

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

**FORM 8-K
CURRENT REPORT
Pursuant to Section 13 or 15(d) of
the Securities Exchange Act of 1934**

Date of Report (Date of earliest event reported): December 10, 2019

DIFFUSION PHARMACEUTICALS INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation)

000-24477
(Commission File
Number)

30-0645032
(I.R.S. Employer
Identification No.)

**1317 Carlton Avenue, Suite 200
Charlottesville, Virginia**
(Address of principal executive offices)

22902
(Zip Code)

(434) 220-0718
(Registrant's telephone number, including area code)

Not applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.001 per share	DIFFN	NASDAQ Capital Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 7.01.

Regulation FD Disclosure.

On December 10, 2019, spokespersons of Diffusion Pharmaceuticals Inc. (the “Company”) will present the information in the presentation slides attached hereto as Exhibit 99.1 to this Current Report on Form 8-K.

The Company makes no admission as to the materiality of any information in the presentation or in this report. This information is furnished pursuant to Item 7.01 of Form 8-K and shall not be deemed to be “filed” for the purposes of Section 18 of the Securities Exchange Act of 1934 or otherwise subject to the liabilities of that Section, unless we specifically incorporate it by reference in a document filed under the Securities Exchange Act of 1934, nor shall it be deemed incorporated by reference in any filing under the Securities Exchange Act of 1933, as amended, except as previously set forth by specific reference in such a filing.

Item 9.01.

Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
Exhibit 99.1	Company slide presentation.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: December 10, 2019

DIFFUSION PHARMACEUTICALS INC.

By: /s/ David G. Kalergis

Name: David G. Kalergis

Title: Chief Executive Officer

TSC Treats GBM by Reducing Hypoxia a Novel Approach

John L. Gainer
Chief Science Officer
Diffusion Pharmaceuticals Inc.
Charlottesville, Virginia

forward looking statements

This presentation contains forward-looking statements within the meaning of U.S. securities laws that are intended to be covered by the safe harbors created by those laws. These statements include, but may not be limited to, our operating and growth strategy, including our product development plans and capital requirements. Such statements may be identified by the use of forward-looking terminology, such as “may,” “will,” “could,” “should,” “believe,” “expect,” “future,” “potential,” “anticipate,” “intend,” “plan,” “estimate,” or the negative or other variations of these words or comparable terminology. The outcome of the events described in these forward-looking statements is subject to significant risks, including those disclosed in our periodic reports filed with the Securities and Exchange Commission. Actual results could differ materially from the forward-looking statements made in this presentation. Although we believe that the assumptions underlying the forward-looking statements are reasonable, any assumptions could be inaccurate, and therefore, there can be no assurance that the forward-looking statements included in this presentation, will prove to be accurate. In light of the significant uncertainties inherent in the forward-looking statements included herein, the inclusion of such information should not be regarded as a representation by the Company or any other person that the objectives and plans of the Company will be achieved. Further, the statements contained herein speak only as of the date hereof. We undertake no obligation to revise such forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. This presentation also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. Neither we nor any other person makes any representation as to the accuracy or completeness of such data or undertakes any obligation to update such data after the date of this presentation. By attending or receiving this presentation you acknowledge that you will be solely responsible for your own assessment of the market and our market position and that you will conduct your own analysis and be solely responsible for forming your own view of the potential future performance of our business.

GBM is the most common and deadly type of primary malignant brain tumor

If the patient cannot have an initial surgery, median survival rate is from 9–10 months. Because of such dire prognosis, these patients are frequently excluded from GBM clinical trials.

Hypoxia has been implicated as a factor reducing the effectiveness of both radiation and chemotherapy

Even so, little research has been directed to lessening its effects.

well oxygenated tumor cells are

2–3X more likely

to be eliminated by radiation¹

Little research has been done concerning hypoxia and chemotherapy, but it may be related to the effect of hypoxia on cell cycles.

