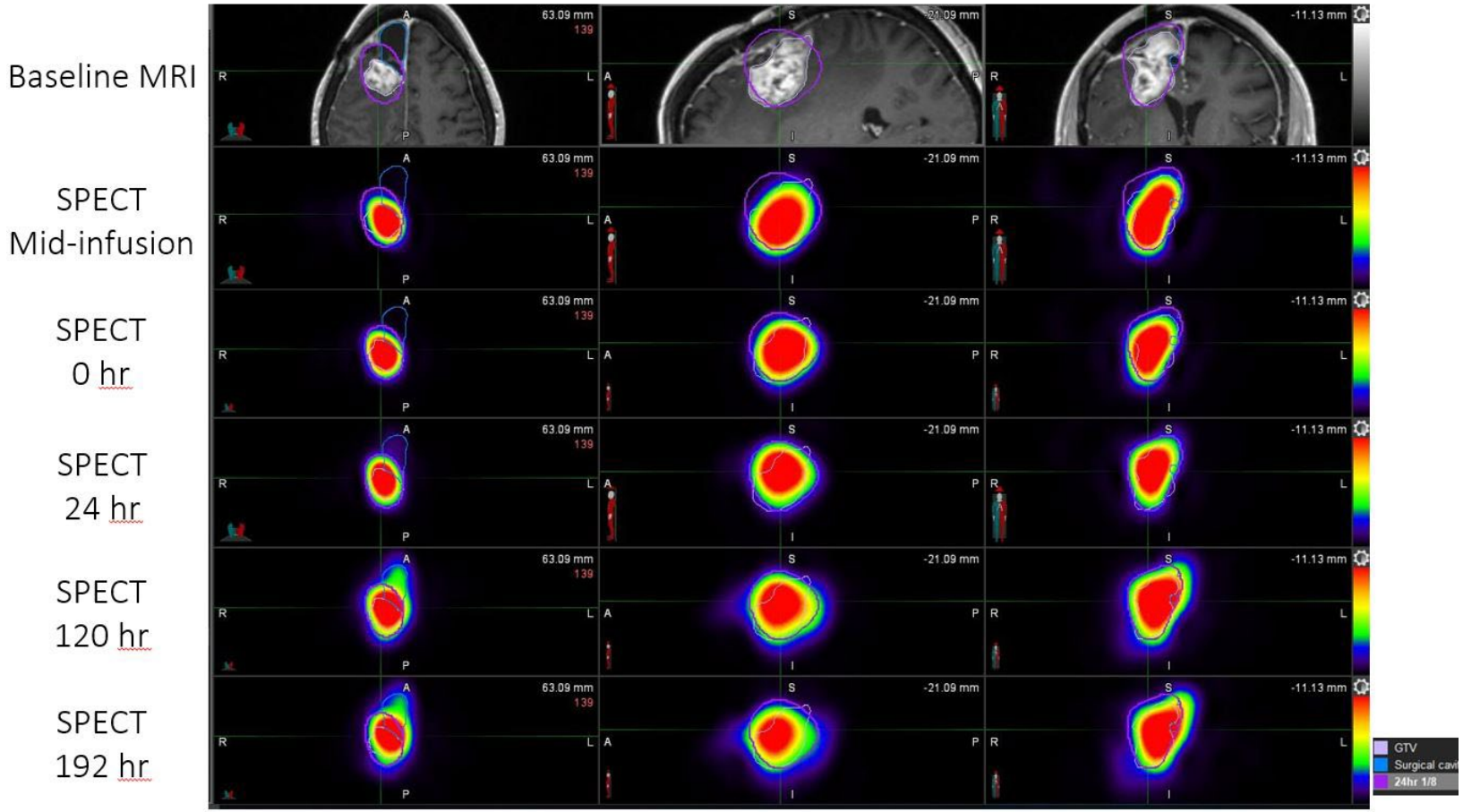
Sequential Imaging of Cohort 4 Patient 013

Serial SPECT scans demonstrate excellent tumor coverage and retention out to Day 8