Is there a way to improve oxygenation in cancerous tumors?

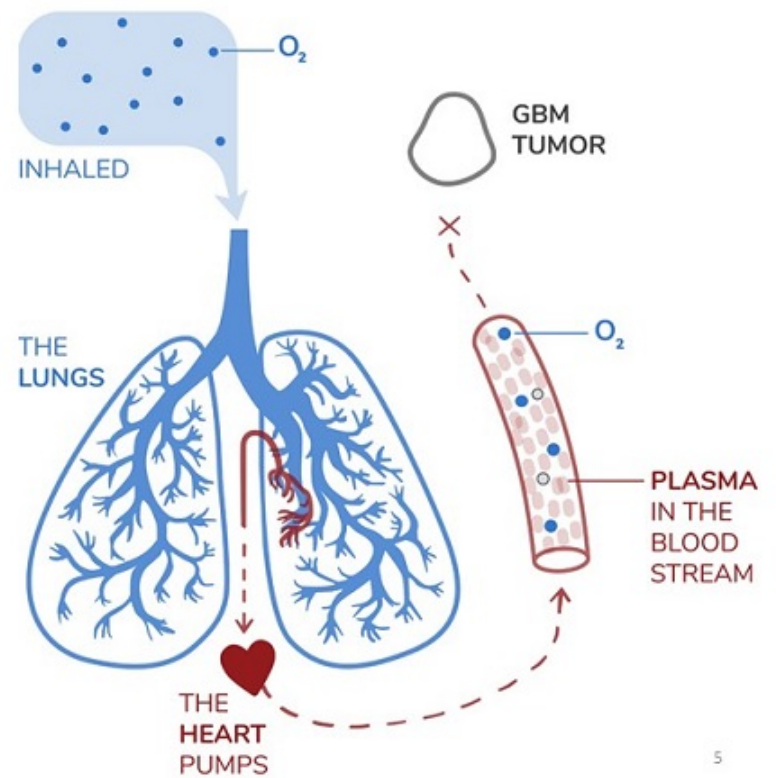
¹ *Radiobiology for the Radiologist*. Hall and Giaccia, Chapter 6, Oxygenation Effect and Reoxygenation, Pgs 85 - 105

reducing hypoxia

Brute force methods:

- increase concentration of O₂ in inspired gas
- increasing solubility of O₂ in plasma by adding fluorocarbons or other chemicals

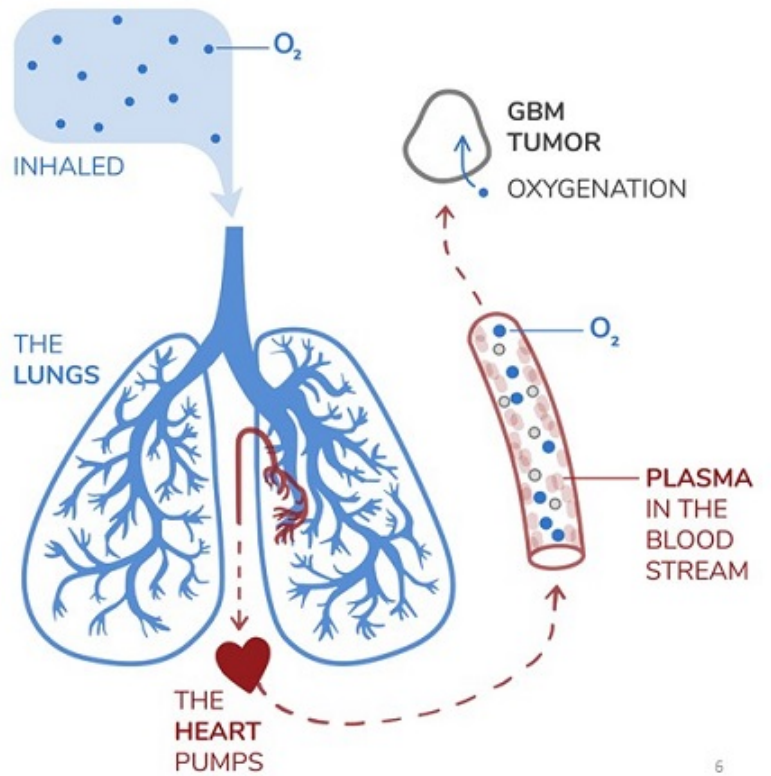
but none of these have proven to extend survival



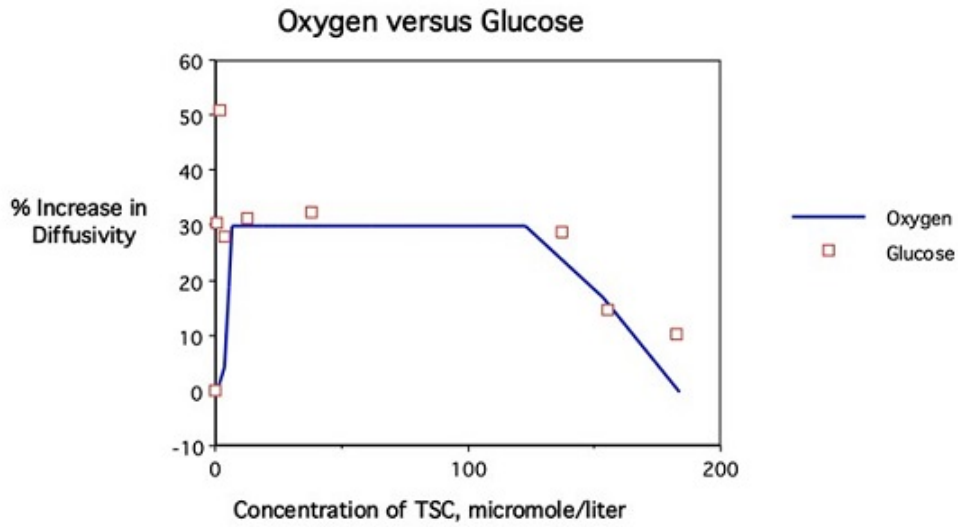
A solution from Chemistry: TSC

TSC promotes the formation of additional hydrogen bonds among the water molecules of the blood plasma.

This allows increased diffusional movement of small molecules like oxygen and glucose.