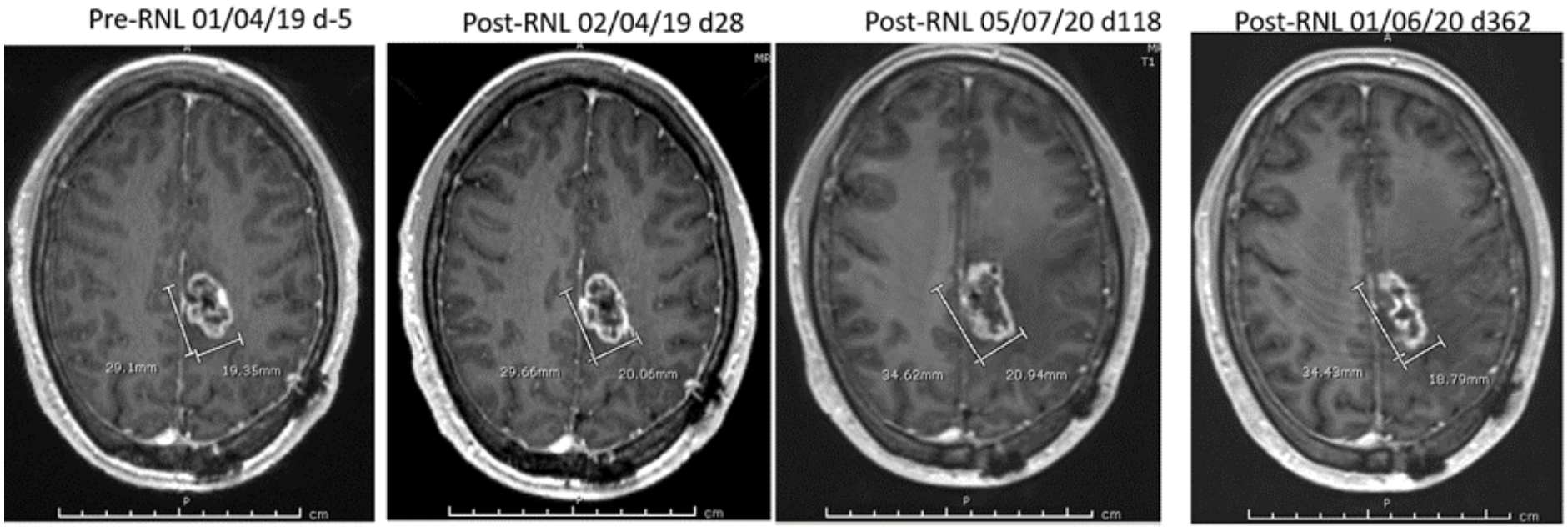


Sequential Imaging of Cohort 4 Patient 014

Serial SPECT scans demonstrate excellent tumor coverage and retention out to Day 8



Patient 014 Tumor Response



- Imaging revealed an initial increase in size with some associated edema which peaked at Day 118 followed by tumor shrinkage through to Day 362
- The subject was alive at last follow-up (July 9, 2020), 547 days (18.0 months) after enrollment in the study

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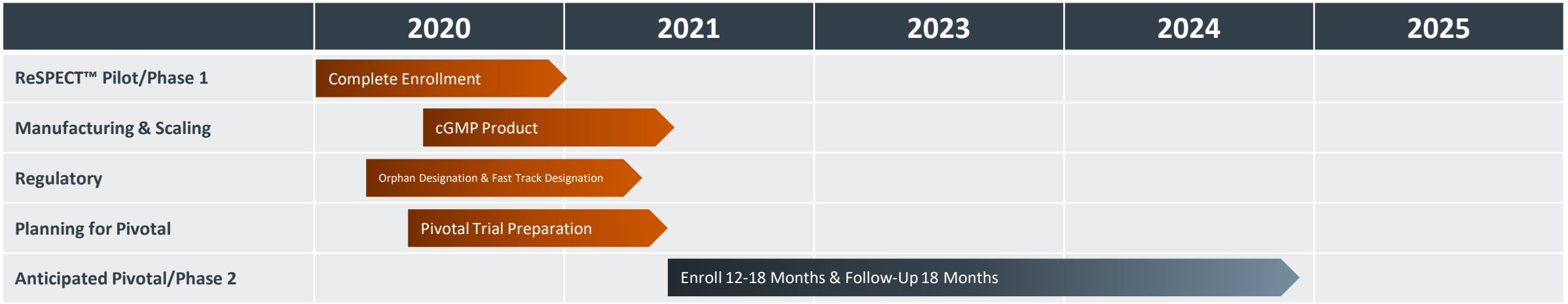
RNL™ for rGBM Development Plan