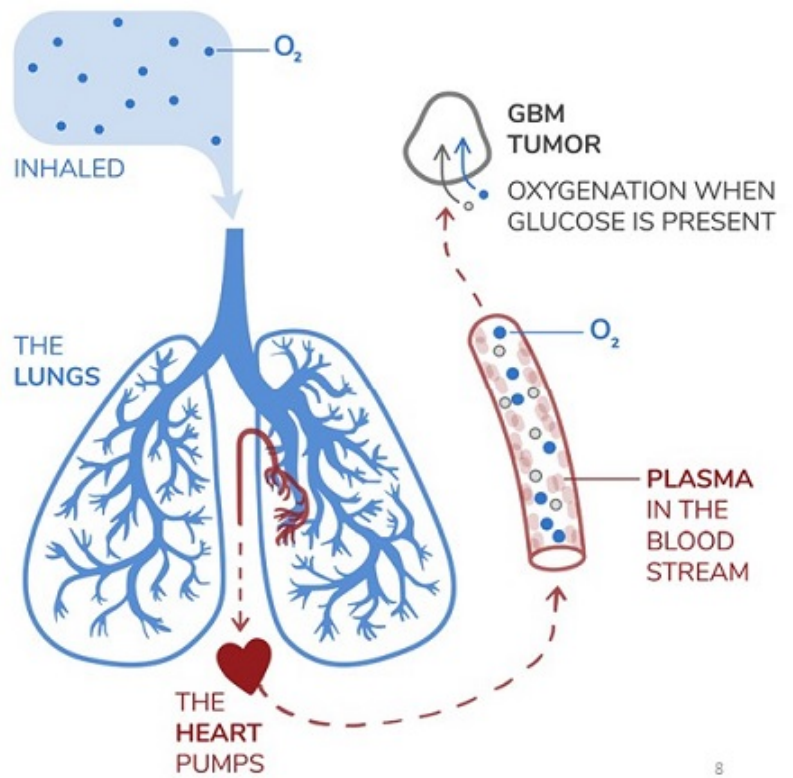
TSC



Over-oxygenation does not occur because oxygen and glucose transport rates increase by the same percentage.¹

A solution from Chemistry: TSC

30% increase of **O₂** paired with a
30% increase of **glucose**
keeps metabolism “in balance”¹



Gainer, Expert Opinion, *Trans-sodium crocetinate for treating hypoxia/ischemia*, 2008 Informa UK ¹

“White Label” Drug: all safety studies in humans indicate that TSC has
No known serious adverse effects.

Easily administered by IV injection or IM injection.

Oral administration in development phase.

Phase 2 Clinical Trial

TSC for Treatment of Acute Stroke

Researchers at UCLA and UVA are cooperating on this trial involving the on-ambulance administration of TSC to 160 patients within 2 hours of the onset of stroke symptoms.

Phase 3 Clinical Trial

TSC for Inoperable GBM Patients

Lead-in portion completed – described later.



TSC: Greater Implications

Hypoxia is the common denominator in
over **23,000,000** patient cases per year



HEMORRHAGIC
SHOCK

100,000

CASES / YEAR

Battlefield Casualties (Office of Naval Research)

Kauvar and Charles E Wade, *The epidemiology and modern management of traumatic hemorrhage*. Crit Care. 2005; 9(Suppl 5): S1–S9

TSC: Greater Implications

Hypoxia is the common denominator in
over **23,000,000** patient cases per year

HEMORRHAGIC
SHOCK

100,000

CASES / YEAR

TRAUMA

100,000

CASES / YEAR

MULTIPLE ORGAN
FAILURE

100,000

CASES / YEAR

STROKE

800,000

CASES / YEAR

ONCOLOGY

900,000

CASES / YEAR

HEART ATTACK /
CHF

6,000,000

CASES / YEAR

RESPIRATORY
DISEASES

15,000,000

CASES / YEAR

TSC: Greater Implications



Example: Stroke

TSC supports immediate treatment of stroke symptoms without waiting for the in-clinic hemorrhagic v. ischemic determination.

GBM Clinical Trials by Diffusion Pharmaceuticals

Phase 2 (100-202): Open-trial, 56 patients (all comers including biopsy-only).

Surgery: if possible.

Chemo-radiation Therapy: 0.25 mg/kg TSC IV on M,W,F 45-60 minutes prior to 2 Gy radiation. Radiation given 5 days/week for 6 weeks. Temozolomide, 7 days/week 75 mg/m².

Adjunct Chemotherapy: Temozolomide, 150-200 mg/m² given on days 1-5 of six 4-week cycles (nothing on other days). No TSC.

Phase 2 Trial (100-202) Results

(Published in J Neurosurg, 126:460-416, 2017)

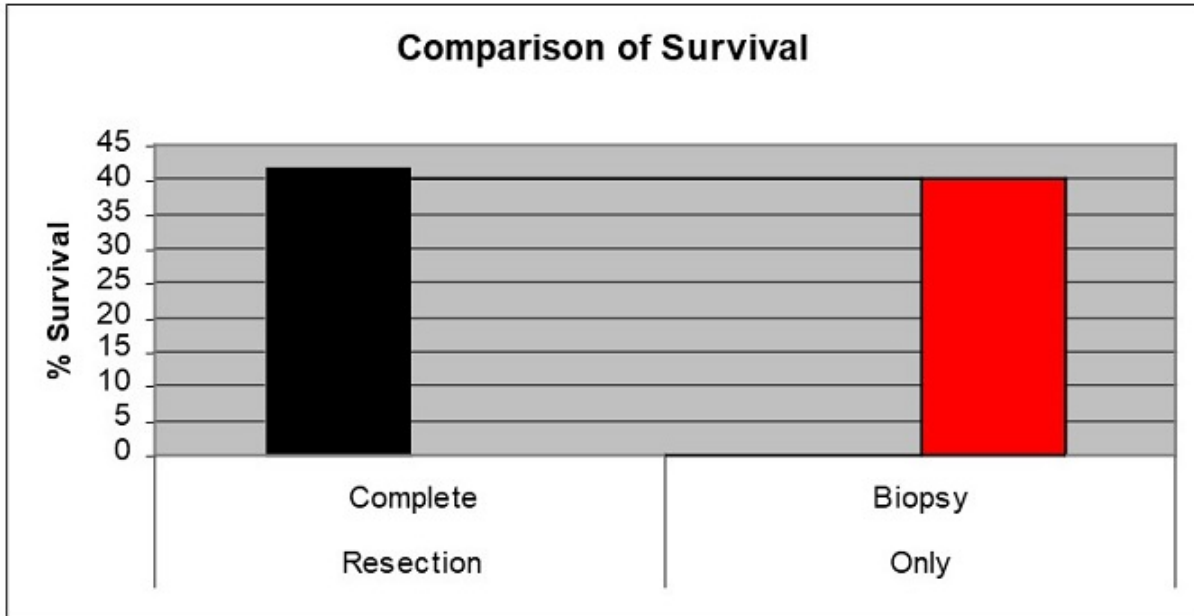
2-Year Overall Survival: 36% versus 27% for SOC

3-Year Overall Survival: 22 % versus 16% for SOC

However for Biopsy-Only Patients:

2-Year Overall Survival: 40% versus 10% for SOC

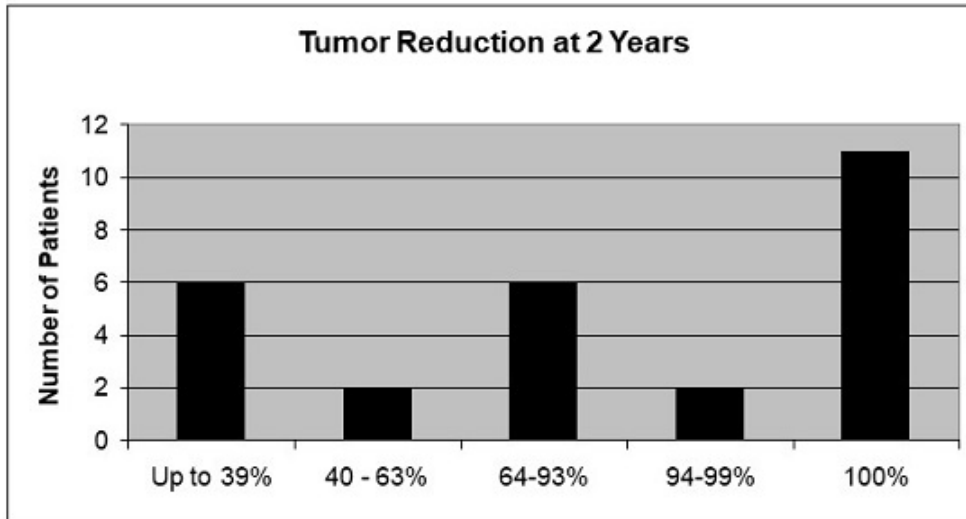
Results from Trial 100-202



Biopsy only patients treated with TSC had the same survival outcome as fully resected patients at 2 years.

Trial 100-202 Tumor Control

Size reduction in 37/41 tumor-bearing patients.