- ReSPECT™ Phase 1 trial enrollment completion late 2020
- Manufacturing and product scalability in place by mid 2021
- Seek US FDA and EU EMA orphan drug designation in 2020
- Seek US FDA FastTrack designation in 2020
- Preparations for Phase 2 pivotal trial
- Initiate pivotal adaptive design Phase 2 clinical trial in H2 2021

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RNL™ Indication Expansion

+ Strong foundation of published preclinical studies across multiple rare cancer indications with significant unmet needs will be used to support future U.S. FDA IND applications

INDICATION	U.S. INCIDENCE	CURRENT STANDARD OF CARE	UNMET NEEDS
Leptomeningeal Carcinomatosis	110,000	None radiation & chemo used	+ 1 Year survival: 7% + 2 Year survival: 3% + 5 Year survival: unreported
Peritoneal Carcinomatosis (PC)	72,000	None chemo & cytoreduction surgery used	5 Year survival of PC from: + Ovarian: 12%-66% + Colorectal: 40-51% + Gastric: <3% + Mesothelioma: 33-59%
Head & Neck Squamous Cell Carcinoma	53,000	Small tumors without nodal involvement: radiation or surgery Locally advanced tumors: radiation, surgery, chemo	+ 5 Year survival: 66% + 30-40% develop recurrent locoregional cancer + 20-30% develop metastatic disease + Median overall survival in recurrent or metastatic: 6-15 months

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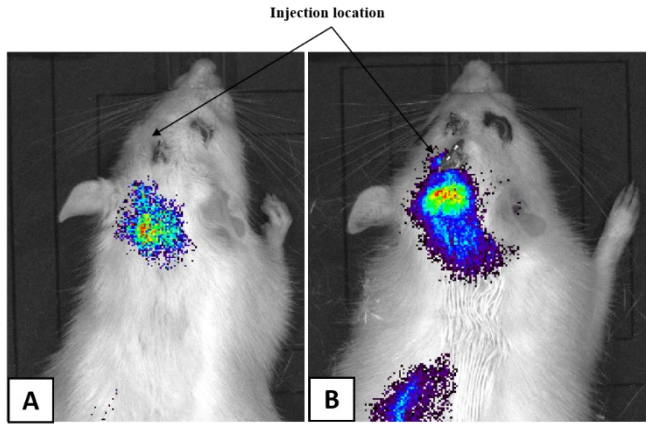
Preclinical Data: Leptomeningeal Carcinomatosis

Goal: develop a model that accurately represents the nature of LC in humans to assess the safety and efficacy of RNL as a treatment for LC

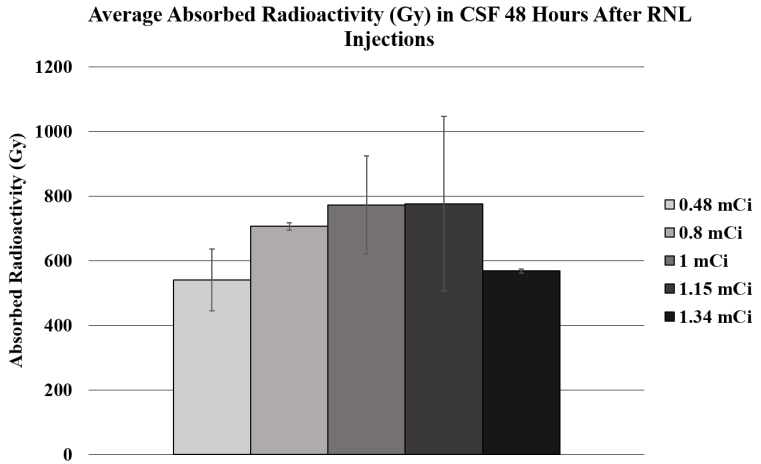
Result: a single dose of RNL is an effective in animals with LC, especially in the first 2 weeks post-administration