Phase 3 (100-206): Open-label, Randomized, Controlled, 236 patients, biopsy-only.

Chemoradiation Therapy. 0.25 mg/kg TSC given as in Phase 2 trial.

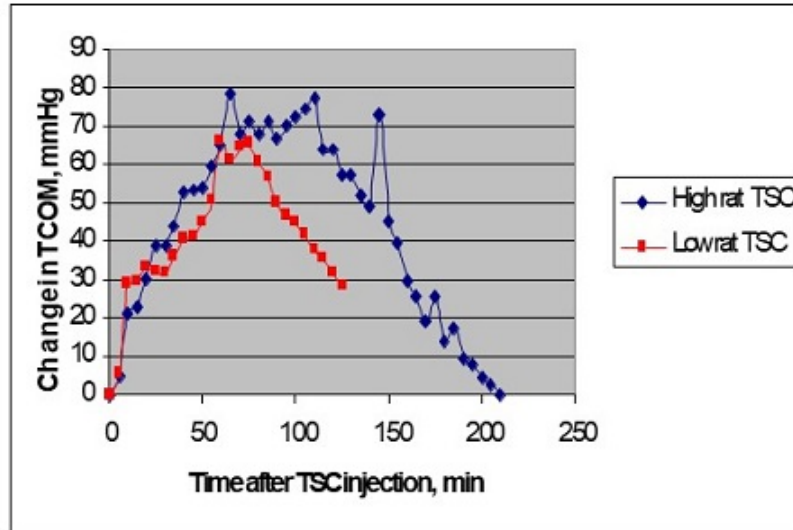
Adjunct Chemotherapy: Temozolomide, 150-200 mg/m², given for days 1-5 of six 4-week cycles. TSC, 1.5 mg/kg, given on Days 1,3,5 one to two hours prior to temozolomide.

Principal Investigators

- **Daniella Bota, M.D. – University of California Irvine**
- **Douglas Ciuba, M.D. – John B Amos Cancer Center**
- **Erin Dunbar, M.D. – Piedmont Physicians Neuro-Oncology**
- **Samuel Goldlust, M.D. – John Theurer Cancer Center**
- **Adilia Hormigo, M.D. – Icahn School of Medicine at Mount Sinai**
- **Michael Schulder, M.D. – Cushing Institutes of Neuroscience**
- **John Trusheim, M.D. – Abbot Northwestern Hospita**
- **Scott Lindhorst, M.D. – Medical University of South Carolina**
- **Scott Peak, M.D. – Kaiser Permanente**
- **Karen Fink, M.D. – Baylor Scott & White Neuro-Oncology Associates**

Why a Different Dose for Chemotherapy?

One study in the literature suggested that oxygen and the chemotherapeutic agent need to be administered at the exact same time to kill tumor cells.



Diffusion internal study verified that chemotherapy was far more efficient with high dose TSC when given 1-2 hours after IV injection --so escalation to high human dose (1.5 mg/kg) was selected for clinical study.

Since this dose is higher than that used during radiation therapy, FDA suggested the following lead-in study:

Each patient would do same radiation therapy as in Phase 2 study.

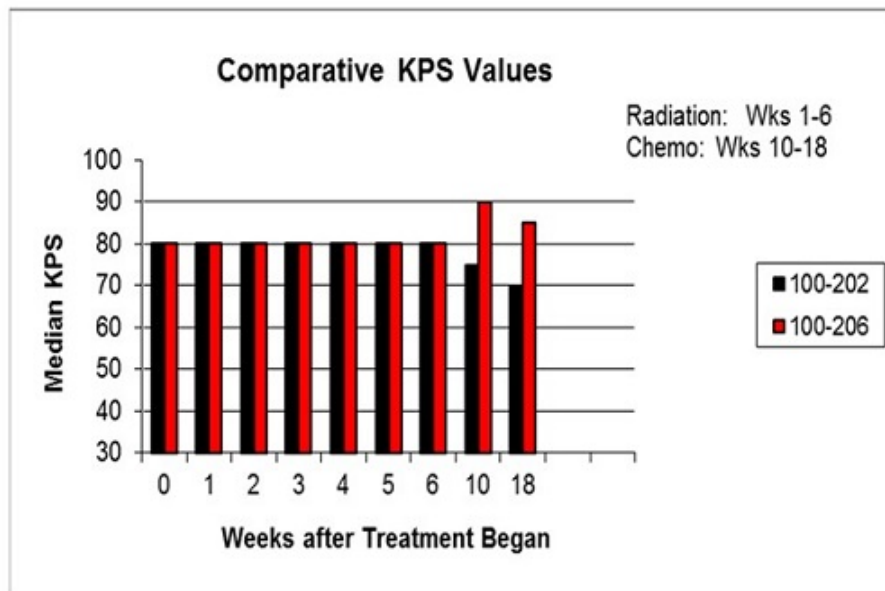
2 patients, each receiving escalating doses of TSC ranging from 0.25 mg/kg to 1.5 mg/kg during chemotherapy cycle. Two such cycles required. DSMB to determine safety and recommend TSC chemo dose.

LEAD-IN

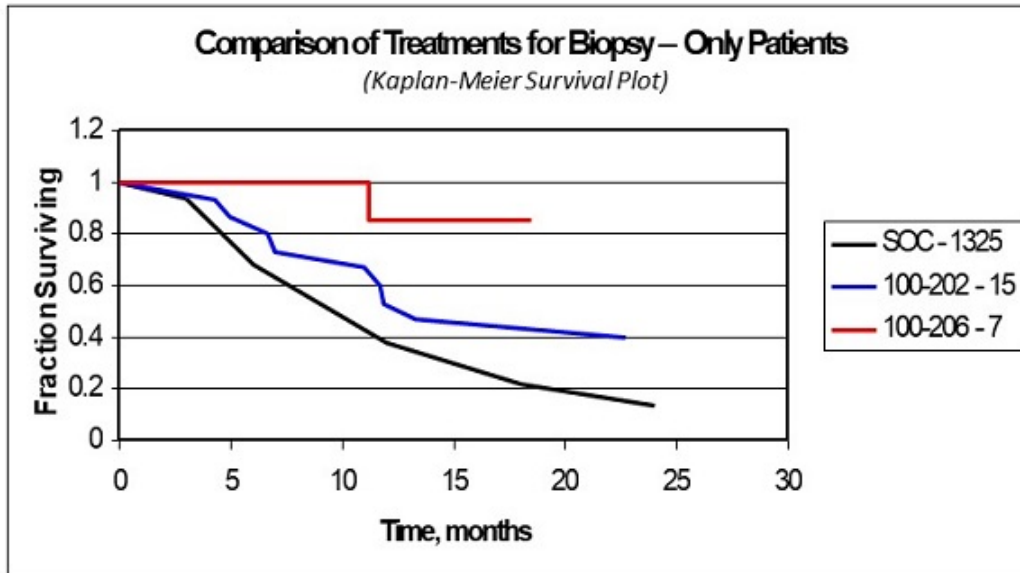
19 patients enrolled in Lead-In Study. 11 patients completed the FDA-required protocol. Of those, 4 received a low dose (0.25 or 0.5 mg/kg) of TSC while 7 received a high dose (1.0 or 1.5 mg/kg) of TSC. DSMB found no serious adverse events attributable to TSC for any TSC dose, and recommended 1.5 mg/kg to be used for randomized portion of trial.

All 7 high dose patients were alive at end of required protocol, and have been followed up to current time.

Comparison of Karnofsky Performance Scores (KPS) at end of 18 weeks (FDA period)



Currently: 6/7 high dose patients are still alive.



DIFFUSION SEEKING PARTNERS



David Kalergis, CEO



Bill Hornung, CFO