Stage 1: determine optimal coordinates, among 3 options based on bioluminescence in vivo imaging and neurological symptom tracking, for intraventricular injection of tumor cells in the rat brain that can successfully induce LC in a syngeneic rat model



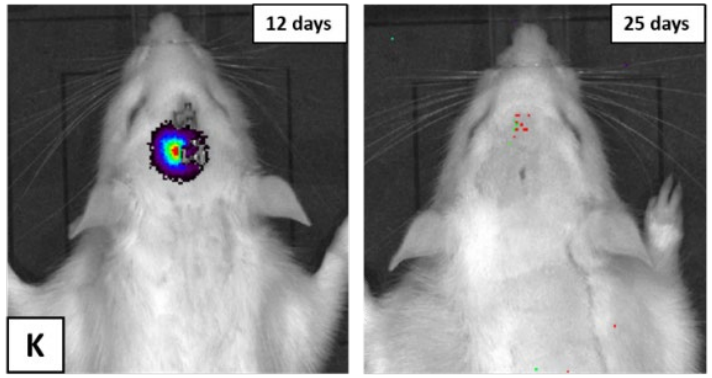
Stage 1: optimal coordinates determined as (1.2 mm anterior from bregma, 0.4 mm lateral from bregma, 3.8 mm deep from cortical surface)

Stage 2: determine the maximum tolerable dose (MTD) of RNL in 6 cohorts of rats (n=3) with varying doses of RNL (0.48, 0.80, 1.00, 1.15, 1.34 mCi) and a control cohort with empty liposomes



Stage 2: MTD not reached as all RNL cohorts gained weight, consumed enough foot to maintain energy and grow, and did not demonstrate any symptoms following dose administration. 1.34 mCi dose reported to be an outlier due to an unknown technical error.

Stage 3: assess RNL efficacy in 2 cohorts (n=8) of animals induced with LC; 1 cohort treated with RNL (0.69 mCi) and 1 cohort served as a control and injected with empty nanoliposomes



Stage 3: 62.5% of animals injected with RNL had a decrease in tumor size suggesting that RNL may have therapeutic efficacy.

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Source: internal data

Preclinical Data: Peritoneal Carcinomatosis

Goal

Assess biodistribution of intraperitoneal (IP) injected rhenium-biotin-liposomes (RBL)+avidin & tumor response using ^{18}F-FDG microPET imaging in ovarian cancer xenograft model of peritoneal carcinomatosis

Methods

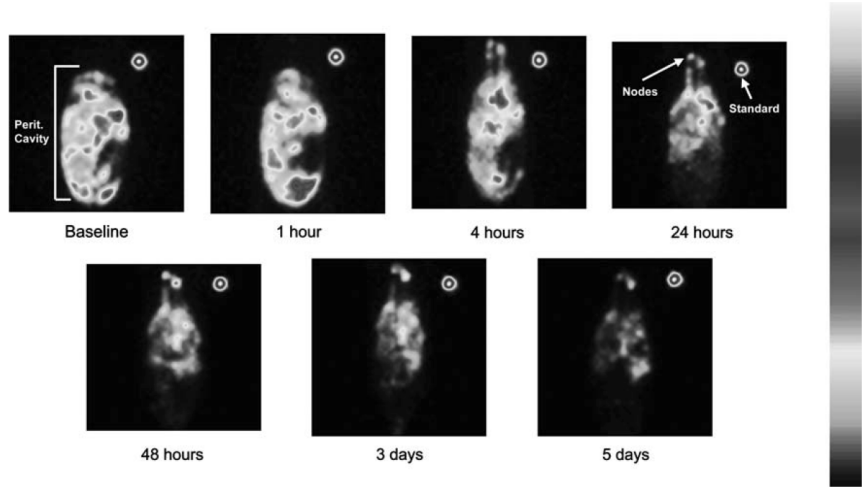
+ 12 nude rats were IP injected with 36 million NIH:OVCAR-3 cells in 2 ml of saline in the right lower peritoneal quadrant; 2 week inoculation period
+ Treatment group (n=8): IP RBL+IP avidin; control group (n=4): IP saline
+ Radiation doses of 2500 MBq/kg (n=1), 1700 MBq/kg (n=1), 1300 MBq/kg (n-3), 1000 MBq/kg (n=3)

Results

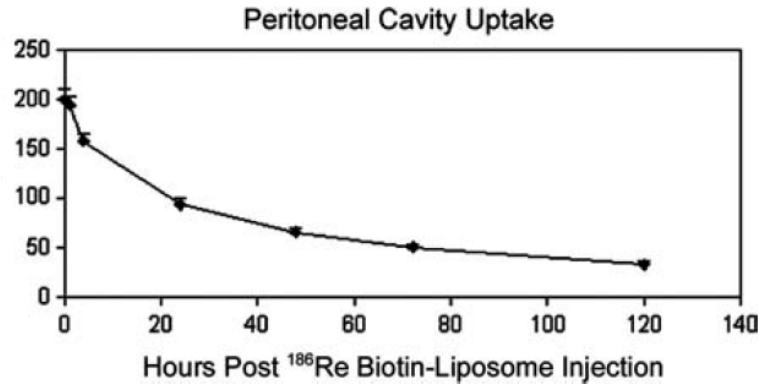
+ A dose of 1000 MBq/kg was determined to be the MTD
+ After 5 days post-treatment, RBL+avidin was retained in the peritoneal cavity with 18% of the original activity
+ In 1-4 weeks post-treatment, peritoneal ^{18}F-FDG standard uptake values decreased 30% in treatment group & increased 44% in control group
+ Total # cells in ascites was significantly higher in control vs treatment group
+ Omental fat in control had numerous tumor cells compared to treatment group

Conclusion

IP radionuclide therapy with RBL+avidin in this preclinical model has successfully demonstrated the potential of this approach for the treatment of peritoneal metastasis by enhancing delivery of a therapeutic radionuclide to the peritoneal cavity.



Continued peritoneal retention of RBL noted over the 5 day period.



18% of the original activity still remained at 5 days

Source: Zavaleta 2008

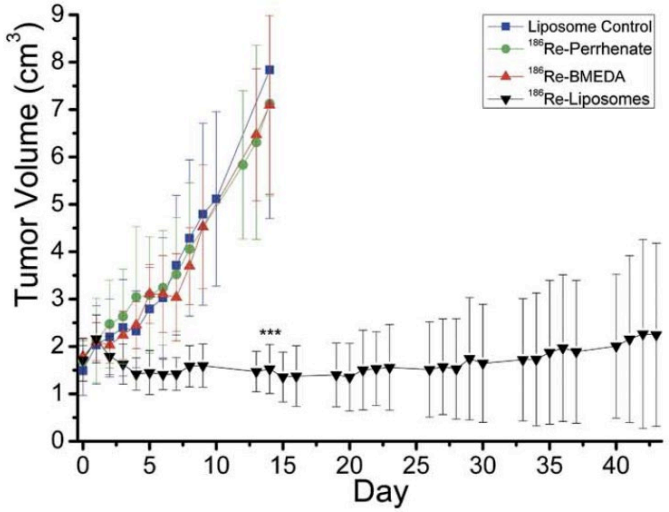
Preclinical Data: Head & Neck Cancer

Goal: investigate the utility of liposome-carrying *B*-emitting radionuclides (RNL™) to treat head & neck cancer by direct intratumoral infusion in nude rats

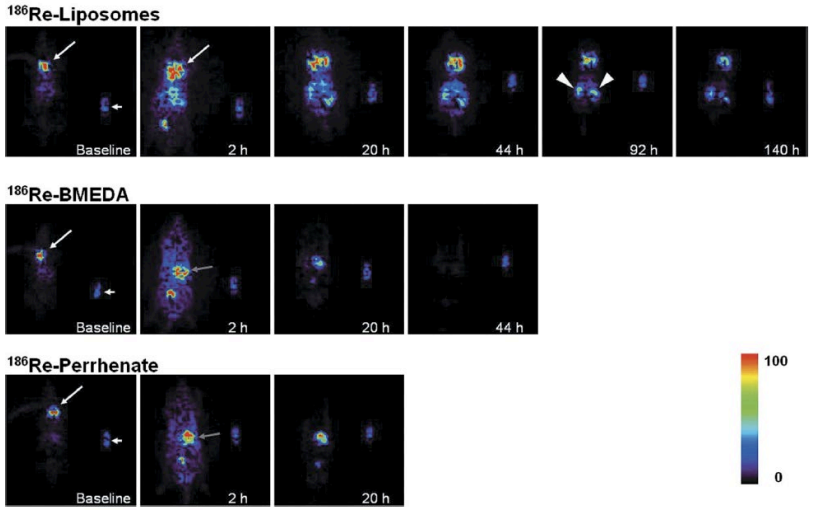
Methods:

+ 4 groups of nude rats (23 total) subcutaneously inoculated with human tongue cancer cells; tumors reached an average size of 1.6 cm^2
+ Treatment group: RNL™ 5 mCi/cm^3; control group: 1) unlabeled liposomes, 2) ^{186}Re-perrhenate, 3) unencapsulated ^{186}Re-BMEDA
+ ^{186}Re activity measured by planar gamma imaging; tumor therapy and toxicity based on tumor size, body weight, hematology

Results: No systemic toxicity was observed. Compared to the control groups, in the RNL™ group, average tumor volume decreased and provided much higher Intratumoral retention of ^{186}Re activity, resulting in the highest average tumor radiation absorbed dose.



Average tumor volume: decreased 87.7% in RNL™ group & increased 395%-514% in control groups.



Intratumoral retention of ^{186}Re activity: RNL™ group: 526 Gy, 186Re–perrhenate: 3.3 Gy, 186Re-BMEDA: 13.4 Gy

Conclusion: RNL™ effectively treated HNC with minimal side effects after CED

PLUS™ THERAPEUTICS

Source: French 2010

Chemotherapeutics

Additional Clinical Stage Drugs

Patented DocePLUS™: Phase 2 Ready

+ Next-generation formulation of TAXOTERE® (docetaxel) with 3 key design changes and which eliminates the need for premedications typically used to reduce formulation-related hypersensitivity reactions
+ 14 preclinical studies and a U.S. 29-patient, single-center Phase 1 clinical trial completed and published
+ Appears to be better tolerated than TAXOTERE® and demonstrates improved efficacy with increasing doses without a concomitant increase in toxicity
+ Received FDA orphan drug designation for SCLC and Pre-IND feedback confirming 505(b)(2) pathway and outlining Phase 2 clinical trial design
+ KOL and payer primary research identified new target indication opportunities beyond the current TAXOTERE® label with peak annual U.S. sales > $760M

Generic DoxoPLUS™: Seeking Divestiture

+ A late-stage injectable oncology drug featuring doxorubicin, a workhorse chemotherapeutic, and liposomal encapsulation to substantially lower cardiotoxicity
+ Designed to treat breast/ovarian cancer, multiple myeloma, Kaposi's sarcoma
+ Bioequivalence clinical study completed versus CAELYX® in accordance with European Medicines Agency guidelines
+ U.S. FDA IND is approved to conduct a bioequivalence clinical study versus LIPODOX®
+ Similar to branded versions (CAELYX®/LIPODOX®) that are widely-used and command premium prices compared to non-liposomal doxorubicin

Capitalization Summary

Select Data (as of 06/30/20)	
Cash	$9.2M
Common Shares Outstanding	4,273,857
Series U warrants	3,357,500
Senior Term Loan Principal (matures 2024)	$4.3M

PLUS™ THERAPEUTICS

Forthcoming Milestones for 2020 & Early 2021

- Optimize regulatory strategy for RNL™ in recurrent glioblastoma
- Complete enrollment & report data from U.S. ReSPECT™ Phase 1 dose finding clinical trial for RNL in recurrent glioblastoma and determine Phase 2 dose
- Advance CMC and commercial scale-up activities for RNL
- Initiate market access activities for RNL in recurrent glioblastoma
- Phase 2/pivotal trial plan for RNL in recurrent glioblastoma
- IND-enabling studies for follow-on RNL indications
- Potential acquisition, in-license new drug development candidates
- Partner RNL™, DocePLUS™ & DoxoPLUS™ assets

PLUS™
THERAPEUTICS

PLUS™ THERAPEUTICS

+ **Headquarters:** Austin, Texas, USA
+ **Manufacturing:** San Antonio, Texas, USA
+ **Nasdaq:** PSTV
+ **Corporate Website:** plustherapeutics.com
+ **ReSPECT™ Website:** respect-trials.com